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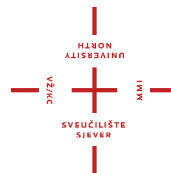
# Economic and Social Development

35<sup>th</sup> International Scientific Conference on Economic and Social Development –  
"Sustainability from an Economic and Social Perspective"

## Book of Proceedings

Editors:

Humberto Ribeiro, Dora Naletina, Ana Lorga da Silva



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**Title** ■ Economic and Social Development (Book of Proceedings), 35<sup>th</sup> International Scientific Conference on Economic and Social Development - "Sustainability from an Economic and Social Perspective"

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**PROFESSOR DR. AYUBA A. AMINU ON BEHALF OF THE SCIENTIFIC COMMITTEE PRESIDENT AT THE 35<sup>TH</sup> INTERNATIONAL CONFERENCE ON ECONOMIC AND SOCIAL DEVELOPMENT - "SUSTAINABILITY FROM AN ECONOMIC AND SOCIAL PERSPECTIVE"; 15 - 16 November 2018; Lisbon, Portugal**

On behalf of the President Scientific Committee, who is unavoidably absent from this event, I wish to happily welcome all of you to the 35<sup>th</sup> International Scientific Conference of Economic and Social Development. As I welcome you to this year's conference, let me seize the opportunity to trace briefly, the history of ESD scientific conference and recall its objectives. ESD-conference started in Frankfurt 2012 to interrogate issues bordering on global development from the prisms of economic and social dimensions. The broad idea is to promote, develop and improve the economic and social development confronting modern society, without territorial, ethnic and religious exclusivity. We support the principles of economic efficiency, sustainable social development, corporate social responsibility and social entrepreneurship. In addition, we create the platform to assist scholars and researchers to exchange their research findings with colleagues across the globe and to create conducive platforms that allow participants to network among each other for harmonious linkages in research, innovation and development using international best practice. This way we support them to work together towards seamless career progression and developing scholarly research that positively impact on human development.

Since the first conference in Frankfurt in 2012, we have successfully organised 34 conferences and today we are now opening the 35<sup>th</sup> conference which is a good achievement by all standards. These conferences were hosted by classy universities in Frankfurt, Paris, Belgrade, Vienna, New York, Istanbul, Zagreb, Miami, Bangkok, Barcelona, Split, Warsaw, Melbourne, Prague, Madrid, Moscow, Rome and Rabat. The Lisbon conference is co-organized by: GOVCOPP – Universidade de Aveiro, Portugal; CPES – Universidade Lusofona, Portugal; CICPRIS – Universidade Lusofona, Portugal; University North, Croatia; Faculty of Management University of Warsaw, Poland; Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat, Morocco.

At present the ESD has finalized arrangement for the ESD conference to be held annually in the following cities; Lisbon, Belgrade, Zagreb, Split, Warsaw and Moscow. Also part of the giant strides of scientific committee was the publication of twelve of our conference Books of Proceedings which have been included in Web of Science (CPCI – Conference Proceedings Citation Index), and others are still under evaluation. Many of the papers presented in our conferences have been published in mainstream journals and other scholarly outlets thereby impacting on global knowledge development, transfers and practice that promote global development.

The theme for this year's conference, "Sustainability from an Economic and Social Perspective" is apt and timely in view of the urgent need to achieve sustainable development goals (SDGs) set by the United Nations for the year 2030. It is our expectations that this conference will generate fresh ideas that would quicken the attainment of these goals and in the process contribute in promoting better condition for humanity across the globe. Once again on behalf of the President of the Scientific Committee I welcome you all to this conference and to the pleasurable ancient city of Lisbon; hoping that you will find space to refresh yourselves by visiting important tourism locations and enjoy the rich culture and hospitality of Lisbon.

I would like to close this address with a round of thanks for all those who were able to be here at this conference venue and those we are expecting before the closure of the conference that this great conference is going to be interesting to participants. Once again on behalf of the President of the Scientific Committee, I welcome you all to Lisbon and wishing you successful deliberations during the conference and safe journey to your respective destinations at the end of your stay.

A handwritten signature in black ink, reading "Ayuba A. Aminu". The signature is written in a cursive style with a period at the end.

**Professor Dr. Ayuba A. Aminu**

Professor of Business Management, University of Maiduguri, Nigeria

## **CONTENTS**

<b>A MODEL OF TAX EVASION THROUGH THE AGENCY THEORY PRISM.....</b>	<b>1</b>
Marijana Bubanic, Ivana Dvorski Lackovic, Ivana Djundjek Kokotec	
<b>TAXATION OF SMES IN MOROCCO IN THE ERA OF DIGITAL ECONOMY .....</b>	<b>9</b>
Abdellaoui Mohammed, Alaoui Hassani Hicham	
<b>INTRODUCING ICT AS A WAY TO ENHANCE ORGANIZATION’S CAPACITY TO INNOVATE - THE EXPERIENCE OF SPANISH UNIVERSITIES.....</b>	<b>19</b>
Jose Raul Canay Pazos, Agata Sudolska, Monika Chodorek, Dorota Grego-Planer	
<b>RECREATION AS A SEGMENT OF THE SILVER ECONOMY-THE CASE STUDY OF THE HEALTH RESORT KOŁOBRZEG, POLAND .....</b>	<b>30</b>
Agnieszka Sawinska	
<b>THE INFLUENCE OF BEHAVIOURAL FACTORS ON ENVIRONMENTAL DATA REPORTING - RESEARCH REVIEW .....</b>	<b>38</b>
Aleksandra Ferens	
<b>PARTICIPATORY BUDGETING AS A FORM OF CITIZEN INVOLVEMENT IN CODECISION PROCESS.....</b>	<b>48</b>
Agnieszka Smalec, Beata Sadowska, Marzena Wanagos	
<b>DEVELOPMENT OF HIGH-TECH BUSINESS IN RUSSIA: ANALYSIS OF PHARMACEUTICAL COMPANIES’ GROWTH .....</b>	<b>57</b>
Almira Yusupova, Sophia Khalimova	
<b>EUROPE 2020 STRATEGY – THE FIRST STEP IN THE IMPLEMENTATION OF THE 2030 ENERGY AND CLIMATE POLICY .....</b>	<b>65</b>
Andrzej Wojcik	
<b>SPATIAL DIVERSITY IN DEVELOPMENT OF KNOWLEDGE INTENSIVE BUSINESS SERVICES IN THE EUROPEAN UNION.....</b>	<b>72</b>
Anna Skorska	
<b>SOCIAL AND SOLIDARITY ECONOMY AND SUSTAINABLE DEVELOPMENT IN MOROCCO: CASE OF “AU GRAIN DE SESAME” SOCIAL BUSINESS.....</b>	<b>82</b>
Taoufik Daghri, Sonia Boushaba	
<b>ASPECTS OF OPEN DATA AND ILLUSTRATIVE QUALITY METRICS: LITERATURE REVIEW .....</b>	<b>90</b>
Barbara Slibar, Dijana Oreski, Bozidar Klicek	
<b>MEGA-ORGANIZATIONS AS A TRANSFORMATION TOOL: A REVIEW ON ISTANBUL .....</b>	<b>100</b>
Didem Bickici, Asuman Turkun	

<b>SUSTAINABLE INVESTMENT IN WESTERN EUROPEAN COUNTRIES – A MULTIDIMENSIONAL APPROACH.....</b>	<b>111</b>
Bogna Janik, Katarzyna Maruszewska	
<b>UNIVERSITY SOCIAL RESPONSIBILITY (USR) AS A WAY OF COMPETITION IN A TURBULENT ENVIRONMENT – POLISH CASES .....</b>	<b>119</b>
Halina Brdulak, Anna Brdulak	
<b>IMPACT OF INSTITUTIONAL FRAMEWORK AND TAX POLICY ON FOREIGN DIRECT INVESTMENT IN SELECTED EUROPEAN UNION COUNTRIES .....</b>	<b>129</b>
Vesna Buterin, Maja Grdinic, Bojana Olgic Drazenovic	
<b>KEEPING TRACK OF SUSTAINABILITY PROGRESS - BENCHMARKING INSIGHTS FROM INTERNATIONAL INDEXES .....</b>	<b>142</b>
Claudia Ogreaan	
<b>EXCLUSIVE REBATES AND THE EQUALLY EFFICIENT COMPETITOR TEST - OBSERVATIONS BASED ON INTEL CASE.....</b>	<b>153</b>
Daria Kostecka-Jurczyk	
<b>DIGITAL ECONOMY AND E-GOVERNMENT IN CROATIA.....</b>	<b>162</b>
Darko Dukic, Gordana Dukic, Goran Kozina	
<b>REFORMING THE BUSINESS ENVIRONMENT TO COPE WITH OVER-INDEBTEDNESS: THE CASE OF THE EU .....</b>	<b>172</b>
Mira Dimitric, Dunja Skalamera-Alilovic, Ivana Tomas Zikovic	
<b>EXAMINING THE COASTAL AREAS IN TERMS OF “GENIUS LOCI” AND URBAN IDENTITY– ISTANBUL AND LISBON.....</b>	<b>183</b>
Bengisu Gunaydin, Berna Dikcinar Sel	
<b>INTELECTUAL PROPERTY LAW AND COMPETITION LAW.....</b>	<b>194</b>
Dominika Bochanczyk-Kupka	
<b>INTEREST IN IPO NON-FINANCIAL FACTORS ON THE PART OF INVESTMENT PROFESSIONALS.....</b>	<b>198</b>
Andrea Kryslava	
<b>THE ROLE OF CONSULAR CORPS IN THE DEVELOPMENT OF INTERNATIONAL COOPERATION OF POLISH CITIES AND REGIONS .....</b>	<b>205</b>
Tomasz Studzieniecki, Beata Meyer	
<b>EUROPEAN CO-OPERATION IN SCIENCE: EVIDENCE FROM THE EUROPEAN CO-AUTHORSHIP PATTERNS .....</b>	<b>215</b>
Tomas Jeck, Vladimir Balaz	
<b>USING THE FUZZY LOGIC DESCRIPTION FOR THE EX ANTE RISK ASSESSMENT IN THE PROJECT.....</b>	<b>224</b>
Ewa Koziem, Marek S. Koziem	

<b>SATISFACTION DETERMINANTS OF HEALTHCARE PROFESSIONALS AND INSTITUTIONS IN PORTUGAL'S NORTH REGION .....</b>	<b>232</b>
Ana Luisa Serafim, Claudia Miranda Veloso, Humberto Ribeiro	
<b>IS BUSINESS' PERCEPTION ON SELECTED FORMAL AND INFORMAL INSTITUTIONS AFFECTED BY THE BUSINESS CLIMATE? .....</b>	<b>246</b>
Gentjan Cera, Edmond Cera	
<b>WRITTEN CORRESPONDENCE AS AN ELEMENT OF PHYSICALEVIDENCE OF A SERVICE COMPANY .....</b>	<b>255</b>
Leszek Gracz, Grazyna Rosa, Izabela Ostrowska, Kamila Slupinska	
<b>HELPING BEHAVIOR AND TEAMWORK IN THE LIGHT OF ORGANIZATIONAL CITIZENSHIP BEHAVIOR CONCEPT .....</b>	<b>265</b>
Dorota Grego-Planer, Agata Sudolska, Katarzyna Liczmanska-Kopcewicz, Waldemar Glabiszewski	
<b>IMPLEMENTATION OF THROUGH LIFE CYCLE MANAGEMENT ON DEFENSE ACQUISITION PLANNING (STUDY ON SUKHOI SU-35 PROCUREMENT PLAN AS A SUBSTITUTE F-5E / F TIGER II SQUADRON 14 TNI AU).....</b>	<b>275</b>
Yusuf Ali, Herlina J.R. Saragih, Rayanda Barnas	
<b>DISSECTING LOCAL WISDOM AS THE MAIN CORE OF STATE DEFENDING STUDY ON SPECIAL REGION OF YOGYAKARTA.....</b>	<b>286</b>
Herlina J.R. Saragih, Yusuf Ali, Maharanny Puspaningrum	
<b>STATIC VERSUS DYNAMIC SHIFT-SHARE ANALYSIS APPLIED TO THE PANAMANIAN EXPORTS TO THE UE FOLLOWING THE AACUE COMMERCIAL AGREEMENT.....</b>	<b>294</b>
Marian Morales Mejia, Claudia Miranda Veloso, Antonio Duarte, Humberto Ribeiro	
<b>DEVELOPMENT OF DENTAL TOURISM IN CROATIA.....</b>	<b>307</b>
Anica Hunjet, Lea Kustelega, Goran Kozina	
<b>RELATIONSHIP BETWEEN PROFITABILITY AND LIQUIDITY OF ENTERPRISES LISTED ON WARSAW STOCK EXCHANGE .....</b>	<b>326</b>
Jacek Jaworski, Leszek Czerwonka	
<b>THE FACTORS INFLUENCING SATISFACTION OF GENERATION Y IN THE WORKPLACE IN THE CZECH REPUBLIC .....</b>	<b>335</b>
Jana Moravcova-Skoludova, Andrea Vlckova	
<b>SPATIAL DIFFERENTIATION OF CROSS-BORDER COOPERATION .....</b>	<b>342</b>
Emilia Jankowska-Ambroziak	
<b>TECHNOLOGICAL COMPETITIVENESS AND EXPORT PERFORMANCE OF VISEGRAD GROUP COUNTRIES IN 2004-2016.....</b>	<b>350</b>
Joanna Bogna Zielinska	



<b>THE IMPACT OF RELIGIOUS NEO-CHARISMATIC GROUPS IN SOCIAL AND ECONOMICAL SUSTAINABILITY .....</b>	<b>363</b>
Jose Brissos-Lino	
<b>ACTIVE LABOUR MARKET POLICIES IN SLOVAKIA IN 2007–2017 .....</b>	<b>369</b>
Katarina Karasova, Vladimir Balaz, Martina Chrancokova	
<b>CREATIVITY OF THE MANAGERIAL STAFF – POLISH EXPERIENCES .....</b>	<b>380</b>
Joanna M. Moczydlowska, Karol Kowalewski	
<b>TRADE OF BETWEEN TWO RENEWABLE ENERGY SOURCES FOR A FACTORY IN THE SUSTAINABILTY CONCEPT .....</b>	<b>391</b>
Ozlem Akcay Kasapoglu, Hande Uzunel	
<b>THE SUSTAINABILITY DEVELOPMENT CONCEPT UNDER THE REGULATONS IN FORCE OF THE TREATY ON EUROPEAN UNION AND THE TREATY ON THE FUNCTIONING OF THE EUROPEAN UNION – LEGAL AND ECONOMICAL VIEW .....</b>	<b>402</b>
Ewa Kozien, Adam Kozien	
<b>THE USE OF SOCIAL MEDIA MARKETING IN MODERN RETAIL: THE CASE OF MAJOR PRODUCING AND DISTRIBUTING COMPANIES .....</b>	<b>413</b>
Humberto Ribeiro, Sandra Raquel Alves, Claudia Veloso	
<b>RELATIONSHIP BETWEEN MAINTENANCE AND SUSTAINABILITY IN WASTE WATER TREATMENT PLANT .....</b>	<b>425</b>
Ozlem Akcay Kasapoglu, Eren Unluturk	
<b>ANALYSIS OF ICT STUDENTS' LMS ENGAGEMENT AND SUCCESS .....</b>	<b>434</b>
Dijana Oreski, Nikola Kadoic	
<b>CHANCES FOR THE IMPLEMENTATION OF THE MAIN NATIONAL TARGETS OF EUROPE 2020 STRATEGY BY THE EU COUNTRIES .....</b>	<b>443</b>
Katarzyna Warzecha	
<b>HIGH TECH BUSINESS DEVELOPMENT IN SIBERIA: GROWTH FACTORS AND BARRIERS FOR DEVELOPMENT .....</b>	<b>453</b>
Nataliya Kravchenko, Anastasiya Ivanova	
<b>SERVICE LEARNING AS A LEVER FOR RURAL SOCIAL ENTREPRENEURSHIP DEVELOPMENT IN CROATIA .....</b>	<b>461</b>
Kristina Detelj, Irena Kedmenec, Ksenija Vukovic	
<b>MARKET COMMUNICATION IN AN INTERCULTURAL ENVIRONMENT OF THE SERVICE SECTOR.....</b>	<b>469</b>
Barbara Marciszewska, Marzena Wanagos	
<b>COMPETITIVENESS OF THE OLOMOUC REGION WITH RESPECT TO FUTURE REGIONAL DEVELOPMENT POSSIBILITIES.....</b>	<b>476</b>
Lucie Vankova, Zdenek Krejza, Anna Mecova, Ondrej Suk, Jakub Lukes	

<b>ECONOMIC SECURITY OF CHINA IN 21ST CENTURY: SWOT ANALYSIS.....</b>	<b>486</b>
Luiza Kostecka-Tomaszewska	
<b>REGIONAL DISPARITIES IN THE CONTEXT OF UNEMPLOYMENT AND STUDENT TESTING RESULTS IN THE SLOVAK REPUBLIC.....</b>	<b>497</b>
Magdalena Musilova, Paulina Stachova	
<b>ORGANIZING WORK AND MOTIVATION OF OPEN INNOVATION PROVIDERS ON CROWDSOURCING PLATFORMS .....</b>	<b>508</b>
Malgorzata Dolinska	
<b>BEHAVIORAL VS. STRUCTURAL REMEDIES IN EUROPEAN AND SLOVAK COMPETITION LAW .....</b>	<b>518</b>
Katarina Kalesna, Maria T. Patakyova	
<b>CONTROL METHODS OF NET WORKING CAPITAL IN THE BRANCH GROUP PURCHASING ORGANIZATIONS.....</b>	<b>527</b>
Grzegorz Zimon	
<b>PRINCIPAL COMPONENT ANALYSIS APPLIED FOR SOCIO-ECONOMIC STUDY OF RUSSIAN REGIONS .....</b>	<b>533</b>
Maria Volkova	
<b>CYBER SECURITY FOUNDATIONS FOR COMPLIANCE WITHIN GDPR FOR BUSINESS INFORMATION SYSTEMS .....</b>	<b>541</b>
Marija Boban	
<b>THE ECONOMIC IMPACTS OF THE EUROPEAN CAPITALS OF CULTURE ON REGIONAL DEVELOPMENT AND TOURISM.....</b>	<b>554</b>
Marta Boric Cvenic, Iva Buljubasic, Marija Tolusic	
<b>CHALLENGES OF HUMAN RESOURCE MANAGEMENT IN WEST AFRICA UNDER DEVELOPED ECONOMY .....</b>	<b>560</b>
Onotor Marvin Chukwudi, Emmanuel E. A.	
<b>SUSTAINABILITY AND PROFITABILITY CAN COEXIST - IMPROVING BUSINESS MODELS .....</b>	<b>571</b>
Mihaela Herciu	
<b>LIFE CYCLE ASSESSMENT IN MAIZE CROPS IN MEXICO .....</b>	<b>585</b>
Miriam Paulino-Flores, Ana Lorga Da Silva, Rosario Villavicencio-Gutierrez, Angel Roberto Martinez-Campos, Francisco Ernesto Martinez-Castaneda, Luis Velazquez-Contreras	
<b>THE FINANCIAL INSTRUMENTS OF FAMILY POLICY IN POLAND.....</b>	<b>593</b>
Ewa Mackowiak	
<b>SUSTAINABLE DEVELOPMENT FROM PERSPECTIVE ECONOMIC AND SOCIAL: THE CASE OF INDONESIA PALM OIL INDUSTRY.....</b>	<b>600</b>
Mohamad Fadhil Hasan, Achmad Nur Hidayat	

<b>THE TRANSFERABLE NATURE OF THE BIG DATA: HOW TO PROMOTE THE COLLABORATIVE WORK OF HUMAN RESOURCES?.....</b>	<b>613</b>
Ghizlane Salam	
<b>ASSESSMENT OF THE EFFECTS OF TRANSACTION COST AND TIME ON THE NON-FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN MAIDUGURI .....</b>	<b>620</b>
Ayuba A. Aminu, Idrisa U. Manga, Yahaya Yunusa Malgwi	
<b>THE USE OF PORT PERFORMANCE INDEXES IN THE TRANSPORT ECONOMY AND THE STRENGTHENING OF PORT COMPETITIVENESS.....</b>	<b>633</b>
Astrida Rijkure	
<b>THE IMPACT OF JAPANESE FIRMS ON THE ROMANIAN ECONOMY .....</b>	<b>640</b>
George Pasmangiu	
<b>ENERGY EFFICIENCY OF POLISH ECONOMY IN YEARS 2000-2016.....</b>	<b>650</b>
Paulina Stachura	
<b>ASSESSMENT OF THE USABILITY OF DISASTER RESILIENCE SCORECARD FOR CITIES IN THE CZECH REPUBLIC .....</b>	<b>658</b>
Pavel Kincl, Alena Oulehlova	
<b>CRIMINAL LAW FRAMEWORK TO COMBAT CRIMINAL OFFENSES OF CORRUPTION IN CROATIA AND SERBIA.....</b>	<b>667</b>
Vanda Bozic, Zeljko Nikac	
<b>SOLUTION TO THE EMERGENCY SURVIVAL OF THE POPULATION IN THE EVENT OF BLACKOUT.....</b>	<b>674</b>
Alena Oulehlova, Hana Malachova, Pavel Kincl	
<b>PERFORMANCE EVALUATION OF BANKING SECTOR BY USING DEA METHOD .....</b>	<b>684</b>
Dario Maradin, Bojana Olgic Drazenovic, Sladjana Benkovic	
<b>PHYSICOCHEMICAL AND BACTERIOLOGICAL ANALYSIS OF SURFACE WATER AND SEDIMENT SAMPLES OF PINDIGA AREA OF GOMBE STATE, NORTH –EASTERN, NIGERIA.....</b>	<b>691</b>
Babagana Kolo	
<b>THE ROLE OF OPEN INNOVATION AMONG SMES IN THE REGIONAL DEVELOPMENT.....</b>	<b>697</b>
Grzegorz Szymanski, Robert Stanislawski, Robert Blazlak	
<b>IS CORPORATE GOVERNANCE THE PROPER TOOL FOR ENHANCING LONG-TERM COMPANY PERFORMANCE? .....</b>	<b>705</b>
Radu-Alexandru Serban	

**CORPORATE SUSTAINABILITY PERFORMANCE IN PORTUGAL: SME FAMILY AND NON-FAMILY BUSINESS DIFFERENCES AND DETERMINANTS..... 714**

Pedro Mamede, Jose Allouche

**MODEL OF POLISH SMALL COMPANIES TECHNOLOGY MANAGEMENT .... 727**

Robert Blazlak, Grzegorz Szymanski

**LIFE CYCLE ASSESSMENT OF PIG PRODUCTION - A CASE STUDY IN MEXICAN FARM..... 734**

Maria del Rosario Villavicencio Gutierrez, Ana Lorga Da Silva, Miriam Paulino Flores, Francisco Ernesto Martinez Castaneda, Angel Roberto Martinez Campos, Jaime Matus Gardea, German Gomez Tenorio

**INDUSTRY 4.0.: THE EXPLOITATION OF BIG DATA AND FORTHCOMING PERSPECTIVES..... 742**

Alessia Sbroiavacca, Fulvio Sbroiavacca

**QUO VADIS, THE POLICY CONCERNING DEFENCE FORCES LECTURERS' CAREER AT SESKOAL/NCSC: A HUMAN CAPITAL APPROACH TO BUILD WORLD - CLASS NAVY..... 746**

Sulistiyanto, Rachma Fitriati, Syarifudin Tippe, Dedi Purwana

**QUALITY OF LIFE AND THE TRADE-OFF BETWEEN ENVIRONMENTAL EXTERNALITIES AND TOURISM RATE..... 756**

Zdravko Sergo, Jasmina Grzinic

**RELATIONSHIP BETWEEN INDIVIDUALISM AND SOCIO-POLITICAL ATTITUDES - A COMPARATIVE ANALYSIS OF EUROPEAN COUNTRIES..... 766**

Timo Toikko, Teemu Rantanen

**LIVING CONDITIONS IN POLAND AND THE EUROPEAN UNION – SELECTED ISSUES..... 776**

Urszula Grzega

**ANALYSIS OF FOREIGN DIRECT INVESTMENT DETERMINANTS IN THE SELECTED COUNTRY ..... 786**

Veronika Linhartova, Evans Owusu

**WHAT SHOULD WE BE CAREFUL OF WHEN DESIGNING LEARNING OR RECOGNITION TASKS IN THE RESEARCH OF FALLACIOUS REASONING? FINDINGS FROM A PILOT STUDY ..... 794**

Lucie Vrbova, Katerina Jirinova, Katerina Bacova, Hana Lorencova

**IMPROVING THE QUALITY OF A BUSINESS TOURISM PRODUCT THROUGH COOPERATION OF ENTITIES ..... 801**

Marzena Wanagos, Barbara Marciszewska

**IMPLEMENTATION OF CONTRA - RADICALIZATION IN ALKHAIRAAT EDUCATIONAL INSTITUTIONS..... 810**

Yusuf Ali, Herlina J. R. Saragih

**THE IMPORTANCE OF FINANCIAL SUBJECTS IN HIGHER EDUCATION DEGREES: THE CASES OF PORTUGAL AND CROATIA ..... 818**  
Humberto Ribeiro, Sandra Raquel Alves, Vlasta Roska

**REVIEW OF COMMUNICATIONAL DISCIPLINES IN NAVAL MILITARY STUDIES IN THE EU WITH THE REVIEW OF THE NEW NAVAL STUDIES AT THE UNIVERSITY OF SPLIT ..... 831**  
Goran Pavelin

**THE RELATIONSHIP BETWEEN THE COMPANY SIZE AND ENTREPRENEURIAL ACTIVITIES-THE CASE OF SERBIA ..... 843**  
Zorica Anicic

# A MODEL OF TAX EVASION THROUGH THE AGENCY THEORY PRISM

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## **ABSTRACT**

*The agency theory, as the mechanism for analysing the principal-agent relationship, is dominantly applicated in the sphere of corporate governance. But the agency theory may also be used in many different areas and situations when the principal's welfare, in the presence of information asymmetry, depends on the agent's actions. Therefore, due to the fact that this theory is rather rudimentary, it may be applied on other areas as well, such as the lemon market, insurance market, working vacancies, parliamentary election and similar. The aim of this research paper is application of the agency theory in the area of tax policy. To be more precise, this paper is an attempt to explain the problem of tax evasion through the prism of elements of the agency theory. In this paper a model will be specified in which the government with its fiscal sovereignty is considered to be the principal and the tax payer is considered to be the agent. The tax evasion problem is considered as the agency problem. Elements of the agency theory that are present in the problem of tax evasion include the opposition of goals between the government and the tax payer, definition of "rules of the game", information asymmetry, moral hazard when illegally evading tax payments and agency costs, i.e. tax evasion costs. The purpose of studying agency problem in the context of tax evasion is to find a mechanism that will enable the principal-agent problem or to offer adequate solutions in the case of its occurrence. Consistent with the prior, the aim of this research paper is identification of possible solutions for prevention of the tax evasion problem or at least offering certain solutions for mitigation of this problem, as evident from the model that determines mutual relationships between different elements of the analysed mechanisms. It is also necessary to consider the limitations of the model, such as omission of different risk propensities between the government and the tax payer and avoidance of the adverse agent selection problem.*

**Keywords:** *agency theory, tax evasion, information asymmetry, moral hazard*

## **1. INTRODUCTION**

The agency theory, a principal-agent relationship mechanism, has found its dominant application in the sphere of corporate governance. The fact that the agency theory is rather rudimentary has enabled its application in many different fields. The aim of this paper is application of agency theory in the area of tax policy. To be more precise, the aim is to explain the tax evasion problem through the prism of agency theory elements. The paper is organized in three sections, where the first section is related to explanation of basic features of agency theory and the second to basic theoretical framework of tax evasion concept.

Finally, the third section is related to the analysis of the tax evasion problem through the agency theory prism, where basic elements of the agency theory are representing a mirror image of elements of tax evasion.

## **2. THE THEORETICAL POSTULATE OF THE AGENCY THEORY**

The agency theory has a specific view on the contractual relationships and its aim is to explain how one party (principal) may achieve its goals, in case when he is in lack of certain knowledge or other resource, by including the agent who possess this knowledge or resource (Gilardi and Braun, 2002). In case when the principal is hiring an agent, the agent is given a certain level of autonomy in decision making and actions. From the bi-behavioural point of view, the agent is hired by a principal for a certain fee in order to enable the principal to achieve a certain aim that will lead to maximization of principal's utility and increase of its welfare. In the situation when agent is trying to achieve its own and not the principal's goals, the agency problem occurs. Dvorski et al. (2018) point out that agent's behaviour is determined by its private utility function and not the principal's. Pindyck and Rubinfeld (2005) argue that the principal-agent relationship will occur every time welfare of one person depends on what other person is doing. The agency theory is dominantly applied in corporate governance where the role of principal is taken by owner of the company and management of the company is the agent (Tipurić et al., 2008). But the agency theory may be applied on other areas as well, such as insurance (Jehle and Reny, 2001), real estate rent, employment relations (Kolaković, Kovačević and Sisek, 2002), lemon market and parliamentary elections (Gilardi and Braun, 2002). Tipurić (2014) and Eisenhardt (1989) argue that basic determinants leading to principal-agent relationship are different interests of principal and agent and their different risk propensities. Also, interests of principal are long-term oriented while interest of the agent are short-termed. Due to information asymmetry, consequentially agent's selfish behaviour (opportunism) is present (Tipurić, 2006). According to Orsag (2011, p.133) always when an agency problem is present, the agency costs occur, i.e. "value lost due to agent's actions". Cerović et al. (2011) state that agency costs are all the costs that are burdening the principal with the purpose of stopping moral risk that occurs on the agent's side. According to Orsag (2011) agency costs may be divided in two categories: indirect (opportunity) costs and direct costs<sup>1</sup>. According to this, agency costs may be categorized as explicit (direct, accounting costs) and implicit (indirect, opportunity costs). According to Čalopa (2008) principal's aims are maximization of own invested funds, complete information and control over the agent, while agent's aims are maximization of its own benefit, autonomy in decision-making and information advantage. Rights and obligations in agency relationship are determined by a contract called "the rules of the game" (Jensen and Meckling, 1976). It is possible to determine causal and consequential relationships between basic elements of the agency theory. Basic cause of the agency problem is in the contrary aims of the principal and the agent. But in order for the agency problem to occur, the problem of information asymmetry and/or different risk propensities has to be present. The consequence of this situation is moral hazard and unfavourable selection. The aim of studying agency relationship is to find a mechanism that will enable avoidance of principal-agent problem occurrence or to find solutions in case of its occurrence. Throughout the literature different models of solving the agency relationship problem are available, but they can be summarized in two main concepts: 1. Establishment of efficient control mechanisms (internal or external) (Jensen and Meckling, 1976) and 2. Complete information and stimulative pay (Čalopa, 2008).

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<sup>1</sup> Indirect (opportunity) costs for the agent are not real cash expenditure, but are seen through agent's decision making that does not maximize principal's utility, but his own. On the other hand, agent's indirect costs may occur when cash expenditure is present with the aim of avoiding indirect agency costs. These are reflected in control costs, information collection costs, incentives for agents etc. (Orsag, 2011).

Internal mechanisms mostly come down to principal's control, while external mechanisms are related to external pressure arising from interest parties. The establishment of the model solution leads to agency costs occurrence. According to Goić (1995) there are four types of costs from the principal's perspective:

1. the cost of invested funds,
2. the cost of invested time,
3. direct and indirect agent's costs,
4. costs of directing the agent according to principal's interest.

Jensen and Meckling (1976) are considered to be the first authors who have paid systematic attention to the agency relationship. But the problem of owner and management relationship has also been prior elaborated by Berle and Means (1932). There has also been elaboration of the principal-agent problem in the political sphere by Niskanen (1971) and Downs (1967), but without formally denominating it as the agency problem. In continuation of this paper tax evasion will be explained through the prism of basic elements of the agency theory. Namely, some elements of agency theory is possible to recognize in the problem of tax evasion.

### **3. TAX EVASION – CONCEPT, CAUSES AND CONSEQUENCES**

The term "evasion" comes from the Latin word "*evasio*", meaning elopement, avoidance. Therefore, the term tax evasion is related to the avoidance of tax payment. When using the term tax evasion, it is necessary to be careful and distinguish what is meant under this syntagme in a given context. Jurković (2002), Mahović Komljenović (2009) and Klier (2007) define tax evasion as avoidance in tax payment and differentiate between legal and illegal tax evasion. But many authors do not make this distinction and consider only illegal ways of reducing tax obligations to be tax evasion (Madžarević-Šujster, 2002; Sudžuka, 2011; Šimović et al., 2007; Brummerhoff, 2000) or only legal ways of tax avoidance by using regulation gaps (Malić et. al., 2015). In Croatian speaking area there are authors who differ tax avoidance and tax evasion. Tax avoidance is defined as legally permitted decrease of tax obligation, while tax evasion is related to illegal and unacceptable avoidance of tax payment (Sertić, 2012; Bejaković, 2014; Kesner-Škreb, 1995). It follows that the basic characteristic of tax evasion is direct law violation (Šimović et. al., 2007). Among many causes of tax evasion, the literature most often states the following (Pomerehne and Hannemann, 1995):

- High tax burden,
- Legislative burden,
- Penalty amount,
- Tax department organization,
- The probability of unveiling tax evasion,
- Consciousness on the importance of regular tax liabilities payment,
- Public expenditure structure and the public service quality.

Paying taxes leads to decrease in tax payer's economic strength, directly leading to decrease in consumption of private goods (Polovina and Medić, 2002). Decrease in economic strength means a decrease in both investment and savings. Too high tax burden therefore may lead to avoidance of tax obligations. Also, frequent and significant changes in regulatory framework are making it hard for tax payers to fulfil their obligations. A situation in which penalties for discovered tax evasion are lesser than the amount of tax evaded, leads to temptation to avoid the tax payment obligation. In cases when the tax department is not adequately organized or its employees are not keen to giving a professional advice, the propensity to pay the tax obligation is decreasing. The probability of discovering the tax evasion and the propensity of tax payers towards it, are conversely correlated – low probability of discovering tax evasion leads to higher



evasion and vice versa. Low morale and the consciousness on the importance of regular tax payment is one of the main causes of tax evasion. If tax income is used in order to support certain branches of economy due to individual's opportunistic aims and not in order to increase welfare of regular tax payers, tax evasion may occur (Pomerehne and Hannemann, 1995; Madžarević-Šujster, 2002). Tax evasion leads to significant problems in creation of economic policy and may lead to a "full-circle" emersion. High level of tax evasion leads to decrease of public income used from the government with the purpose of financing public goods and services. If significantly lower tax income than planned occurs, discretionary measures of fiscal policy are mostly used in order to decide on decreasing expenditures or increasing tax burden. The first case leads to gradual withdrawal from financing certain public good or service. The latter leads to the need to increase the taxes in order for planned level of financing public goods and services to remain on this level. This situation consequentially leads to increase of tax burden, primarily for those tax payers who have regularly payed their obligations, finally leading to increase of the tax burden on the national economy level. The consequence of these actions is increase of costs, leading to competitiveness decrease and a new circle of tax evasion (Šimović et. al., 2007). There are several measures that may be used in order to solve the tax evasion problem. First measure is related to institutional measures such as trust establishment between the tax payer and tax related institutions and sharing information with tax payers. Second measure is related to legal measures, including tax system stability, penalty amount and efficiency of tax payers control systems. The third measure includes socio-economic measures, such as increase of tax morale and more fair distribution of tax burden (Šimović et.al, 2007). Šimurina et al. (2018) are pointing out that tax evasion, low level of tax morale and general irresponsibility towards tax payment are a confirmation of the need to increase educational activities for citizens with the aim of increasing the awareness on importance of regular tax payment. They also state that "importance of tax literacy is seen in collection of tax income, improvement of tax behaviour of tax payers and increase in regular tax payment propensity" (Šimurina et al, 2018, p. 14). But conduction of these activities requires significant funds and it is therefore necessary to calculate costs and benefits of these measures. It is also important to have on mind that the effects of these actions are not instantly seen, but with a few years' time gap.

#### **4. TAX EVASION THROUGH THE AGENCY THEORY PRISM**

Basic elements of the agency theory may be applied on the tax evasion problem. In this context, the government may be considered to be the principal and the tax payer the agent. At the same time, the tax evasion problem is considered to be the agency problem. The government is collecting taxes in order to function properly and achieve its fiscal and non-fiscal aims and it therefore requires funds collected from tax payers. Tax payer receives legal protection and free usage of public goods and services as a compensation for the payed tax. Tax evasion occurs due to opposition in aims of the government and the tax payer, whereby the defined rules of the game are breached. Basic tax aims of the government as the principal are divided into fiscal and non-fiscal (Jelčić, 2001). This paper is oriented on fiscal aims. According to Jelčić (2001) fiscal aims of taxation are collection of financial funds that are to be used for public needs financing. The causes of tax evasion occurrence have been elaborated previously throughout the paper, but the most important cause is high tax burden. Therefore, basic aims related to the tax evasion problem are:

1. The aim of the government as the principal: Main interest of the government is insurance of long-term stabile growth of tax income for the purpose of public expenditure financing.
2. The aim of the tax payer as the agent: Lower tax burden due to increase of economic strength and achievement of own short-term benefit.

Although in this situation a concrete contract is missing, the laws and obligations between the government and the tax payer are legislatively defined. But in the case of the information asymmetry occurrence, the tax payer has the possibility to breach the law. Information asymmetry is related to the situation when one party has more information than the other, leading to its advantage. In the case of tax evasion, information asymmetry is a situation when the tax payer has certain information available and the government does not. The government does not have all the information on activities of tax payers and does not suffice resources or time to collect them. Therefore, tax payers are in information advantage a forehead the government, consequentially leading to moral hazard occurrence. Moral hazard is, in this case, related to immoral and legally non-permitted actions arising from the tax payer with the aim of tax obligation decrease and achievement of own benefit, all resulting from the inability of the government to oversee these actions. Illegal actions related to tax evasion are (Lovrinčević, Marić and Mikulić, 2006; Šimović et al., 2007; Jelčić, 2001):

- Inaccurate tax payer's registration,
- Complete or partial non-registration of tax basis,
- Asset non-registration or incomplete registration of asset value,
- Smuggling,
- Exaggeration in registered expenditure.

The government is trying to establish internal and external mechanisms for sanctioning the situations when tax payers are illegally trying to evade tax. Internal mechanisms are related to measures that the government may achieve within its own boundaries. If a country is a member state of certain organizations, external mechanisms may be applied. Examples of internal mechanisms include enhanced control over tax registration, regulatory requirements changes related to increased penalty for tax fraud, establishment of transparent penalty measures system and activities related to increase of awareness on the importance of tax obligation payment. Example of external mechanism is the European Union directive - The Anti-Tax Avoidance Directive that is related to a set of measures oriented on prevention of the income tax evasion and that directly influences the internal market functioning (European Commission, 2016). Tax evasion occurrence and mechanisms related to its solution or decrease are leading to tax evasion costs that in the context of this paper are considered to be agency costs and may be manifested as explicit or implicit. Implicit tax evasion costs may be related to:

- High number of laws and frequent changes of regulation – the government is aiming at reduction of law-related flaws that tax payers are using in order to evade tax obligation. On the other hand, this measure may lead to legislatively overburdening tax payers who are regularly paying their obligations and give them the incentive to evade tax.
- Distorted statistical data – such as incorrect or incomplete tax payer's registration that may lead to wrong conclusions in cases when used for economic policy formulation.

Explicit costs may be related to:

- costs of regulatory implementation/changes;
- costs of control, tax evasion discovery and sanctioning the tax payers;
- costs of tax income loss and consequential withdrawal from financing certain public good or service;
- increased tax burden for tax payers, leading to implicit costs occurrence, competitiveness decrease and tax evasion increase;
- costs of educational activities oriented on tax literacy increase and tax payers' awareness on the importance of tax income collection.

Figure 1 displays tax evasion through the prism of the agency problem. In sum, agency problem and tax evasion problem originate from the opposition of aims between principal and agent, i.e. government and tax payer. It is important to have on mind that rights and obligations in the agency problem are regulated by the contract, while the tax evasion problem is related to regulatory requirements. Due to information asymmetry occurrence, the principal does not have all the information related to the tax payer's activities resulting in moral hazard occurrence, i.e. the tax payers are conducting activities related to decrease of tax obligation (tax evasion). Having on mind that the agency theory is a system mechanism aiming at providing solutions for the agency problem decrease, it is also possible to suggest measures for tax evasion prevention, leading to agency costs (tax evasion costs in the given context).

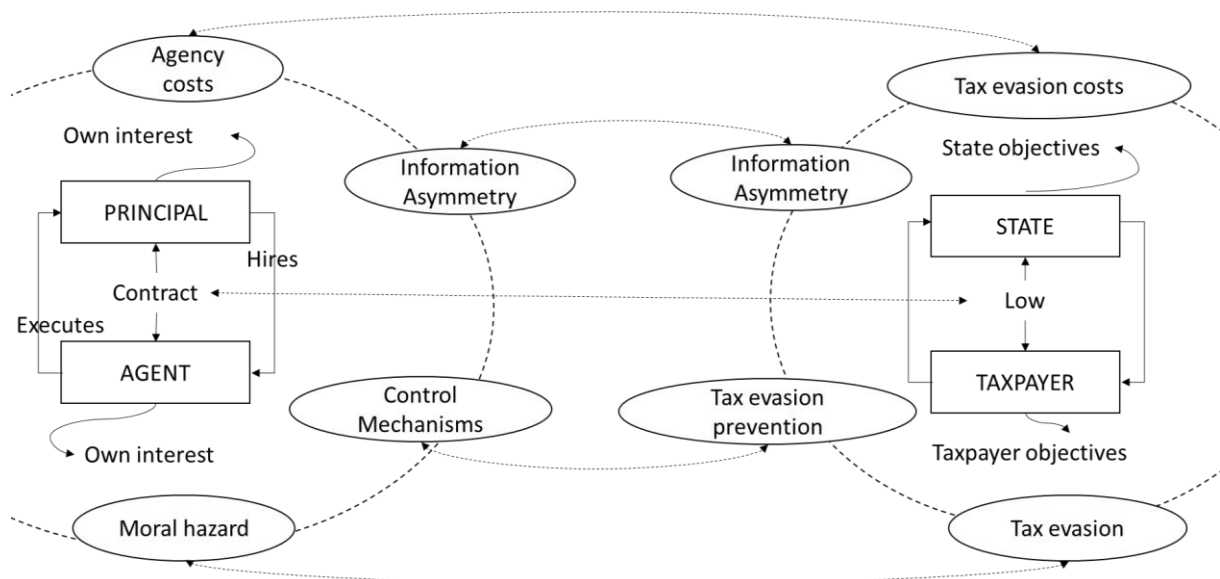


Figure 1: A Model of Tax Evasion through the Agency Theory Prism (Authors)

Finally, it is necessary to determine the efficiency of invested and obtained. In the given context, it is important to determine whether positive impact of disclosed and prevented tax evasion are higher than funds invested in its disclosure. It is also important to determine which measure provides the most positive solutions with the least invested funds and to have on mind the time gap between conduction of measures oriented on tax evasion prevention and its first visible effects.

## 5. CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

Presented analysis is an illustration of how the application of agency theory goes beyond the borders of corporate governance and may be applied in many different areas. Throughout this paper the tax evasion problem has been interpreted through the prism of agency theory elements. These elements are primarily reflected in opposite aims between the principal and agent, information asymmetry, moral hazard occurrence and consequential costs. But it is also important to have on mind that there are certain limitations when analysing the tax evasion problem through the agency theory prism, such as the fact that in the agency theory the owner (principal) may choose the manager (agent) to hire, while in the case of tax evasion this is not possible. Government as the principal is defining by law who will be the tax payer and does not choose every agent individually, leading to negative selection problem elimination. Also one of the problems of the agency theory that is neglected in the tax evasion problem is different risk propensity. A special accentuation has to be put on the interpretation of agency costs that occur with the aim of stopping the agent from moral hazard.

In the context of tax evasion, agency costs are only those originating from the government's efforts to prevent or decrease the tax evasion effects. Tax payer is a physical or legal party obliged to pay the tax according to the law. Since in this paper it has not been precisely defined whether they are tax payers obliged to pay profit tax, income tax or added value tax, it is recommended to focus on certain group of tax payers and more precisely research the agency problem in the context of tax evasion. This kind of analysis would provide insight into more concrete causes of tax evasion of certain tax payers groups and more concrete measures for solving this problem.

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# TAXATION OF SMES IN MOROCCO IN THE ERA OF DIGITAL ECONOMY

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## ABSTRACT

*This paper aims to pinpoint the imposition of the SME like the digital change in the world's economies. In Morocco, digital transfer must be a strategic priority, especially for SMEs. Although they represent more than 50% of employees and 95% of companies in the kingdom, SMEs occupy a modest position in the Moroccan economy. Thus, they represent only 20% of corporate tax revenues and 30% of income tax revenues. The constraint and reluctance of investors remain highly noticed and the risk of tax evasion increases, especially in the digital world and globalization. Escape and fraud strategies are becoming more diversified, more complex and more international. Tax evasion has become much easier in the current context characterized by of the great freedom and rapidity of capital flow and the development of the digital economy; this reality has led to the emergence of new models of business that promote opportunities for tax evasion and raise greater challenges. This business model, concerns SMEs as a whole entity, is digitizing taxes.*

**Keywords:** *Competitiveness, Competition, Dematerialization of Tax System, Digitization, Digital Economy Evasion, Fraud, Morocco, SMEs, Tax, Tax System*

## 1. INTRODUCTION

Small and medium-sized enterprises (SMEs) account for more than 95% (Les Guides CGEM Guides PME Mars 2010) of all enterprises, and 60 to 70% of employment in Morocco. In France, 99.8% of companies in the field "Industry, Trade and Services" (ICS) are SMEs. Small and medium-sized enterprises are also the main provider of employment 60% of jobs and contribute 55% of value added (Savajol, 2003). They have advantages and disadvantages of their own and may call for special measures. As a result of digitization and globalization, economies of scale become less important in many activities, so that the potential contribution of SMEs is enhanced. This shows that all of these contributions reveal the growing interest of researchers for SMEs. Moreover, Marchesnay (1993) pointed out that research in SMEs makes it possible to concretely and "[...] clearly, in the eyes of the observer, what is hidden, difficult to grasp and to interpret in large organizations." For example, research and studies, most of which are conducted on large firms as a field of research, have neglected to focus on SMEs, despite their growing contribution to wealth creation (Marchesnay, 1993). This growing contribution of these last economic entities contrasts with the scarcity of works that concern them especially in developing countries (Levratto N. et Ramadan M., 2011). Corporate taxation in Morocco has a considerable position. Traditionally, the objectives of fiscal policy are to the three functions that (Musgrave 1959) has defined for the state: allocation, redistribution, and regulation. The role of taxation in development is then discussed and expanded by several

authors such as (Musgrave 1976), (Stiglitz 1986), (McGee 1993, 2004), (Cullis and Jones 1998). Increasing state intervention in the economy and the resulting expansion of tax functions, however, have taken on very different dimensions in different countries. The sharing between the private and the public sectors is inspired by various models of one or other of the two theoretical models that have prevailed for half a century: the liberal model and the interventionist model. From this point of view, the SMEs have a more relative place which shows, if necessary, their fragmentation and their deficiencies in terms of development and productivity. Thus, they represent only 20% of corporate tax revenues and 30% of income tax revenues. These figures tend to prove that taxation is not a hindrance to the development of successful and growing SMEs, especially in a current context characterized by the development of digitization and electronic commerce which raises the problems of taxation that those entail by the expansion of international trade. The digital economy should have a place in the tax system. But it remains to be seen how this can work at the international level and offer the same degree of certainty to Moroccan public authorities and SMEs. We must also clearly define the tax base. The objective of this work is to tackle in a first axis the taxation of Moroccan SMEs through the study of the state of the premises and its digitization. In the second axis, foreign experience in setting up a tax system adapted to SMEs in the digital age.

## **2. CHAPTER I - TAXATION OF SMES, STATE OF PLAY**

In Morocco, SMEs have a significant importance in the economic fabric; they constitute the nerve center of our economy with 40% of production, and 31% of exports. They are present in all sectors of Moroccan economic activity: agriculture, industry, crafts, building and public works, businesses and services that include tourism, communications, transport and financial services (Conseil déontologique des valeurs mobilières, 2011). One of the first observations that could be made during the analysis of Moroccan SMEs is the ambiguity around their definition. However, ANPME and CGEM (General Confederation of Moroccan Enterprises) have developed a new definition at the national level that has a dual purpose. It is a question of having a unified definition that reflects the size that companies must have in order to face globalization and contribute to the coherence of the operation of the support system for SMEs.

### **2.1. Definition of the SME**

Three criteria are taken into account in the official definition of the SME Charter (charte de la PME, 2002): to qualify as an SME, existing companies must have:

1. Less than 200 permanent employees;
2. An annual turnover excluding tax that does not exceed Dhs 75 million, and / or a total balance sheet limited to Dhs 50 million.
3. Since the law 53-00 forming Charter of the SME / SMI. According to article 1 of this law, the SME is a company managed and / or administered directly by the natural persons who are the owners, co-owners or shareholders and which is not owned more than 25% of the capital or rights voting by a company, or jointly by several companies (Abdellaoui.M 2011).

The new definition of the SME elaborated by the ANPME takes into account only the criterion of the turnover and abstracts the workforce of the company. According to this definition, three types of enterprises are distinguished:

- The very small company: less than Dhs 3 million.
- Small business: between 3 and Dhs 10 million.
- Medium-sized enterprise: between Dhs 10 and 175 million.

## 2.2. Tax Performance of Moroccan SMEs

Every year, the state's overall tax shortfall averages 33 billion dirhams, or almost 3.6 percent of GDP. In 2015, 57.8% of tax expenditures benefited SMEs, or 18,553 million dirhams (Ministère de l'Économie et des Finances, 2013). This potential for tax revenue could have been intended to strengthen basic infrastructure, fight against poverty, and build up human capital. On the other hand, the tax gap should be reflected in increased private investment and job creation (Gautier. J.F, 2001). In view of this, the current strategic orientation of the State in the area of public finances is the annual assessment of tax expenditures with a view to reducing the derogations according to their actual relevance and impact (Amine.M. 2015). Supply economists conclude from their analyzes that the reduction of the tax rate should lead to an acceleration of economic growth, which in the second phase allowed the State to increase the amount of its revenues. These arguments are known in the form of the famous Laffer curve "too much tax kills the tax". However, the Laffer curve has been widely criticized (Pecorino 1995, Stiglitz 2003). This strategic choice of budget transparency is in line with the preference of direct and targeted support, and the program contract approach, institutionalized by the public-private partnership (Gautier (JF), 2001). Fiscal leverage is no longer perceived as a single instrument of incentive and competitiveness development. In this sense, Carlo Cottarelli, Director of the Public Finance Department of the IMF, said at the April 2013 Tax Conference: "So how to think about tax competitiveness? Clearly, a simplistic approach of lowering tax rates or offering more attractive tax benefits than other countries has its limits. "(Landwell & Associates 2011). It states more explicitly (Hassoune. A 2010). The awareness of the real obstacles to the development of the competitiveness of SMEs has, moreover, made it possible to start important reform projects, such as the reform of the justice system and the simplification of administrative procedures, with a view to contributing to the emergence of a more stable and attractive business climate, both for the national investor and for the international investor. And with the integration of the national economy into a global economy, Morocco is highly exposed to the inherent risks of international tax competition. It is from the 1990s that the contribution of customs duties to government revenue has tended to decline as a result of global trade liberalization. This trend is observed in all developing countries (Chambas et al, 2005). Between the 1980s and 2000s, as a result of trade liberalization policies, for all developing countries, a remarkable decline in resource dependence taxes on foreign trade (Berg and Krueger, 2003). This could explain this downward trend in IS and IR tax rates:

*Table 1: Downward trend in IS and IR tax rates*

Résultat fiscal net en dh	Taux
< ou = à 300 000	10%
> 300 000 et < ou = 1 million	20%
> 1 million et < ou = 5 millions	30%
> 5 millions	31%

*Source: General Tax Code Morocco 2016*

The following table summarizes this decline in corporate tax rates since 1986 (Mnistère de l'Économie et des Finances Maroc, 2012).



Table 2: Decline in corporate tax rates since 1986

Année	1990	1993	1994	1996	2007	2009	2010
Taux marginal IR en %	52	48	46	44	42	40	38

A reduced rate of 10% was introduced in 2013 for companies with net profits of less than or equal to 300,000 dirhams. The 2016 Finance Law introduced two new proportional rates applicable to the net tax result. The proportional rates in effect, in terms of corporate tax, are as follows: This decrease also concerned the marginal rate, in terms of IR, but "comparison is not right". The complexity and duality of the Moroccan tax system makes it difficult to access and understand, which a handicap is for SMEs that are confronted with requirements they do not master all the contours. Because despite the various incentives adopted by the government (Bentaleb. C. 2011). Thus, if the problem of the development of SMEs is more than tax, the tax system set up in Morocco today offers tools to bring out SMEs more competitive and more conquering, in a national and international context digitized and globalized more than ever.

### 2.3. Moroccan SMEs and digitization, fiscal constraints

It is important to replace SMEs. (Bensouda N. 2010). Indeed, Moroccan SMEs lag behind in the adoption of information technology compared to large companies, and invest in ICT to manage a situation and not as part of a digital transformation strategy. We note in Morocco that there is a dynamic that could help accelerate investments by SMEs in ICT including the possibility of financing digitization investments through a very active agency that supports Moroccan SMEs in their projects. The ANPME (National Agency for the Promotion of SMEs) or Morocco SME, its new label, has very ambitious programs, which aim to facilitate the access of SMEs to ICT expertise and digitization technologies. Nevertheless, one of the obstacles to SMEs' massive investment in ICT lies in the offers that are sometimes not adapted to the size and the fiscal and financial constraints of SMEs (Comité des affaires fiscales de l'OCDE, 1998). The reality drawn from the ground attests to the importance and the prominent role of local management in the functioning of SMEs (Torrès, 2000). It is reflected in (Mintzberg H. 1990) mutual adjustment mechanism, which so far is largely unknown. Although still in its infancy, the digital economy in Morocco seems to be on the right track today. This sector is promised an even better future thanks to the efforts made by the various e-commerce players in Morocco. These efforts have spawned a variety of e-commerce projects, some of which are already on the road to success and others have just been inaugurated. Achievements in this area continue and demonstrate remarkable dynamism and real will. In what follows we will detail the main achievements in the field of digital commerce through the study of two points:

- The pioneering e-commerce projects (institutions and commercial sites)
- Evolution in terms of turnover.

On the fiscal side, in accordance with the figures published by the General Treasury, consolidated tax revenues at the end of August 2017 amounted to 132 billion dirhams. That's an increase of 7% compared to the same period a year ago. Based on this observation, the Moroccan tax authorities are in great shape to adapt to the digital transformation to cope with the new digitization behavior of SMEs. This is a new digital positioning marked by new IS measures (information systems), such as the redesign of the web portal, the upgrade of online tele-declarations, the encouragement of magnetic regulations, and the strengthening of electronic counters.

In the context of globalization and international openness, we must not forget that people who do not belong to the same jurisdiction, escape taxation, it follows that governments and international organizations are trying to find solutions optimal, to tax the electronic transactions which requires a technological upgrade of the governments, with a view to controlling and monitoring the electronic activities of SMEs (USAID Morocco, 2007).

#### **2.4. Towards the taxation of the digital economy in Morocco**

The promotion of electronic commerce in Morocco poses a real problem for the current system of taxes and duties, this implies that the tax administration will have to set up structured systems using the Internet and allowing the increase of the efficiency and the transparency of the receipts of the government. In Morocco, taxes on transactions carried out by SMEs through e-commerce raise the following problems:

- The authority responsible for collecting taxes
- Taxpayer identification
- The appropriate categorization and coverage of products and services in the case of VAT, income and capital, in the case of direct taxes.

Nevertheless, Morocco has the potential to benefit from the analyzes made by other groups such as the OECD, the EU and thus skip the intermediate stages of development of the tax system and use electronic commerce to adapt the management of its taxes with the model tax laws, as they were developed (Lyazami N. 2013). It should also be noted that due to the economic changes in Morocco, it is necessary to conclude tax agreements with other countries or at least to start collaboration between the tax administrations. So, the taxation of e-commerce in Morocco is still in its embryonic state, it must develop with the integration of SMEs in the digital world.

**2.5. Moroccan tax adjustment measures to integrate the digital economy practice of SMEs**  
Morocco's adaptation of its tax system, in preparation for an upcoming integration of the digital economy, involves:

- An effort to reflect on the legislative and regulatory changes required in the field of direct and indirect taxation.
- A communication effort aimed at SMEs, which must operate on the Internet with knowledge of the related tax consequences;
- An effort to strengthen the intervention of the tax administration in the control of transactions totally dematerialized carried out by SMEs (Guessous S. 2003).

These combined actions have as their common purpose the fight against fraud and tax evasion and the establishment of a fiscal framework appropriate to the development of this new form of trade. On the other hand, the actions of the Moroccan tax administration in the field of e-commerce taxation should be carried out in conjunction with the establishment of an appropriate legal framework, giving first and foremost legal certainty to electronic exchanges.

### **3. CHAPTER II - DIGITAL TAXATION OF SMES, FOR A BETTER STRATEGY**

These specificities are at the origin of the difficulties to apply the current fiscal framework. Therefore the necessary adaptation of this framework requires an economic analysis of these and through them the operation of digital SMEs. While none of the major digital GAFA (Google, Facebook, Amazon mainly) has a significant physical presence in France (Lepetit M.C. 2010.), which would provide the tax revenue base according to the doxa of the current tax code, the interaction between the multitude and their servers takes place on the national territory (or at least on the airwaves transiting the national territory ...). It often even gives rise to a

personalized data exchange, the exploitation of which is the key to the success of the digital provider. If there is monetization by consumption of goods or services, a gradual reform will soon allow France to collect VAT. But if the service is provided without direct monetization (such as a Gmail account for example), nothing falls in the coffers of the Treasury. Tax optimization by digital multinationals is mainly a phenomenon that concerns a growing share of GDP, since the digital economy, far from being confined to a sector or an industry, is gradually spreading to all sectors of the economy. In other words, as wrote (Andriessen M.2011), "digital devours the world". The taxation of the digital economy is a tax shortfall for all developed countries: as the New York Times pointed out in April 2012, "over the last five years, the 71 technology companies in the index Standard & Poor's 500 - including Apple, Google, Yahoo! and Dell - have reported being taxed worldwide at an effective rate one-third lower than other companies with the same index».

### **3.1. The need to adapt taxation to the digital age**

These specificities pose new challenges to taxation:

#### *3.1.1. Tax optimization*

Tax optimization is easier in the digital economy. As an illustration, according to the French Telecom Federation, revenues generated by four major players (Google, iTunes, Amazon and Facebook) are estimated at 5 billion euros in France, and could reach 9 billion euros in 2015. Or, the latter have paid an average of 4 million euros per year in respect of corporation tax, whereas they could be, if we applied the French regime, liable to about 500 million euros (Godefroy B. 2013) SMEs, like all multinational companies, benefit from loopholes in national tax systems and bilateral agreements to practice tax optimization that drastically reduces their tax rate (Gautier. J.F, 2001). Because of the immaterial nature of a large part of their activities and the difficulty that the tax services have in defining the territory concerned by the production operations, in particular on operations carried out outside the territories.

#### *3.1.2. Erosion of tax revenues*

The G20 countries are themselves among the big losers. The measures announced recently by the OECD maintain the fundamentals of a failing tax system and do not in any way reduce the leveling down of corporate taxation. The G20 countries cannot stop there. They must support more resolutely the pursuit of reforms (Oxfam 2015).The economic models of digital SMEs are radically different from conventional models and upset value chains. The expansion of digital business activities and the disintermediation they are operating in a growing number of sectors, capturing the added value created at different stages of the production chain (the commission charged by Booking in the hotel sector may 30% of the price of the reservation), pose the problem of the erosion of tax bases (Gautier. J.F, 2001). Not only do states receive only a small amount of tax revenue from these companies, but more and more companies are adding more value each day, also depriving governments of these revenues.

#### *3.1.3. Skewed competition*

These practices and circumvention have enabled digital SMEs to impose themselves on national companies thanks to an undeniable comparative advantage. Because of the financial margins thus released (Merola, M. et Cappelletti L., 2009), Companies can consolidate their dominant position, notably through the acquisition of innovative companies that could in the future compete (for example the \$ 19 billion buyout of WhatsApp by Facebook) or expand into new markets (for example, Google and Apple's auto investments). One can therefore question the best way to foster competition and innovation in the long term (Santos, AC.2004).

### **3.2. A strategy for adapting digital taxation to SMEs**

#### *3.2.1. Taxation of the profit of digital SMEs*

To help companies had better identify the challenges of their digital transformation and the measures likely to favor it; we have examined in detail five business sectors: retail banking, retail, consumer goods, tourism and consumer goods. Construction. These sectors were chosen because of their weight in the French economy (they represent nearly a third of the GDP), of their distribution between industry and services, and of the diversity of the actors which compose them - SME and large multinational groups (Makinsey and company 2014). In anticipation of these new rules, the tax administration could set up an ad valorem tax on the income of SMEs, then used as an approximation of the profits generated in its jurisdiction (European Commission, 2014).. In the absence of such a tax, a unitary tax may be envisaged, based on the activity of the platform, measured by the number of users on the national territory of Internet users or advertisers or on the data flows exchanged (Gautier. J.F, 2001).

#### *3.2.2. The level of exploitation of personal data*

Following the development of digital, the architecture of big data will grow in an ecosystem of information: a network of internal and external services constantly sharing information, optimizing decisions, the communication of results and the generation of new Business Outlook (Davenport et al., 2012). Taxation can be an incentive to reduce it. In this case, the tax rate should be differentiated according to the origin of the incomes: a lower rate for the revenues generated by the mere access to the site (sales, advertising revenues linked to a search keyword) than for those generated by stored data (resale of research data to third parties, storage of sales data for pricing or targeted advertising).

#### *3.2.3. Taxation of transactions (VAT) according to the destination principle*

The application of VAT according to the destination principle largely reduces the incentive for companies to set up in the country applying the lowest rate, and therefore tax competition between states. The change made on January 1st, 2015 could be an opportunity to collect data on its effects: changes in transaction tax rates, tax revenues collected and distribution at European level (Micheau, C., 2013).

### **4. CONCLUSION**

In a world where everything is digitized, tax must not be a brake on its development. In order to encourage the creation and development of digital SMEs, it seems necessary to encourage SMEs to develop internationally (revision of the exit tax mechanism) and to gain stability and simplicity, especially for SMEs and startups. The strengthening of the legal and regulatory framework is also important, both at the level of tax texts and at the level of the texts concerning the regulation of the technological field. The sustained effort to fight against tax evasion of SMEs in the form of concrete actions aimed at reducing the informal economy, improving the efficiency of the tax system, modernizing the tax administration to improve efficiency Transaction control has resulted in the good behavior of SMEs at the reporting level in parallel with the increase in control performance.

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## INTRODUCING ICT AS A WAY TO ENHANCE ORGANIZATION'S CAPACITY TO INNOVATE - THE EXPERIENCE OF SPANISH UNIVERSITIES

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### **ABSTRACT**

*Nowadays the need for enhancing organization's capacity to innovate is highlighted by several researchers. Such focus results from the believe that the ability to introduce some novelty inside or outside an organization is one of the key factors determining its long-term potential to be competitive. Organization's capacity to innovate depends on several variables. Nevertheless, today there is considerable agreement among writers and practitioners on the view that adoption and use of ICT is a critical enabler of organizational capacity to innovate. Among others, ICT increasingly become crucial part of education system as they provide various opportunities to generate new products and processes by educational organizations such as universities. The growing use of ICT combined with the efforts to improve ICT being at universities' disposal, change the ways of the whole learning process as well as working at the organization. Thus the aim of the paper is to present the improvements of ICT as a driver for innovation in a group of Spanish Universities. The paper addresses two following tasks. The first part of the paper provides an theoretical overview of the nature of innovations and the idea of organization's capacity to innovate. Moreover, it discusses the potential of ICT to drive different types of innovations. The second, empirical part of the paper, presents examples of of innovations introduced in Spanish Universities, based on ICT as well as explores several activities undertaken by Universities to support innovations based on ICT.*

**Keywords:** *capacity to innovate, ICT, innovations, Universities*

### **1. INTRODUCTION**

Nowadays, the need of creating organization's capacity to innovate refers to all kinds of market entities to a larger and larger extent. Thanks to innovations any organization can run its operations in a more effective and efficient way than its rivals and in a different way than they do. With the increasing interest in the issues related to organization's capacity to innovate, in recent decades considerable attention has been placed on the role of ICT as driver for innovations. The evidence from several studies indicates that productive use of ICT is closely related to innovations generated by organizations (Hempell, 2005a; p. 2; Koellinger, 2008, p. 14-18; Lopez-Nicolas, Soto-Acosta, 2010, p. 522). Thus in our study we look at the aspects related to enhancing the capacity to innovate of such organization as university through



improvements related to ICT area. Throughout the paper we refer mostly to the role of ICT in creating several kinds of innovations (based on ICT) at the university. Moreover we draw our attention to the activities supporting innovations based on ICT.

## **2. INNOVATIONS AND ORGANIZATION'S CAPACITY TO INNOVATE**

In contemporary economy being capable of generating innovations is understood as reaching beyond the existing patterns of thinking and acting, imagination and long-sightedness of the proposed solutions in order to come up with new ideas, products, processes etc. that are all called innovations. Organizations use innovations to respond the changes in their internal and external environment or to take pre-emptive action focused on influencing the environment. An innovation is a very broad and multi-dimensional concept. The reference literature provides wide spectrum of innovation definitions. They interpret innovations in narrow or wide sense. In narrow sense an innovation is described as a change in production methods or products, based on new or not exploited earlier knowledge. On the other hand, innovation in wide sense is understood as a change resulting from exploitation of acquired knowledge (Schumpeter 1960, p. 27). Nowadays, there is a considerable agreement among the researchers that innovation is any change in different areas of the organization activity which introduces progress while comparing to the existing state. It might be developed in or outside the organization as a response to some signaled needs or satisfy the needs that have previously had been unrevealed (Damanpour 1996, pp. 693-716; Brown & Ulijn, 2004, pp. 1-38). While considering the nature of innovations, it is necessary to notice that innovation is both a process and an outcome. The definition well capturing the essence of innovation is proposed by OECD. It says that innovation is an iterative process initiated by the perception of a new market and/or new service opportunity for a technology-based invention that leads to the development, production as well as marketing tasks aimed at commercial success of this invention (OECD 2005). Baregheh, Rowley and Sambrook (2009) who have conducted a comprehensive analysis of several innovation definitions (proposed by different disciplines) claim that innovation is a multi-stage process in which organizations transform their ideas into new or improved products, processes in order to advance and differentiate themselves successfully in the market (Baregheh et al. 2009, p. 1334). Moreover, several authors highlight that innovation represents newness to the organization concerned. The reference literature stress that innovation is an intentional introduction and application of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, the organization or the society (West and Farr, 1990; pp. 3-13; Osborne and Flynn, 1997; p.32; De Dreu, 2006, p. 85). Thus innovation only has to be something new or improved to the organization that adopts it rather than in absolute sense. Furthermore, as highlighted by Osborne and Flynn (1997) as well as Baregheh et al. (2009) innovation involves discontinuous change that results in transformation of organizational capabilities. Concluding, based on an extensive analysis of innovation definitions, in our study we follow the approach describing innovation as the application of new solutions which meets new requirements, unarticulated or existing market needs. It is accomplished through more effective products, processes, services, technologies, or ideas that are readily available to market (Deffains and Sudolska, 2014, p. 5). Taking into account the complexity of approaches to define innovations and several variations in the way it occurs, it is difficult to provide clear-cut typology of innovations (Chodorek and Sudolska, 2016, p. 134). Today, while discussing about innovations, the researchers point out very wide spectrum of changes. In turn the reference literature proposes several approaches to distinguish between particular fields and types of innovations. However, based on extensive literature review, we propose to distinguish the following types of innovations: technological, product and process innovations, organizational and marketing innovations, social innovations and business models (paradigm) innovations (Damanpour 1996; pp. 697-698; Oslo Manual, 2005,

pp. 16-17; Bessant and Tidd, 2011, pp. 33-34). However, in order to be able to generate any kind of innovations an organization needs a capacity to innovate which results from long-time planning aimed at developing organizations resources needed for innovations. It means an organization's ability to generate innovations repeatedly over time and thus a sustaining competitive advantage (Rajapathirana and Hui 2018, p. 45). Adler and Shenbar provide the explanation of the capacity to innovate pointing out that it involves four components: the capacity to develop new products satisfying market needs, the capacity of applying appropriate technologies to produce these new products, the capacity to develop and adopt new products and process technologies to satisfy future needs, the capacity to respond the accidental technology activities and unexpected opportunities created by competitors (Adler and Shenbar, 1990, pp. 30-36). While considering organization's capacity to innovate, the question is: What are the important factors enhancing this valuable capability? Several authors studying the field of innovation related issues notice that generally organization's capacity to innovate is determined by the following key factors: the culture of an organization, internal processes adopted by the organization focused on permanent search for generating and capturing new ideas, supportive leadership, having resources needed for innovation, having diverse teams within an organization, having organizational structure supporting knowledge sharing and interaction, focusing on extensive communication within and between the organization and outside as well as porous boundaries of an organization (Neely and Hitt, 2012, pp. 49-50; Jones, 2003, pp. 137-139; Tidd, Bessant and Pavitt, 2006, pp. 502-503; Sudolska 2011; p. 115; Naranjo-Valencia, Jimenez-Jimenez and Sanz-Valle, 2011, pp. 57-60; Wolf, Kaudela-Baum and Meissner, 2012, pp. 3-5; Ibarra and Hansen, 2011, pp. 68-74). Taking into account the above mentioned, it seems necessary to highlight that several of these key factors determining organization's capacity to innovate require ICT to be productive and generate the desired outcome. Davenport, Leibold and Voelpel underlie that today's economic reality forces organizations that aspire to be successful to search for information and develop the abilities and resources to transfer the information into knowledge needed for innovations (Davenport, Leibold and Voelpel, 2006, p. 17). Also other researchers stress the importance of creating organization's ability to learn and manage learning processes, among other through introducing information and communication technologies (Jones, 2003, p.139; Tidd, Bessant and Pavitt, 2006, p. 470). These processes are based on information technology and need ICT infrastructure to be efficient. Moreover, organization's capacity to innovate is highly dependent on its capability for keeping permanent contact with its environment, in particular with both present and potential customers. This enables monitoring customers needs and expectations as well as acquiring new information that may be used to generate innovative offers. In other words implementing ICT in order to keep in touch with organization's environment facilitates prediction concerning future as well as enhances organizations flexibility towards market demands (Jones, 2003, p. 137; Tidd, Bessant and Pavitt, 2006; pp. 469-470; Sudolska 2011, p. 113). Similarly, the requirement for having porous organization boundaries is directly related to ICT. The fact that an organization has porous boundaries means efficient and vibrant exchange of ideas and information between an organization and both those who it serves as well as other outside voices. Innovation is not a solo act, successful organizations focus on building links across boundaries inside the organization and to several external actors who can contribute into innovation process: already mentioned customers, suppliers, sources of finance etc. (Bessant and Tidd, 2007, p. 557). Thus to be able to innovate today, organizations have to focus on building relationships with outside partners and this requires applying ICT. Concluding, in today's business landscape, especially regarding generating innovations, focus on ICT and its productive use seems to be not only necessity but rather the driver for those who want to make progress and be successful in the field of innovations.

### **3. ICT AS A DRIVER FOR DIFFERENT TYPES OF INNOVATIONS**

Nowadays the term 'ICT' is found within a variety of contexts. However, in the field literature ICT is defined as a collection of technologies and application of science that enable processing data according to programmed instructions in order to derive results, storing, retrieval and transformation of information to a wide variety of users (Matei and Savulescu, 2012, p. 5). According to this explanation, ICT is a technology supporting the activities involving information and communication. Therefore, it encompasses any product that stores, retrieves, manipulates, transmits or receives information electronically in a digital form. As highlighted in the relevant literature, ICT constitutes an enabling technology that leads to process and product innovations as well as improves the business processes along the whole value chain (Freeman, 2009, pp. 34-54). Furthermore, as noticed by Matei and Savulescu, ICT represents products, services and factors aimed at transformation of economic as well as social processes and activities (Matei and Savulescu, 2012, p. 2). Thus due to their essence, they naturally focus on generating novelty and progress. As stressed by above mentioned authors, ICT can support such changes as increasing the productivity or increasing the knowledge component for all: goods, services and production processes. It can also enhance organization's capacity to identify and respond to the changing market demands. So in other words, ICT enables creating a wide spectrum of innovations. Recent decades have seen an increased interest concerning information and communication technologies (ICT) that have been spreading and applying for a variety of purposes. Today ICT is used to store and process information, facilitate communication, automate different business processes, to widen or access information via internet etc. (Van der Viel and van Leeuwen, 2004, p. 1). Different researchers point out that ICT, as an enabling technology, have opened a variety of innovation potentials in different sectors (Bresnahan and Trajtenberg, 1995, p.85; Brynjolfsson and Hitt, 2003, pp. 795-796; Hempell, van der Viel and van Leeuwen, 2004, pp. 1-2; Hempell, 2005a, p. 2; Bhatt and Grover, 2005, pp. 253-277; Koellinger, 2008, p. 4). The use of ICT allows organizations to restructure their organizational structures, re-engineer business processes or develop completely new offers like online services. ICT adoption is mostly advanced in the service sector (OECD, 2000). Among different types of service organizations, there are all kinds of universities. We focus on such organization type as universities are important producers of new knowledge contributing strongly to the creation, development, and growth of businesses (Shane 2004, p. 353). Strengthening universities' innovation capacity is a key area of most countries' innovation policy. This task is accomplished by a diverse set of initiatives, among which we can find devoting considerable resources to improve universities' ICT resources. Taking into consideration that the digital revolution accelerates every day, all kinds of organizations, among them also universities, have to focus on the activities aimed at improving their capacity to innovate through developing its ICT resources and capabilities.

### **4. THE EXPERIENCE OF SPANISH UNIVERSITIES – RESEARCH FINDINGS**

The study that we partly present in the paper was the element of the comprehensive research project (UNIVERSITIC) on analyzing the situation of IT in the Spanish University System (SUE). The UNIVERSITIC report is prepared by the Conference of Spanish University Rectors (CRUE) since 2004 on an annual basis. The research has considered universities (both public and private) improvements in the field of ICT. For each year, the evolution data refers only to the universities that participated in the previous year. In the paper we focus on the UNIVERSITIC 2017 report, with the participation of 61 universities. Research participants constitute 82,43% of all universities within SUE. The research was conducted by using computer-aided survey through an application web. This survey is sent to the governing board member designated as University representative to the section of the CRUE commissioned to produce the UNIVERSITIC report.

In order to achieve the aim of the paper, the following study questions have been addressed:

1. What are the most common innovations based on ICT introduced by the analyzed universities?
2. What are the main activities supporting innovations based on ICT generated by the studied universities?

Posing the first research question we wanted to find out the examples of the innovations in universities' offer for students, teachers, the external partners as well as the society that have been introduced due to ICT improvements. The findings from the conducted research proved that one can identify several examples of such innovations. To make our analysis clear we distinguished four areas in which studied universities have introduced innovations based on ICT. These areas are: teaching, research and scientific cooperation, university management and ICT training. Table 1 presents the examples of universities' innovations based on ICT in these four areas.

*Table following on the next page*

Table 1: The examples of innovations introduced in Spanish Universities, based on ICT (Own elaboration based on the research results)

Innovation	Period 2016-2017 Growth %
<b>Teaching</b>	
Number of ICT Support Services for teaching provided with SLA	7,9%
Number of ICT Support Services for teaching provided from the cloud	10,8%
Number of ICT Support Services for Teaching provided using free software	2,3%
Number of classrooms with basic IT equipment (all posts connected to the internet and multimedia projector)	3,3%
Number of classrooms with ADVANCED IT TYPE 1 (all positions connected to the Internet, multimedia projector and digital whiteboard)	7,0%
Number of good practices related to virtual teaching carried out by the university	2,0%
Number of non-face-to-face degrees	7,0%
Number of MOOC courses in which the university participates in an active way	13,7%
Number of MOOC courses in which the university actively collaborates	56,5%
Implementing a "virtual ecosystem" to provide desktop/application virtualization services for teaching practices	8,1%
Number of software configurations (different programs) offered in the catalog of virtual desktops/applications for teaching practices	45,9%
<b>Research and scientific cooperation</b>	
Existence of a web application that facilitates the insertion of contents, publication and registration in scientific congresses (implemented or in process)	5,41%
Number of IT support services for research offered with SLA and managed centrally	12,77%
Number of IT support services for research offered from the Cloud and managed centrally	17,35%
Number of IT support services for research offered with free software and centrally managed	5,53%
Number of professional video conferencing rooms (ISDN, IP, AccessGrid, etc.)	3,89%
Number of management services provided via the web, incorporating elements of eGovernment	11,50%
Number of interoperability services offered by the university	11,00%
Number of Web Publishing Services for digital content provided	3,2%
Number of data catalogs (datasets) published	115,4%
Number of media that the university uses centrally for the relationship with its audience	5,1%
Number of services that are being 'consumed' from the cloud (public or private) (on the IT services catalog)	19,06%
Percentage of free software products in operation	16,63%
<b>University management</b>	
Percentage of universities with an institutional document manager	20,00%
Percentage of universities where the Board of Directors has a scorecard with datawarehouse indicators	3,4%
Percentage of universities that have a transparency portal	38,5%
Percentage of universities where there is an opendata initiative or RISP plan	16,7%
<b>ITC training</b>	
Percentage of administration and services staff that have received IT competency training	8,64%
Percentage of students who have received IT competency training	12,82%
Percentage of free software products in operation	16,63%

*Legend: SLA - Service-level agreement. A commitment between a service provider (university) and a client (staff and/or students). Particular aspects of the service – quality, availability, responsibilities – are agreed between the service provider and the service user; MOOC - Massive Open Online Courses.*

From its nature, any university's mission is to promote knowledge development and spread through conducting scientific research as well as teaching. As can be seen in Table 1, both the area of teaching and the area of research and scientific cooperation abound with different kinds of innovations resulting from ICT improvements done in universities. It is also evident that the number of innovations pointed out in Table 1 grows. Among the innovations introduced in teaching area one can find several 'product' innovations (the elements of university offers for students) such as: classrooms with IT equipment, MOOC courses or good practices related to virtual teaching. In the area of teaching there are also evident 'process' innovations such as software configurations (different programs) offered for teaching practices or 'virtual ecosystem' providing desktop for teaching practices. As it is evident in Table 1, with time several innovations become more and more common. The presented data confirms that due to improvements in ICT, universities are able to introduce more and more modern offerings that allow to spread the knowledge among the students and the society. The survey has also shown that in the area of research and scientific cooperation there are several 'process' innovations enabling university staff to make an extensive research needed for knowledge development. Among such innovations we can notice support services for research from the cloud, support services for research offered with free software, professional video conferencing rooms, Web Publishing Services for digital content etc. All abovementioned innovations have appeared thanks to having particular resources in the field of ICT. Addressing the second research question we referred to the importance of the activities supporting the process of generating by universities different kinds of innovations based on ICT. Again, to make the research findings more readable, we distinguished five areas of such activities: innovation focus, planning, formal tools, IT- staff & training and collaboration. The data concerning the activities supporting innovations based on ICT in these five areas is presented in Table 2.

*Table following on the next page*

*Table 2: The examples of activities supporting innovations based on ICT (Own elaboration based on the research results)*

<b>Activities</b>	<b>Period 2016-2017 Growth %</b>
<b>Innovations focus</b>	
The director of the IT area participates in the elaboration of the global strategy of the university	4,17%
Number of good practices that are implanted in the university	2,74%
<b>Planning</b>	
Annually designing a portfolio of well-defined IT projects that is prioritized and approved by the University's Government Team	13,63%
Existing centralized budget dedicated to new Investments for new IT projects	11,58%
Existing budget for personnel dedicated to IT in a centralized manner	1,42%
Existing budget for centralized IT services, excluding staff costs	4,93%
Having a Project Management Office, dedicated to design, implement, supervise its execution and establish the final success of IT projects	6,24%
<b>Formal tools</b>	
Considering laws, regulations, standards and measures of sustainability when making IT acquisitions (always)	18,18%
Using a formal methodology to manage the life cycle of each project	10,38%
Number of electronic collaboration and mail services provided	2,05%
Number of provided Support Services for workstation equipment	0,80%
Number of provided Communications Services	1,58%
Number of provided Identity Management Services	2,30%
Number of provided Services in the Global Catalog of IT Services	2,22%
Using standards for the management, monitoring and evaluation of IT performance	11,76%
Periodical monitoring and evaluation of service level agreements	7,89%
Applying corrective measures of deviations in the levels of agreed services	5,56%
Periodical identification obsolete IT services or systems that must be removed or interrupted	4,17%
Monitoring and evaluation IT of services offered by entities external to the university	7,11%
Existing the decision-making circuit related to the implementation of centralized IT initiatives	7,46%
Number of IT functions for which the IT area is responsible	2,17%
Existing policy that recommends the use of standards when selecting the IT infrastructure is applied	2,64%
<b>IT- staff &amp; training</b>	
Existing an annual training plan for IT Area staff	11,77%
Existing budget for specialized training of IT staff	20,16%
<b>Collaboration</b>	
Doing benchmarking in and assimilates their good IT practices	2,08%
Using IT infrastructures (systems and applications) from other universities	6,78%
Number of events that University attends or actively participates in and exchanges experiences in IT management	8,10%
Percentage of IT projects developed with own or external research groups	36,21%

In order to enhance its capacity to innovate, any organization needs to engage in the activities focused on monitoring and round out its resources of different kind. While considering the resources necessary to innovate it is necessary to point out the technologies and application of science enabling to process data according to programmed instructions, as well as technologies enabling storing, retrieval and transformation of information. In other words, the organization aspiring to innovate not only needs ICT but also permanently has to monitor and enrich this kind of resources. The conducted analysis allows to say that Spanish universities that have been investigated take the activities that are oriented to their ICT improvements. The research results shown in Table 2 prove the existence of such activities in different areas.

First of all, there is a kind of innovation focus in the analyzed organizations. Research participants treat the issues related to ICT as a priority as they confirm that the director of the IT area participates in the elaboration of the global strategy of the university. Moreover, as it is evident in Table 2, there is an increase in this aspect. Furthermore, there are several activities regarding ICT management and improvements undertaken in the field of planning. The universities belonging to SUE annually design a portfolio of IT projects that is prioritized and approved by the University's Government Team. Moreover, they have budgets for new investments for new IT projects, for personnel dedicated to IT as well as for centralized IT services. Also, they declare having a Project Management Office, dedicated to design, implement, supervise its execution and establish the final success of IT projects. As it follows from Table 2, the aforesaid activities from year to year become more and more common in the investigated organizations. The richest in the activities focused on ICT management and improvements seems to be the area that we called 'formal tools'. What is of great importance, still more and more universities belonging to SUE consider regulations, standards and measures of sustainability while making IT acquisitions. This is an attempt to respond to the requirements of the contemporary environment and development demands. Moreover, more and more universities use a formal methodology to manage the life cycle of IT projects as well as apply the standards for management, monitoring and evaluation of IT performance. What is also of significant importance in terms of ICT improvements, the investigated universities periodically identify those IT services or systems that are obsolete and should be removed or interrupted. This proves universities' focus on improvements that in turn enable creating innovations. The analyzed organizations focus also on IT-staff training by planning how to meet the needs of IT area staff and establishing budget for such activities. Taking the perspective of ICT management and improvements, the area that is worth noting is collaboration. In particular the increase of percentage of IT projects developed by the analyzed universities in collaboration with own or external research groups can be noticed in the last period. Also, more and more universities attend or actively participate in and exchange experiences in IT management. Furthermore, we can observe an increase in regard to usage of IT systems and applications from other universities as well as practicing benchmarking focused on introducing good practices in the field of IT.

## 5. CONCLUSION

Summing up, the study examined the improvements of ICT as a driver for innovation in a group of Spanish Universities. The conducted analysis allowed to answer the research questions that have been addressed. The results presented above show that the universities belonging to SUE are aware that nowadays it is necessary to develop organization's capacity to innovate. As it follows from the presented research findings, they are very active in implementing several improvements related to ICT. Also, they are aware of the importance of innovations offered to students, teachers and a wider society. Thus they introduce several innovations based on ICT to make their offer more attractive. What is of significant importance, innovations based on ICT introduced by the Spanish universities and the main activities supporting these innovations should be improved all the time. It turns out, that capacity for innovation and quality of scientific research institutions (universities belong to such institutions) are very important measures of country innovativeness. The Global Competitiveness Report for 2015-2016 and 2016-2017 (The Global Competitiveness Report 2015-2016; The Global Competitiveness Report 2016-2017) shows the increase of Spain innovativeness from 3,7 to 3,8 (in the 1-7 scale). In this area capacity for innovation grew from 4,1 to 4,3 and quality of scientific research institutions went up from 4,4 to 4,5 (in the 1-7 scale). Thus it can be assumed that the growth of Spain innovativeness results, among others, from better conditions at Spanish universities in the analyzed area.



The results presented in the paper have their limitations. First of all, the research sample of the study presented in the paper was relatively small and thus it does not allow for generalisations for all organizations. Another limitation of the presented research stem from the specific geographical context under consideration.

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## RECREATION AS A SEGMENT OF THE SILVER ECONOMY-THE CASE STUDY OF THE HEALTH RESORT KOŁOBRZEG, POLAND

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### **ABSTRACT**

*The economic and social problems associated with the aging of European society are reflected in the concept called the silver economy. Initially, the silver economy was mainly related to manufacturing activities and to adapting existing products to the needs of older people. Nowadays, more and more often the silver economy is treated as the possibility of using the aging process of the population to focus development in which the change in the age structure of the population and the increase in the activity of seniors will be the source of economic development. It should be assumed that the increase in the activity of older people is conditioned by a better satisfaction of their needs and promotes higher quality not only of their lives but of the whole society. Currently, among the prospective sectors of the silver economy, apart from health, construction, housing, there is a lot of recreation, especially tourism and leisure time management. Nevertheless, there is little room in literature for recreation as a sector favourable for the development of the silver economy. The main goal of the article is to indicate that recreation is an important segment of the silver economy, and the areas particularly well suited for the development of the silver economy are health resorts. The article will be divided into three parts. The first part will present a review of the literature concerning the silver economy and its segments, with particular emphasis on the location of subjects related to recreation and leisure for seniors. In the second part, the spa will be presented as a recreation space for seniors. The third part will be a case study of Kolobrzeg - the largest health resort in Poland. Selected determinants of the development of silver economy in the field of recreation and elements of the local senior policy favouring the development of recreational activity of seniors - residents and tourists invading the health resort will be presented in it.*

**Keywords:** *Recreation, Senior activity, Silver economy, Health resorts*

### **1. INTRODUCTION**

Nowadays, the term 'the silver economy' is more and more often perceived as a possibility to use the aging of population to orient development in such way that the changes in the age structure of the population, as well as increased senior citizen activity, would become a source of economic growth. The increase in the activity of the elderly is conditioned by a better satisfaction of their needs and is conducive to a higher quality of not only their lives alone but also the society as a whole. Among the prospective sectors of the silver economy, apart from health, construction and housing, there can also be distinguished recreation, especially tourism and leisure time management. In this article, it has been assumed that spa towns are an area particularly suited to the development of the silver economy in the field of recreation. The article was divided into three parts. The first part describes the basic aspects of the silver economy and underlines the correlation between its main assumptions and the functions of recreation. The second part presents a health resort as a space for senior citizen recreation. Due to the local nature of the considerations, this part of the article discusses the specificity of how spa towns function in Poland, which in the further part of the article, allowed for the identification of links between the local health economy and the concept of the silver economy in the field of recreation.

The third part includes a case study of Kołobrzeg, the biggest health resort in Poland. In order to present a case study of Kołobrzeg as an area predisposed to the development of the silver economy segment in the field of recreation, selected determinants of the silver economy development were presented, based on the desk research method and the analysis of available statistical data. The study presents information on residents, tourists, tourism and recreation economy as well as selected solutions carried out by tourism policy entities in the context of supporting the 'recreation' segment of the silver economy in Kołobrzeg.

## **2. THE SILVER ECONOMY AND ITS SEGMENTS**

The economic and social problems related to the growing population of the elderly are reflected in the concept of the so-called silver economy, also referred to as the senior policy. The term of the silver economy, however, cannot be uniformly and unambiguously interpreted, with its definition gradually changing over recent years. At the beginning of the 1970s, the silver economy was understood as "silver market" and "silver industry", and was referring to the production activity and modification of existing products in such a way as to increase their usability for senior citizens (Szukalski, 2012). This approach is currently treated as a narrow understanding of the silver economy (Golianowska, 2012, p. 134; Zsarnoczku, 2016, OECD). In the broad sense, the term 'silver economy' presents the possibility of using the aging population to orient development in such way that the changes in the age structure of the population, as well as increased senior citizen activity would become a source of economic growth. On the one hand, attention is focused on the needs and demands of the elderly, and on the other, its features, which can and should be used for higher mobilization and independence. Furthermore, it is assumed that an increase in the activity and social integration of the elderly constitutes a condition for better meeting their needs, fostering higher quality not only of their lives alone but also the society as a whole (Golianowska, 2012, p. 134). A broader understanding of the silver economy also requires focusing on solutions that will reduce discrimination based on age (ageism) and solutions concerning the design of public spaces, homes and apartments in a way that is friendly for all age groups (Klimczuk, 2016, p. 44, referenced by European Commission, 2007, p. 96). The objectives of the development of the silver economy include, among others (Szukalski, 2012, p. 8):

1. ensuring the longest possible professional activity;
2. ensuring the longest possible independence;
3. managing the senior citizens' time;
4. taking care of one's health and image;
5. ensuring social integration;
6. providing 'sensitive to age' financial services.

Despite the fact that the senior citizens' consumption concerns practically all industries, the segments of the silver market in the literature on the subject include: health care, intelligent solutions (smart technologies), house adaptations, services supporting entities that base their activities on information and telecommunications technologies (ICT), education and culture, ICT media, service robotics, mobility measures, leisure and travel, fitness and biological regeneration, clothing and fashion, care services, insurance and other financial services (Klimczuk 2016, pp. 43-44; referenced by Enste, Naegele i Leve, 2008, pp. 330–331; Moody i Sasser, 2012, p. 464; Zsarnoczku 2016, pp. 557-558). The prospective markets include construction and housing, health and comfort of life, tourism and leisure (Zimnoch, 2013, p. 29). The relationship between the silver economy and the recreational service market can also be presented by comparing the broad approach of the silver economy with the functions of recreation, among which the most important are (Winiarski 1991, p.54):

1. activation function of recreation - undertaking physical activity determined by the innate nature of a human being;
2. homeostatic function - according to which recreation is a way of regaining internal balance;
3. regenerative function - the body's response to fatigue caused by work and study;
4. health function - since recreation is an indispensable element of prevention and therapy of lifestyle diseases. Psychologists illustrate recreation as an act of freeing oneself from frustration, tension and stress;
5. socio-affiliate function - according to which recreation is a way of satisfying social contacts.

When undertaking leisure activities, senior citizens use the physical and social environment, including nature, and all material and personal factors arising as a result of their social coexistence and cooperation that determine recreational activities. Such environment is called recreational environment or recreational area (Toczek-Werner, 2007, p. 41). A recreational area of senior citizens may include spa towns.

### **3. HEALTH RESORTS AS AN AREA OF THE SENIOR CITIZENS RECREATION**

Spa towns in Poland are special tourist destinations. Their functioning requires fulfillment of certain conditions regulated by separate legal provisions (the Act on Health Resort Medical Care, Health Resorts, Health Resort Protection Areas and Health Resort Communes, Journal of Laws of 2017, Item 1056). It should be emphasized at this point that these spa towns must not only possess appropriate natural values (therapeutic climate, medicinal raw materials, green areas), but also meet certain requirements regarding environmental protection. Moreover, in order to become a health resort, appropriate infrastructure is required. As far as the subject of the deliberations is concerned, it is worth mentioning that this infrastructure, apart from facilities offering care, accommodation and catering services, includes: mineral water well-rooms, graduation towers and mobility tracks, that is, elements that can be used for recreational purposes. An important condition for the functioning of health resorts is also the possession of qualified personnel. As indicated by Hadzik and Sas-Nowosielski (2017), health resorts have the potential to provide tourism services, in particular health tourism, which also includes recreational behaviour. Recreational activities can be carried out at health resorts at a "high level", due to meeting the previously presented requirements for the towns considered "health resorts". Moreover, the recreational attractiveness of health resorts increases their "healthy" character, distinguishing them from other tourist destinations that are not health resorts. Important factors for the development of health resorts and their offer are primarily demographic changes, in particular the increase in the number of people at the retirement age. This annually growing group increases demand for pro-health services within health tourism (Hadzik and Tomik, 2017, p. 8). The visitors of health resorts include people of different state of health and needs. However, the dominant group comprises senior citizens – a fact confirmed by the results of research carried out in health resorts (Bielecka and Parzonko, 2016; Zawadka, 2016, pp. 121-125). In 2017, people aged 65 and more constituted slightly more than 41% of patients visiting stationary healthcare facilities in Poland (CSO, 2017). It is worth noting that health resort visitors—senior citizens should not be perceived stereotypically as passive tourists anymore, as they have become more inclined to spend time actively. Tourists staying at health resorts, apart from the typical healing services, are more and more often using the recreation offer of the city. The factor that strengthens the development of the recreational function of a health resort can also be the widespread competition between tourist destinations, which in turn widens the traditional offer of health resorts. This can be seen in, inter alia, major changes taking place in the recreation space of spa towns, which are more and more often enriched with new elements of recreational infrastructure that not only increase tourist attractiveness, but can also be used by residents.

The development of therapeutic and tourism functions of health resort communes brings with it a number of socio-economic benefits. An important advantage of the development of health tourism is the low seasonality indicator of health resort communes when compared to other tourist destinations in Poland. In the case of visits to health resorts, the seasonality problem is limited, as the stays at health resorts are contracted throughout the year, and the weather conditions are not the main factor conditioning visits. Moreover, the average time of patient stay at health resorts is much longer than in other tourist destinations in Poland and amounts to about 14 days. Another advantage is the higher average income, due to the provision of additional services within the framework of the stay, and the higher estimated employment multiplier in comparison to other sectors of the economy. Moreover, it should be emphasized that the development of tourism and recreation increases employment not only in tourism, but also in other industries elicited by tourist demand, i.e. construction, crafts and agriculture industries, etc. Furthermore, the increase in employment among local residents brings about an increase in their incomes, with all economic implications for the economy. This, in turn, increases consumers' demand, thus affecting economic recovery (including an increase in employment) of companies, which produce consumer goods (clothes, food, cars, etc.) and carry out investments (e.g. construction of houses), as well as enterprises supplying these companies with means of production (materials, equipment, etc.) As a result, this translates into a higher living standard of the population inhabiting the reception area (Seweryn, 2015, p.391). From the economic point of view, an important aspect of the functioning of health resorts is also the possibility of collecting the so-called health resort fees, which constitute the commune's own income and can be spent, inter alia, on the development of health resort infrastructure. As mentioned before, the tourism function of cities is connected with their recreational function, which means that the recreational attributes of health resorts can also be used by residents. The problem of aging society is faced by the entire Europe, and thus it also constitutes a challenge for the authorities of health resort communes. Furthermore, the important task of the cities is to improve the quality of life of its residents, which can be undoubtedly affected by the ways of spending free time. In the case of health resort communes, the development of the recreational offer of the city, which is more developed than in other areas, as well as care for maintaining the status of a health resort is conducive to the management of free time of residents, which may in turn improve senior citizen activity. Another important area of the silver economy is the vocational development of residents. As already mentioned in the previous part of the deliberations, the development of tourism in health resorts increases labour demand. In the case of senior citizens-residents of a health resort, tourism-related service can also be a source of vocational development of senior citizens.

#### **4. SELECTED CONDITIONS FOR THE SILVER MARKET DEVELOPMENT IN THE FIELD OF RECREATION IN KOŁOBRZEG**

The subject of the research concerned the health resort town of Kołobrzeg located in the northwestern part of Poland, in Zachodniopomorskie Voivodeship, in the western part of Slovincian Coast at the estuary of the Parsęta River to the Baltic Sea. Kołobrzeg is the largest health resort in Poland, in terms of therapeutic base, the number of beds and tourists. The area of the city is approx. 26 km<sup>2</sup> and is inhabited by over 48 000 people. The main city-forming functions of Kołobrzeg are health-tourism, administrative-service and port-production functions. The most dominant sector in terms of income of the residents of Kołobrzeg is the tourism sector. The basic medicinal raw materials of the health resort include high-quality brine springs, mud deposits and mineral waters. The favorable location of the city, its assets and infrastructure favour the development of health tourism, especially the health tourism in the city. The city focuses on developing maritime economy, tourism, recreation and spa treatment, while trying to preserve in an unchanged state the elements of the environment and valuable

natural areas (Studium uwarunkowań i kierunków..., pp. 20-24;). The age structure of the residents of Kołobrzeg confirms the advanced aging of society, a fact also evidenced by statistical data. In 2017, the residents aged 55+ accounted for over 36% of the total population of the health resort. In 2007, the share was 27.5% (65+, 20.25%, 13.5%) (BDL). Taking into account the age structure divided into economic age groups, the data presented in Table 1 confirms the observed trend.

	2007	2016	Change compared to 2007
Pre-working	16.8	15.4	91.58
Working	63.8	59.7	93.47
Post-working	15.8	25.0	158.17

*Table 1: Age structure by economic age groups in Kołobrzeg*  
 Source: own work based on GUS data (the Polish Central Statistical Office)

It should be noted that the share of residents in the pre-working and working age has been declining in recent years, whereas the number of people in the post-working age is increasing, which indicates the need for active senior policy in order to prolong the working life of residents. According to the BEAL data (GUS) - the structure of 50+ people did not change in the last three years (2015-2017). 31% of Kołobrzeg's residents aged 50 and over were professionally active, 67% passive and 2% of professionally active were passive. It is also worth noting that the employment structure in economic sectors indicates that 78.8% of women and 49.9% of men work in the service sector in Zachodniopomorskie Voivodeship. The high employment rate of women in services and feminisation, which increases with age, make it possible to draw the conclusion that the service sector (including tourism and recreation) is an opportunity to prolong the professional activity of senior citizens (women). Moreover, the residents of Kołobrzeg should be considered entrepreneurial. The entrepreneurship is measured by the number of companies per 10 000 residents. The entrepreneurship rate of the residents of Kołobrzeg as of mid-2017 amounted to 1938, and was much higher than the national average (1112) and the rate in Zachodniopomorskie Voivodeship, which is 1306 (calculated on the basis of BDL). The high entrepreneurship rate in Kołobrzeg results mainly from the number of companies in Section I - accommodation and catering services, which is much higher than the national average (in 2017, their share in Kołobrzeg was 13.77%, whereas the national average amounted to 3.10%), which is due to the city being a health resort, a large influx of tourists and patients, as well as a high share of Section G - trade and repairs (In 2017, participation in Kołobrzeg was 21.37% and the national average was 23.88%). The share of entities belonging to the R group (i.e. culture, entertainment and recreation) is also slightly higher than the national average (1.8) and amounts to over 2%. The factor determining the senior citizens' consumption, including tourist and recreational consumption, is revenue. In turn, the expenditure structure indicates the directions of consumption. The average monthly expenditure per person in Zachodniopomorskie Voivodeship in 2016 amounted to 1110.56 (BDL data, GUS). By analyzing statistical data from 2007-2016, it can be seen that the monthly expenses per person in 2016 increased by nearly 40%, which means that spending on recreation and culture increased on average from PLN 45 per month to PLN 67, and in the case of restaurants and hotels - from PLN 18 to 52. Although the available data concerns the voivodeship, and not Kołobrzeg itself, as well as it is based on average values, it should be recognized that this indicates a favorable trend of lifestyle changes, manifested by the possibilities of allocating funds for higher needs. Another factor predisposing Kołobrzeg health resort to the development of the silver economy based on tourism and recreation is the well-developed level of tourist and recreational infrastructure.

All-year-round accommodation provide ¼ of all beds in Zachodniopomorskie Voivodeship. In 2017, Kołobrzeg had 150 accommodation facilities, of which 72 were open-all year-round. The number of beds amounted to 17 323. There were 21 spa facilities with nearly 6 000 beds. The tourist facilities in Kołobrzeg are equipped with sports and recreation facilities, as shown in Table 2.

<b>Recreational infrastructure in tourist facilities in Kołobrzeg</b>	<b>The number of objects</b>
volleyball or basketball court	14
football pitch	7
tennis court	7
indoor swimming pool	36
open pool	6
The gym	28
sauna	42
solarium	7
SPA treatments	37
rehabilitation treatments (massages, physical therapy, etc.)	51
classes conducted by an instructor (eg fitness, yoga, aerobics, gymnastics)	33
billiard table with equipment	26
table tennis table with equipment	30
bowling	5
mini golf	1
rental of floating equipment	4
tourist equipment rental (eg bicycles, Nordic walking, skis, ice skates, roller skates)	42

*Table 2: Number of facilities in Kołobrzeg equipped with sports and recreational infrastructure (2017)*

*Source: Local Data Bank (GUS)*

Tools for supporting the development of the silver economy in the field of recreation can be strategic documents designated and adopted by the local authorities, to which further activities are assigned. Among several dozen documents, special attention should be paid to such studies as: "Gminny Program Rewitalizacji Gminy Miasto Kołobrzeg na lata 2018-2028 (GPR)" ("Communal Revitalization Program of the City of Kołobrzeg for 2018-2028 (GPR)" and "Strategia Rozwoju Kultury - Program Operacyjny Kołobrzeg Miasto Kultury" ("The Strategy for the Development of Culture - Operational Program Kołobrzeg the City of Culture"). Among the planned activities of 8 dedicated framework projects under the GPR, there can be distinguished as many as 4 projects dedicated, among others, to senior citizens and improvement of recreational activity of residents. These projects are "Rozbudowa sieci placówek wsparcia dziennego" ("Expansion of the Network of Day-support Centers"), "Utworzenie i rewitalizacja terenów parkowych i sportowo-rekreacyjnych" ("Establishment and Revitalization of Park and Sports-recreation Areas), "Winda dla aktywnego życia" ("Elevator for Active Life") and "Podwórko przyjazne mieszkańcom i odwiedzającym" ("Courtyard friendly to residents and visitors"). On the other hand, Strategia Rozwoju Kultury (Strategy for Culture Development) includes a task defined as the "art of life", associated with the social function of culture and art, which underlines that special attention should be paid to



senior citizens, a group whose cultural needs often differ from current trends. It was emphasized that in this respect the possibility of combining cultural programs for senior citizens with an offer addressed to a part of the patients of Kołobrzeg health resort should be indicated. Furthermore, this type of activities, in addition to increasing the number of potential recipients, play social functions such as creating a common, friendly level for establishing contacts between patients (visitors) and the inhabitants of Kołobrzeg. Senior citizens, who are residents of Kołobrzeg, can also use the Kołobrzeg Senior Card, which is issued in order to increase the activity of residents and grant them access to public services, cultural goods, sports events, as well as improve living conditions thanks to the introduction, coordination and promotion of discounts for Kołobrzeg senior citizens (<http://seniorzy.kolobrzeg.eu/>). Among 44 companies offering discounts for senior citizens, there are facilities that provide recreational services, e.g. Balitic Plaza Hotel \*\*\*\* offers 30% discount for SPA treatments and 50% discount for physiotherapeutic treatments, whereas Ośrodek Ćwiczeń Siłowych "Jacek" provides 30% discount on the monthly pass. In turn, the Museum of Polish Arms offers free entries at given times. The senior citizens of Kołobrzeg are also a group taken into account during public consultations, an example of which is the workshop for senior citizens organized in June 2018 as part of public consultations. It is also worth noting that Kołobrzeg collects the highest spa fee in all of Polish health resorts. In 2017, its inflow to the city's budget amounted to nearly PLN 8 million. This fee is primarily intended to increase the tourist attractiveness of the city.

## 5. CONCLUSIONS

The aim of the article was to show the premises for the recognition of health resorts as areas predisposed to the development of the silver economy based on the recreation segment. The presented information concerning Kołobrzeg confirms the adopted assumption. The identified conditions of functioning of the health resort are in line with the development of the silver economy. The concept of the silver economy manifests itself in the environmental, demographic, economic and social factors determining the development of recreation in health resort:

1. Environmental factors; the specificity of health resorts requires these towns to be rich in natural features. This favours the development of diversified economic activities using the natural resources of health resorts (mineral water well-rooms, mud treatments), which, in turn, drives the demand for services offered to health resort visitors, and consequently, the development of the silver economy in the context of vocational development;
2. Demographic factors; as in every other area, people in health resorts also age. Solutions addressed to senior residents can be used by tourists and the other way around, generating revenues for the city and entrepreneurs (e.g. transport, architectural and construction facilities, development of recreational infrastructure);
3. Economic factors; the wide offer of health resorts (supply) is conducive to recreational activity of both tourist- and resident- senior citizens (drives demand). Furthermore, the offer of health resorts is in line with the expectations of senior citizens. The development of tourism and recreation in health resorts generates demand for labour, which may result in vocational development of health resort residents, including senior citizens. Furthermore, the growing share of tourists in health resorts is associated with increasing income generated from the spa fee to the city budget. This fee is an important tool to support the development of the health resort's recreational space.
4. Social factors; in spa towns, the tourist function strengthens the development of the recreational function, which results in greater opportunities for managing the leisure time of resident senior citizens and their families. Further development of the recreational offer of the city, promotion of an active way of spending free time, increasing the availability of infrastructure and recreational services for senior citizens are conducive to social activation

of senior citizens, and can also constitute a way of fighting against their social exclusion, consequently leading to improvement of senior citizens' quality of life.

The presented deliberations confirm that health resorts are an area predisposed to the development of the silver economy, which should contribute to the local development of these towns thanks to the use of the potential resulting from the aging population. The development of the silver economy, however, is associated with the adaptation of an appropriate policy, targeted at the needs of senior citizens.

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## THE INFLUENCE OF BEHAVIOURAL FACTORS ON ENVIRONMENTAL DATA REPORTING - RESEARCH REVIEW

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### **ABSTRACT**

*The aim of the paper is to present and comment on the research into the impact of various factors on voluntary information disclosure in Corporate Social Responsibility (CSR) reporting. Environmental information plays a special role in CSR reporting. It presents positive and negative relations between the company and the natural environment. The importance of information on the environment has definitely increased because, firstly, countries have begun to introduce legal obligations to present this information, secondly – the interest in this information from the local community has increased, and thirdly, managers have begun to notice the financial and image benefits of this information. It should be noted that the literature mentions various factors that influence the disclosure of environmental information. The author of the paper divided them into three basic groups: social, macroeconomic and microeconomic. Using a cross-sectional analysis of empirical studies carried out in different countries, it was found that behavioural factors deserve special attention among macroeconomic and microeconomic factors. The paper uses a meta-analysis of the literature devoted to environmental issues in terms of the voluntary disclosure of this information in CSR reporting. The main conclusions from the analysis prepared by the author indicate a marked increase in the importance of behavioural factors in the presentation of CSR information, including the one on the environment. Nevertheless, there are relatively few studies that confirm the influence of behavioural factors on the scope of presented voluntary disclosures in CSR reporting. For this reason, the author believes that this gap should lead to further research in this area. In this view, the analysis of behavioural factors should primarily be taken into account when developing CSR reporting models.*

**Keywords:** *behavioural factors, CSR reporting, environmental information*

### **1. INTRODUCTION**

Issues related to corporate social responsibility reporting (CSR) are one of the most important, dynamic and complex issues faced by managers of business entities today (Henriques, Sadorsky, 1999, pp. 87). The factors contributing to the increase in the importance of these aspects are numerous legal regulations, consumer pressure (Henriques, Sadorsky, 1996, pp. 381-385), public awareness of growing environmental degradation, financial managers' perception of the benefits of presenting this information. The general public is witnessing a series of scandals and corporate frauds, and this results in an increasing lack of trust among stakeholders in corporations. That is why restoring the trust of the community is a difficult 'challenge' that business leaders are facing now. Among the information on corporate social responsibility, environmental information deserves special attention, presenting the impacts and interactions between the enterprise and the natural environment. Companies pollute the natural environment, but on the other hand, the growing awareness of irreversible damage causes corporations to undertake more and more activities to improve its condition. Environmental activities in companies that substantially affect the environment have a vast scope as well as the amount of environmental information generated. Nevertheless, the author of the paper takes the view that gathering and then presenting environmental information has definitely more benefits than disadvantages, both for the enterprise itself and the environment. Voluntary disclosure of CSR information inspires trust between corporations and stakeholders (Ibrahim,

Osama, 2013, p. 9). To strengthen this trust, managers of entities have to answer a few questions: How to collect this information in the IT system? How to present it? How should the environmental reporting model look like? Is it really worth collecting and then presenting environmental information if it is time and cost consuming? In response to the above questions, it is helpful to analyse factors that affect managers in individual countries, deciding to start or refrain from collecting and presenting voluntary environmental information in CSR reports. Analysing these factors is also useful for business entities in shaping accounting policy, which is why it is the main objective of the analysis carried out by the author of the paper.

In the author's view, the analysis of these factors is also an effective motivator in the dissemination of voluntary disclosures by companies in the optional CSR reporting, which should be carried out in every business entity, both those that have a negative impact on the natural environment, as well as those that take initiatives to improve the natural environment.

## **2. SIGNIFICANCE OF ENVIRONMENTAL INFORMATION IN CSR REPORTING**

In accordance with the European Commission, corporate social responsibility is a company's voluntary consideration of social and environmental issues in business operations, going beyond legal requirements and contractual obligations (Stępień, 2013, p. 808). An enterprise wishing to be considered as socially responsible should, on the one hand, conduct social and pro-ecological activities, and on the other – present the results of its projects, initiatives in CSR reports. Thanks to this, stakeholders can assess the degree of involvement in 'dialogue with the community', that is, the desire to build transparent, long-term and lasting relationships with all groups, both directly and indirectly interested in the functioning of the company. Environmental information should be included in the CSR reports among other information. According to B. and T. Poskrobko (Poskrobko, 2012): 'environmental information is a specific type of information referring to the condition of the natural environment and environmental impact resulting from the economic activity of a human being'. It should be noted that the presented definition does not cover all issues related to the management of environmental aspects in an enterprise. This definition does not embrace positive actions implemented by an economic entity in relation to the natural environment (protective measures, investments). The scope of information is therefore not useful while considering external stakeholders as they should receive information about activities that allow to reduce and compensate for the negative impact on the natural environment. There is also a lack of description of changes taking place in the natural environment (dynamic approach) and information describing the desired state of the environment, which determine the company's development strategy, including the creation of an ecological image of the economic entity (Czaja, Becla, 2007, p. 303). In connection with the above, taking into account the decision-making process implemented in business entities, the author proposes to provide environmental information to specify all types of information (both measurable and non-measurable) that identify problems arising at the interface: natural environment – human being – society – economic entity, and contribute to the principles of balanced and sustainable development (Ferens, 2017, pp. 3-16).

Considering the nature of environmental information, there can be distinguished five categories: legal, political, social, economic and technical. The characteristics of each category are included in Table 1.

*Table following on the next page*

*Table 1: Categories of environmental information (Balicka, 2016, p.89)*

Category of environmental information	Scope of information
Legal information	Reflecting the legal status of the natural environment and indicating appropriate implementing measures.
Political information	The base for making environmental decisions and presenting activities of government institutions and social organisations, describing the principles of competence and responsibility.
Social information	Reflecting, e.g. the pro-ecological state of the attitude of the society or state of ecological awareness.
Economic information	Presentation of aggregated data characterising the degree of implementation of the national environmental policy, the functioning of environmental management resources and institutions, and environmental management instruments.
Technical information	Describing: - the state of the natural environment in the set of its basic elements and basic ecosystems, - the burden on the natural environment with the separation of its type and sources, - the degree of anthropopressure in the territorial system and according to its type, - the state of basic ecosystems.

The author of the paper believes that all the above categories of environmental information should be included in CSR reporting, thanks to which it will be possible to:

1. assess the compliance with legal provisions;
2. estimate of the effects of the impact on the environment;
3. define the strategy for the future development of the entity, in particular the strategy of corporate social responsibility;
4. build the reputation of the company and trust in the company;
5. 'attract' new investors and creditors in a more effective way;
6. enhance the company's image and consumer relations;
7. increase employee satisfaction, loyalty and motivation;
8. increase opportunities for development and survival in a competitive world (Stępień, 2013, p. 286);
9. increase transparency of operation;
10. assess the value and future prospects of businesses and the costs of pollution control by investors based on environmental performance information.
11. assess the firm's environmental performance by regulators and the general public using this information (Bewley K., Yue Li, 2000, p.202)

Such a large number of positive attributes of generating and presenting environmental information causes the necessity to learn about the factors that affect or may affect its dissemination

### **3. SOCIAL, MACROECONOMIC AND MICROECONOMIC FACTORS INFLUENCING THE SCOPE OF PRESENTED ENVIRONMENTAL INFORMATION**

The review of the literature from various countries conducted by the author – Australia, Canada, Spain, Germany, the United States, Lithuania, New Zealand, Great Britain, Nigeria, Poland –allowed to conclude that there are a lot of determinants of environmental information

disclosures, but they are scattered and there are few publications presenting their systematics. Due to the variety of factors motivating the company to present environmental information in CSR and annual reports, it is proposed to divide it into three basic groups (Strojek, Ferens, 2018, pp. 268-271):

- social,
- macroeconomic,
- microeconomic.

According to the authors, an important factor in environmental reporting is the social situation of a given country. Affluent, well-educated societies generally have high environmental awareness, namely the need to care for the natural environment through various instruments. Developing countries have insufficient legislation and resources to improve environmental protection and social protection. Research shows that CSR reporting in these countries is still in its infancy, and the level of environmental and social disclosures is insufficient (ACCA, 2005). In the group of social factors influencing the scope of the presented environmental information, one can also point to: the level of citizens' education, the tradition of a given country, cultural and political (Adams 2002, pp. 223-250), religious and environmental factors. Social activity in the form of non-governmental organisations is also important. In the authors' view (Strojek, Ferens, 2017, p. 269), traditional media, Internet media and social media platforms are of fundamental importance here. Facilitated access to the media activates and sensitizes the general public in terms of ecology, and social lobbying can affect the adopted legislative solutions in the field of environmental information disclosures. The second group of factors are macroeconomic factors. This group includes the legislative, scientific and geopolitical conditions of a given economic entity. Companies in which social costs are an important item (mining, energy) and those that are more exposed to social pressure reveal more information about the environment than less-active companies (Ho and Taylor, 2007, pp. 123-150; Newson and Deegan, 2002, pp. 183-213). The self-awareness and interests of stakeholders vary from country to country. As Matten and Moon (2008, pp. 404-424) point out, the American system, for example, offers more incentives and opportunities for companies with high social responsibility. As a consequence, companies operating in other countries, and listed on the American stock exchange, present more environmental information. The research carried out in a given country has a significant impact on the development of CSR reporting practices. CSR has been discussed in business schools for a relatively long time. The conducted research has been illustrated by the number of chairs at American universities. The creation of numerous scientific journals in the field of CSR data reporting, the launch of new schools, colleges, courses, postgraduate studies in management, economics, and environmental protection causes an increase in the demand for knowledge of these issues. The appointment of new teachers/professors for teaching/lecturing, in turn, increases the number of publications in this field (Lockett, Visser, 2006, pp.116-118). The third group are microeconomic factors within which the most empirical research has been carried out, this group includes, among others, financial situation of the business entity (viability, profitability), characteristics of the corporation – the type of industry, size of the company, visibility, management methods, corporate culture, ownership status. Financial situation of a business entity –companies with high profitability are more exposed to social pressure and political costs than less profitable ones. It results from the necessity to explain that they operate within social norms and do not violate expectations of society or their obligations towards it. Moreover, companies with higher profitability are expected to devote more resources to environmental disclosures (Gamerschlag, Moller, Verbeeten, 2011, 233-262), as well as in companies operating in industries that have a strong impact on the natural environment. The type of industry – research carried out by (Stanny & Ely, 2008, pp. 338-352; Ohidoa & Omokhudu & Oserogho, 2016; Adams, 1998, pp. 333-

355; Patten, 2002, pp. 763-773; Brammer, Pavelin, 2008, pp.120-136), shows that it has a significant impact on the disclosure of environmental data. Depending on the profile of activity, the intensity of impact on the natural environment varies. Companies with a high environmental impact are more vulnerable to pressure from environmental groups. These groups are trying to influence politicians and the rest of society in order to burden those companies with higher costs. Therefore, for example, chemical companies will disclose more information about CSR than companies in other industries. A similar situation will be observed in the case of large companies. The relationship between the size of the company and the level of CSR disclosures was confirmed, inter alia, by studies conducted by Gamerschlag et al. (2011, pp.233-262). The visibility of the company means that the business entities that are in the focus of the stakeholders, constantly present in the media, are more exposed to the effects of social and political pressure than companies less visible to the general public (Deegan, Carroll, 1993, pp. 219-227). This means that well-visible companies disclose more CSR-related information to reduce potential political costs than less-visible ones (Gamerschlag, Moller, Verbeeten, 2011, pp.233-262). The high frequency of board meetings to meet shareholders' expectations translates also into the scope of CSR disclosures, as CSR activities are often at the 'centre' of the board's interest. The age of board members also affects the scope of CSR disclosures. Some studies show that young managers are more risky in making strategic decisions than older ones. Therefore, young directors more easily integrate new business goals, such as CSR than older ones (Hambrick, Mason, 2004, 193-206). However, the studies carried out by Giannarakis (2003, pp. 205-221) rejected this hypothesis.

#### **4. BEHAVIOURAL FACTORS IN THE PRESENTATION OF ENVIRONMENTAL INFORMATION UNDER THE CSR REPORTING**

Among the social and microeconomic factors affecting the disclosure of CSR information, including environmental one, behavioural factors are a particular item. Research on the impact of behavioural factors on the rationality of undertaken activities, including the motivation to present environmental data is associated with the development of behavioural economics and behavioural finance<sup>1</sup>. In behavioural economics, the neoclassical concept of human rationality was challenged and contrasted with the concept of limited rationality, according to which decisions made, judgments and choices made can be influenced by different kinds of emotional states (Cieciura, 2015, pp. 33-34). The author of this concept – H. A. Simon, indicated two types of limitations in human action: internal, or mental, and external, or environmental. As a result, an individual does not always act rationally. A person is guided not only by reason, but also by emotions and feelings, and has specific personality traits. H. A. Simon stated that an individual is not seeking the optimal choice of action variant, because the efficiency of the human mind is too small in relation to the problems encountered, so that they can be solved in a rational way (Bağ, 2011, p. 49). Behavioural finance, on the other hand, is characterised by a close relationship with sociology and psychology. The main task is to search, understand and anticipate any fluctuations in financial markets resulting from the psychological aspects of making investment decisions (Bağ, 2011, p. 50). Undoubtedly, the fact is that in economics, finance, accounting and auditing there is a need to include psychological and sociological aspects, because decisions at all levels of the hierarchy are taken by individuals (Artienwicz, 2013, pp. 7-23). Hence, taking account of the aspects of human behaviour makes it possible to conduct research by behavioural accounting. It should be noted that managers and persons responsible for CSR data reporting, including environmental ones, are influenced by the external factors (social, political, environmental, etc.) which directly and indirectly influence

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<sup>1</sup> Behaviourism is a trend in psychology that studies human behaviours and their dependence on the physical and social environment. Behaviourists analyse how a single environmental stimuli affects specific human behaviours (reactions). An individual, according to behaviourism, is a pawn acting under the influence of an external impulse (Bağ, 2011, p. 47).

the decisions they make. Research conducted by Ali & Rizwan (2013, pp. 590-609) shows that the manner/way of managers' behaviour depends on the influence of different groups of stakeholders. It is them (government, trade unions, customer associations, international buyers, media, employees, investors, international companies, competitors, CSR structures and networks, non-governmental organisations, institutions setting CSR standards and academic institutions) who influence their decisions also in the field of corporate social responsibility. Henriques and Sadorsky (1999, pp. 87-99) present a similar position. Based on surveys sent to 750 large companies, four basic groups of stakeholders have been identified that influence the shape of reported CSR data, such as regulatory (governments, trade, informal networks), organisational (customers, suppliers, employees), community (community groups, environmental organisations, other potential lobbies), media. Issues related to building social trust of stakeholders are therefore crucial in the dissemination and presentation of voluntary information, including that regarding the natural environment. This aspect is reflected in the research carried out by Waris Ali and others, 2013, pp. 590-609; Kolk, 2009, pp. 225-237; Fernandez, 2006, pp. 261-274; Adams, 2002, pp. 223-250; Deegan, 2002, pp. 282-311; Donaldson & Preston, 1995, pp. 65-91; Roberts, 1992, pp. 595-612. They argue that organisations are trying to make their actions perceived by external parties as legitimate, because the corporation is part of a broad social system. However, it should be noted that regardless of the stakeholders, the presented data should emphasise the company's involvement in CSR, but should not give the impression of 'bragging', because they can have the opposite effect from the intended one. The form of the reports and the manner of their communication are also very important. Should companies emphasize only altruistic motives of environmental information, or should they admit business motives? It is a complex psychological factor, but it is necessary to take into account because it affects the effectiveness of CSR reporting. The research carried out by Ellen et al. (2006, pp. 147-157) shows that consumers perceive various motives and understand that companies often strive to achieve specific business goals through their CSR initiatives. Recognition of external business stakeholders as important recipients of CSR communication increases the company's credibility and inhibits stakeholders' scepticism. Therefore, the company should emphasise the convergence of social and business interests (Porter & Kramer, 2006, pp.78-92). Internal behavioural factors affecting the presentation of environmental information in CSR reports, however, reflect their own system of values, ethical standards of people who prepare these reports, not always consistent with the norms of the business environment. Also awareness, emotions, 'point of view', self-awareness, as well as financial and economic factors are not without significance for the tasks and activities undertaken by individuals. In the view of many authors, the ethical point of view of employees and their personal characteristics play a significant role in the implementation of the CSR data reporting practice. Personal qualities, family upbringing, traditional beliefs and customs are mentioned by Md & Ibrahim (2002, pp. 10-16). Gender, race, minority, adopted religion, marital status, career stage, and ethical education are pointed by Keinert (2008). Gilles and Leinbach (1983, pp. 107-123) argue that family training and upbringing, traditional beliefs and customs are the basic factors in the motivation of CSR disclosure. According to studies carried out in Great Britain and Spain (Cambell, 2000, pp. 80-100, Godoz - Diez, Gago, Campillo, 2011, pp. 531-548), actions towards CSR reporting are predominantly determined by attitude and support of top management. After applying a mediated regression analysis using survey data collected from 149 Managing Directors in Spain, it was shown that people closer to the 'stewards' model are more likely to attach great importance to ethics and social responsibility and implementation of CSR practices in their companies than 'agents'<sup>2</sup>.

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<sup>2</sup> In order to study manager profile, the Agency–Steward ship approach is explored here (Chrisman et al., 2007; Davis et al., 1997), which distinguishes between agents and stewards according to several personal and situational characteristics. Agents are inclined to behave opportunistically and are mainly concerned with improving their own welfare and, only if efficient



Management's doubts over the advantages of reporting are, however, the main drawback hindering environmental reporting (Martin & Hadley, 2008, pp. 245-259). In a study conducted by Prabanga, Lee, Tan and Ferreira, the TPB method was used to identify the impact of psychological factors on CSR reporting. The results of these authors' research show that:

1. There is a positive relationship between behaviour of managers regarding CSR reporting and their attitude to engaging in CSR reporting.
2. There is a positive relationship between managers' normative beliefs regarding SR (corporate sustainability reporting) and their subjective norm of engagement in SR.
3. There is a positive relationship between managers' behavioural control beliefs regarding SR and their perceived behavioural control to engage in SR.
4. There is a positive relationship between managers' attitude toward SR and their intention to engage in SR.
5. There is a positive relationship between managers' perceived behavioural control over SR and their intention to engage in SR.

Another behavioural factor in the presentation of environmental data is the education factor of accountants, employees of the accounting department, reporting. It is important because they are those employees who most often prepare CSR reports in business entities. Therefore, their perception of aspects related to environmental protection depends on whether they are willing to present environmental information in CSR reports or not.

## 5. CONCLUSION

Various areas of science are entrusted with the task of taking into account the impact of human emotionality on its behaviour and business decisions. As it can be seen from the review of research conducted in different countries, the inclusion of behavioural factors is valuable in the analysis of various aspects, including those in the context of social responsibility accounting. It allows one to answer the question: What are the effects of psychological factors on the intention/method/changes in corporate social responsibility reporting by managers? Research conducted in many countries on factors motivating organisations to take action on environmental and social disclosures as well as sustainability are numerous, but there is still a lot to be done to examine and explain to what extent different factors cause the change towards greater accountability. Taking into account the interdisciplinary nature of science, the analysis of these factors should include the achievements of economics sciences, including accounting and behavioural sciences, including psychology. There is no empirical research testing behavioural models of decision makers. Reasons and theories why companies report environmental data have been developed without proper reference to internal corporate variables and the attitude of key stakeholders. However, it is believed that more research should be conducted to develop knowledge about the factors, especially internal ones, which can lead to changing patterns of reporting social and environmental business information. According to the author of the paper, the analysis of behavioural factors should also be taken into account when developing CSR reporting models in every business entity.

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control mechanisms exist are they interested in maximising value for shareholders. Stewards, on the other hand, have moral values that go beyond their own benefit and are inclined to behave collectively and cooperatively in the interests both of their organisations and those of all stakeholders. Consequently, in terms of CSR, it can be assumed that CEOs closer to the steward model will give more importance to ethics and social responsibility, and hence, they will promote higher level of CSR practices in their firms than those closer to the agent model.

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## **PARTICIPATORY BUDGETING AS A FORM OF CITIZEN INVOLVEMENT IN CODECISION PROCESS**

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### **ABSTRACT**

*The purpose of the article is to indicate that in the current era of development it is difficult to manage a local government unit without the participation of citizens in the decision-making process. One of the assumptions of the democratic system of governance is the active participation of citizens in the management process. The involvement of citizens is of key importance for the effective management of local government units. It creates a sense of local community and responsibility for the decisions. One of the important and developmental instruments of social participation is the civic budget, which cannot be a one-time process. It creates a real opportunity for a direct participation of residents in the decision-making, in the scope of public funds management of the budget of a given administrative unit, and allows them to discuss budget proposals, involving all stages of the budget procedure. The article therefore presents, among others, the idea of a participatory budget and the stages of work on its creation, as well as a comparison of data on the civic budget in selected cities. The article uses the method of documentary research, including the subject literature analysis, along with a comparative analysis and observation method.*

**Keywords:** *citizens, codecision process, local government, management, participatory budgeting*

### **1. INTRODUCTION**

Integration of local community ties is institutional and formalized. It is one of the most important tasks assigned by the legislator to local authorities. It consists of a set of both state and local government institutions and people who have the opportunity to make decisions concerning meeting the everyday needs of local communities, fulfill their interests, shape economic, social and environmental-spatial policy within the local habitat. The dialogue between public authorities and citizens is increasingly being observed. The European Union launches many mechanisms that directly or indirectly affect the local government, encouraging it to share its power. Managing customer-citizen satisfaction becomes indispensable for public institutions so that they can determine whether they are taking the right action and do it in the right way (Zarządzanie..., 2008). It is justified, among others due to the application of the good governance approach by local governments, based on the fact that administration is a form of cooperation between various entities to solve social problems and the citizen is a member entitled to full participation in public decisions. Involvement of citizens in co-determination is their active participation in managing matters related to the life of the communities they are members of. Social participation is a social process, as a result of which the community consciously engages in matters important to them, shares their experiences and views; obtains

influence and indirectly some control over the decisions of public authorities that affect their (citizens') interests (Długosz, Wygnański, 2015, p. 11). The aim of the article is therefore to draw attention to one of the important instruments of citizen participation in the decision-making process in the management of a local government unit, i.e. a participatory budget. The analysis of the subject literature and comparative analysis, the method of observation and partly case studies were used. Article descriptive-explanatory character.

## **2. PARTICIPATORY BUDGET AS A FORM OF INVOLVING CITIZENS**

It should be noted that the participatory budget was first introduced in 1988 in the Brazilian city of Porto Alegre (Santos, 1998. pp. 461–510; Participatory Budgeting in..., 2018), while in Poland the initiator of the implementation of the civic budget was the city of Sopot in 2011. A year later, the decision related to the inclusion of residents in the process of managing the local government unit was taken by such cities, like: Elbląg, Gorzów Wielkopolski, Poznań and Zielona Góra. In 2013, preparations for further Polish cities began, including Łódź, Wrocław, Bydgoszcz, Gdańsk, Chorzów, Płock, Radom, and Toruń (Dolewka, 2015, p. 63). In Great Britain, Salford City Council (PBunit, 2010) was the first town that became interested in introducing a participatory budget. Representatives of local authorities and non-governmental organizations conducted a feasibility study after meeting with envoys from Porto Alegre. The representatives of other British towns also started to show interest in the subject, as the participatory budget perfectly matched the policy of decentralization and deepening democracy. The introduction of Local Strategic Partnerships (LSP), Community Strategies and Local Area Agreements (LAA) encouraged partnership working across and between statutory, community and private sectors and citizens. Following the initial PB in Salford, the Participatory Budgeting Unit (a project of Church Action on Poverty) was set up in 2006 to promote PB around the UK. In July 2007, Hazel Blears, the British minister for community and local government, announced government financial support for pilot projects for implementing participatory budgeting in England. Thus, the development of the participatory budgeting concept around the world can be observed. The participatory budget, also known as the citizens' budget, has many definitions. One of them is presented by the World Bank, which understands it as a process through which citizens present their demands and civic priorities and influence the structure of budget expenditures through discussion and negotiations (Goldfrank, 2012). Therefore, participatory budgeting is a process of making decisions by which citizens discuss and negotiate on the distribution of public resources (Wampler, 2007, p. 21, Ganuza, Baiocchi, 2012, Baierle, 2010, pp. 51–75). It is based primarily on two pillars - the involvement of citizens and the favor of the city authorities. What is needed is political will in advance, and community support from below. Various types of social organizations are important here to involve people and push the process forward (What is PB..., 2018). The idea is to include in public affairs those people and groups that are usually excluded from public life. Therefore, participatory budget creates a real possibility of direct participation of residents in decision-making in the scope of public funds management of the budget of a given administrative unit and allows them to discuss budget proposals, involving all stages of the budget procedure. The budget results are binding. The most complete implementation of BP takes place when in the budget of the administrative unit a specific amount will be allocated for exclusive use by residents, so that the investments selected by them can be made. The civic budget benefits many parties. Local authorities build social consent, emphasizing the idea of good governance, contributing to a greater understanding of the work of the office and strengthening the transparency of activities. Such a solution also makes spending public funds more effective, strengthening the legitimacy of power through the development of dialogue and improvement of communication with residents. Civic activity increases, develops the role of local councilors and connects various environments in the process of making decisions about your own place of

residence/neighborhood/region. Inhabitants using the idea of participatory budget gain easier access to information on the finances of self-government and have a sense of influence on the actions that are taken in their environment. Active citizenship and democracy are also deepening. However, one should be aware of some of the risks/challenges arising from the application of the participatory budget. It may encounter some resistance of residents who are disappointed with the previous activities of the self-government, when their voice during, for example, social consultations had no impact on the decisions which had been made. It should be emphasized that it is a complex process, i.e. it requires time and commitment of many parties, sometimes it even seems that it is not profitable. It is often necessary to educate different groups so that they can participate effectively in this process. It is important to provide reliable information to residents about understanding the budget of the local government, that is translating a specialized language into a form that is understandable to everyone.

### **3. STAGES OF WORK ON THE PARTICIPATORY BUDGET**

There is no single, universally adopted model of adopting Civil Budget in self-governments. The UK has the largest variety of models for this budget. Some of them are of a general nature, others refer only to individual elements of self-government policy or individual projects (Łapińska 2012, p. 11). Different participative budget models can be used in different countries or cities, but in each of them the dialogue between different groups is the most important. The classic model of this budget from Porto Alegre is an example of representative democracy, which was emphasized by the mayor of this city Oliwio Dutry, who stated that "if all were involved in this process. it would become 'selling illusions of direct democracy on the Greek square', which was not a democracy of all, but a democracy of the best" (Sánchez-Pages, Aragonès, 2004, p. 2). It is worth noting, however, that the idea of the model from Porto Alegre has already undergone numerous modifications itself. It should be emphasized that the participative budget procedure must be repeated (the principle of repeatability), take the form of public debates during special meetings or forums (the principle of discussion), so that everybody can comment. It is also important that the implementation of ideas adopted under the BP should be accounted for. In Poland, "Standards of participatory budgeting processes" in Poland (2014) were created, containing instructions on how to conduct the process. The key principles of the participatory budget include:

- binding result of the procedure,
- transparency and openness - the rules should be known to the residents before starting the entire procedure,
- openness and inclusiveness of the process - friendly rules; anyone interested can join the process at its different stages; reaching the widest possible group of residents,
- providing space for debate with residents - this can not only be a plebiscite choice between competing projects; selecting projects for implementation should be the result of an earlier debate between residents about the true needs and priorities of the local community,
- supporting the activity of residents and creating opportunities for them, as well as the space for cooperation (discussion, conversation, building support),
- long-term, strategic thinking.

In Standards... (pp. 9–21), the stages of work on the participatory budget have been distinguished, although the final shape may vary depending on many factors. The stages are:

1. Preparation of the process – phase zero, i.e. discussion at the level of the municipal bodies over the idea itself, whether to run the PB process, whether it is a political will, whether the municipality is ready, what is the municipality's vantage on its long-term functioning. This stage is internal and takes place at the level of the process host. Such a debate may take place in parallel among the residents themselves, be initiated, for example, by non-

- governmental organizations. It is a good idea to appoint a person / team coordinating the process from among officials in the office.
2. Developing the principles of the participatory budgeting process – adjusting them to local conditions, eg the size of the city; creating opportunities for the residents to express opinions, preferably by participating in the work of the PB team and common consultations, or even by sending comments to the secretary. These works are public and published.
  3. An informational and educational campaign that should take place at all stages of the PB process; it is a good idea to involve various communication channels and forms of information materials addressed to various groups of residents.
  4. Development and submission of projects – granted to individual residents (natural persons) who have access to necessary information; it is worth to allow meetings, joint discussion of residents, debates or workshops. This stage usually lasts the longest. It is a good practice to contact project promoters who have independently submitted similar projects (e.g. in the same place playground but a little different equipment).
  5. Verification of submitted projects and the threshold of their acceptability (suitability, priority) should limit the activities of the office to a minimum, and the substantive assessment should be given to residents. The activities of the office should be focused solely on the verification of projects in terms of formal, technical and legal. The list of projects admitted to vote and rejected should be made public as soon as possible.
  6. Discussion of projects – full descriptions should be made public. It is worth organizing meetings for residents to present projects, preferably by project promoters, ‘open days’, fairs and project exhibitions.
  7. Selection of projects for implementation – by popular vote of residents; it should last a minimum of 7 days and be possible in both traditional (paper) and online forms. It is worth taking care of the voter's previous registration in order to seal the electronic voting system.
  8. Monitoring – observation of what happens to the results; monitoring on an ongoing basis, during subsequent stages of the procedure and at the level of implementation of selected projects.
  9. Evaluation of the process, i.e. evaluation of its course in terms of organizational effectiveness and effectiveness in achieving the formulated goals.

The distribution of funds should be made according to the so-called inversion of priorities, that is allocating appropriately larger resources to the most needy social groups and areas of the city. The British publication emphasized that “a well-executed participatory budget strengthens communities, makes people more committed to democracy and positively affects the quality of local public services” (Participatory budgeting values..., 2009). The participatory budget is therefore best suited to making decisions on territorial policy, because the residents not only set investment priorities and actions to be carried out, but above all, together form the concept of a "common good" for their municipality. Implementation of the participatory budget as a flexible, politically neutral tool, thanks to the open meetings of various groups with the authorities, increases the efficiency of implementation of urban policy, promotes entrepreneurship, reduces the gap between rulers and residents, building mutual trust.

#### **4. PARTICIPATORY BUDGET – PRACTICAL APPROACH (SELECTED EXAMPLES)**

In Poland, some local authorities have adopted that residents will decide on the allocation of a part of the budget of a given commune that they live in. What part of the funds will be spent on the implementation of the citizens' budget depends only on the political will of the authorities. There is a lot of freedom in this matter, although usually it is one percent of the budget of the local government unit.



Expenditure of a certain amount of budgetary resources is to be decided by the inhabitants of the municipality (city) by submitting ideas (projects), then discussion over them, and then the choice of solutions as a result of voting. Practice proves that in the units where residents were given the opportunity to decide on the allocation of self-government measures, they usually apply for the construction of playgrounds, pitches, bicycle paths, parking lots and parking spaces, pavement repair, lighting construction, park revitalization. Table 1 presents the share of participatory budgets in municipal budgets in Poland in 2017 on selected examples.

*Table 1: General overview of the public participation in the municipal budget planning in particular municipalities in Poland (2017)*

Local Government	Civil Budget	Budget per one resident (PLN)	Reference to the municipal budget (%)	Reference to municipal spending (%)	Type of municipality	Voivodship
Głogów	2 000 000	29.02	0.68	2.32	urban	dolnośląskie
Gorlice	600 000	21.15	0.83	5.76	urban	małopolskie
Hajnówka	120 000	5.57	0.17	0.57	urban	podlaskie
Jarosław	600 000	15.36	0.73	19.55	urban	podkarpackie
Kościerzyna	400 000	16.86	0.43	1.28	urban	pomorskie
Lębork	1 000 000	28.18	0.66	2.23	urban	pomorskie
Nowy Targ	1 000 000	29.73	0.74	2.05	urban	małopolskie
Piła	3 000 000	40.25	1.19	7.83	urban	wielkopolskie
Puławy	1 700 000	34.69	0.83	3.87	urban	lubelskie
Wągrowiec	300 000	11.91	0.38	1.92	urban	wielkopolskie
Zduńska Wola	1 000 000	22.99	0.85	4.31	urban	łódzkie

*Source: own study based on: Budżety 2017 (2018)*

It is worth noting that the participatory budget is on a diversified level in different municipalities in Poland. The highest activity of residents was observed in Piła, and the lowest in Hajnówka. Undoubtedly, the ability to decide on a larger amount of money increases the sense of citizens' perseverance and is an incentive to participate in the PB process. As a rule, in the case of electronic voting, the interest of people between 15 and 16 years of age increases. The participation of local communities in the process of creating part of the budget is, on the one hand, a form of civic activity, and on the other hand, a picture of responsibility from authorities (this applies primarily to the executive body) for proper performance of own, commissioned or entrusted tasks, including municipal services on a high quality level. A general list of the citizens' projects submitted and the value of the civic budget in Poland (2017) in selected municipalities are presented in Table 2.

*Table 2: General summary of the citizens' projects submitted and the value of the civic budget*

Local government	Number of projects	Value of the civil budget	Type of municipality	Voivodship
<u>Piła</u>	308	3 000 000	urban	wielkopolskie
<u>Puławy</u>	91	1 700 000	urban	lubelskie
<u>Nowy Targ</u>	88	1 000 000	urban	małopolskie
<u>Lębork</u>	34	1 000 000	urban	pomorskie
<u>Jarosław</u>	33	600 000	urban	podkarpackie
<u>Zduńska Wola</u>	27	1 000 000	urban	łódzkie
<u>Bielsk Podlaski</u>	23	500 000	urban	podlaskie
<u>Gorlice</u>	16	600 000	urban	małopolskie
<u>Mrągowo</u>	12	300 000	urban	warmińsko-mazurskie
<u>Kościerzyna</u>	11	400 000	urban	pomorskie
<u>Wągrowiec</u>	9	300 000	urban	wielkopolskie
<u>Hajnówka</u>	6	120 000	urban	podlaskie

*Source: own study based on: Budżety 2017 (2018)*

In Piła, 308 projects were implemented, in Puławy 91, the smallest number of projects within the participatory budget among the analyzed communes was carried out in Hajnówka and Wągrowiec. Analyzing the implementation of participatory budgets in practice, Poznań Metropolis deserves a special attention (2017), along with civic budgets organized in 13 of its municipalities: Czerwonak, Dopiewo, Komorniki, Kostrzyn, Kórnik, Luboń, Mosina, Poznań, Puszczykowo, Swarzędz, Szamotuły, and Śrem. Tarnowo Podgórne. Among the projects, the residents chose:

- playgrounds, playgrounds, integration sites – 43 projects,
- municipal infrastructure (roads, sidewalks, lighting, sewerage) - 20 projects,
- bicycle infrastructure – 6 projects,
- educational infrastructure – 5 projects,
- cultural infrastructure – 3 projects,
- infrastructure of zoological gardens, palm house – 3 projects.

Under the aforementioned projects, funds have been spent, as shown in Table 3.

*Table 3: Expenditure allocated to the participatory budget in the Metropolis Poznań 2017*

<b>The project</b>	<b>Value in PLN</b>	<b>Value in %</b>
Playgrounds, pitches, meeting places	5 918 993	31
Public infrastructure	2 215 533	11
Bike infrastructure	1 951 400	10
Educational infrastructure	1 872 000	10
Cultural infrastructure	2 200 000	11
Zoological, botanical infrastructure	2 675 000	14

*Source: own study based on the BO Report 2018 (2017), pp. 5–6*

The most frequently reported projects to be implemented in the Poznań metropolitan area include:

- technical documentation and construction of road lighting,
- implementation of planting of jasmine and rowan, together with the implementation of small architecture along the path along Owińska,
- organization of the beach in Chomęcice; with a beach soccer field, attractions for children, planting trees and plants, toilets, changing rooms,
- equipping the Primary School in Czerlejno with recreational, fitness and educational facilities,
- technical documentation of sanitary sewage system for all residents of Szczodrzyków and Primary School as well as Kindergarten,
- traveling summer outdoor cinema,
- preparation and implementation of a two-day trip for people aged 60+,
- revitalization of the football field (replacement of turf, making the irrigation system and football balls), separation of space for volleyball and badminton courts (with the possibility of adjusting the net height) and gym (so-called outdoor fitness).

The participatory budget must be binding and bring visible economic, social and environmental effects in a given territory. A relatively small number of projects reported by citizens are still a serious problem in some municipalities. Education for the benefit of local communities and proper communication at the level of the authority-citizen are not without significance.

An interesting example in Europe of how to effectively carry out the participatory budgeting process is the Portuguese Cascais or Spanish Figaro. Before introducing participative solutions - adapted to the size and structure of the city – the work was put in a dialogue with officials, decisions were made and the offices were broadly opened to residents – comprehensive or partial participatory management was introduced. In Cascais (see: Por Cascais..., 2018; Chrzanowski, 2013; Sintomer, 2013), the preparation for the implementation of a participatory budget lasted almost three years, starting from the communal strategy of sustainable development, in which one of the priorities was to increase citizens' civic engagement. After making a political decision to implement the idea of this budget, cooperation was started with the Association Associação in Loco ([www.in-loco.pt/pt/sobre/](http://www.in-loco.pt/pt/sobre/)), developing the methodology of the process and conducting training within the office among numerous employees. It was important to provide knowledge about the budget and the common language. Specific goals have been set for which measures have been chosen to reduce the gap between the authorities and not too much civic activity. These goals were recorded in the Cascais Participation Budget Chart, which forms the basis for the BP regulations defining precisely the next steps of the process. The main essence of the participatory budget in Cascais is discussion, consideration of arguments, mutual convincing for solutions, obtaining compromises, competition of projects, combining ideas, searching for allies. The relevant articles of the adopted rules set out principles based on a deliberative participation model. Submission of proposals takes place only during public sessions, the course of which is always the same, based on the previously selected methodology – they have the character of consultation workshops. The results of the voting are publicly announced during a ceremonial ceremony, during which a report on the state of progress of the implementation of projects from the previous edition is published publicly. Citizens' projects, already as municipal investment projects, are entered into the draft budget for the next year, presented to the commune council and after the budget has been approved by the council implemented by the commune office. In Cascais, apart from the benefits of implementing the participatory budget mentioned earlier in the article, the distance between the office and citizens involved in the process has been reduced. It was the result of building citizens' trust in the office and power, because the process was planned so as not to raise any doubts. However, full transparency required the presence and involvement of residents in the work on projects that took place in an informal atmosphere conducive to building relationships. An important aspect is also learning about the way the office, law, procedures and restrictions work. Throughout the process, the office also gets to know the expectations of residents, their points of view, concerns and doubts. The Cascais authorities are constantly monitoring the process by introducing necessary modifications to the work methodology. This is an important element of success.

## **5. CONCLUSION**

The participatory budget is an important instrument of public management. It strengthens the legitimacy of power, mainly through the development of dialogue and improvement of communication with stakeholders. Thus, it reduces the distance on the line of authority-citizens, contributing to the improvement of the image of the authorities, as well as promoting the idea of good governance. Participatory budget is one of the most effective instruments for increasing citizens' participation in codecision on public money. The essence of an effective long-term participatory budget formula is to initiate this process not only by local authorities, but, above all, by the residents themselves, who must see in it an effective tool for carrying out pro-social changes. The participatory budget increases both the involvement of residents and allows for a more efficient spending of public funds. It also helps to increase the cohesion and integration of the local community.

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## DEVELOPMENT OF HIGH-TECH BUSINESS IN RUSSIA: ANALYSIS OF PHARMACEUTICAL COMPANIES' GROWTH

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### ABSTRACT

*High tech companies often help to create new markets and technologies, provide significant contribution to national competitiveness and innovative activities; that is why they traditionally attract attention of researchers and experts. Paper deals with pharmaceutical market as an example of high tech sector. Main attention is paid to growing pharmaceutical producers, key factors and perspectives of their growth are analyzed. Empirical part is based on Spark Interfax data. OLS regression was completed in order to select factors which are significant for company's growth. 2013-2016 years period was studied. Turnover growth rate was used as main growth indicator. Company's age, share of intangible assets in turnover, ROA and productivity level turned to be significant. Intangibles and productivity indicators are positively related to dependant variable while other significant predictors have negative relationship with company's growth. Set of growing producers was clustered according to "Scale-Growth rate" combinations. It was found that growing pharmaceutical companies are characterized by high level of heterogeneity. Most of them have rather small market share and slow growth rate and therefore could hardly improve market situation themselves without special state support. At the same time it was shown that certain growing firms have high potential and strong market positions. Three groups of such companies and set of sustainable market leaders (companies which have leading positions according to several criteria) were analyzed in more details. It was proved that two groups – "Hidden champions" (small fast growing firms) and "Sustainable leaders" – demonstrate successful performance, play important role and could determine future market development. Perspectives of Russian pharmaceutical sector competitiveness are related mainly with these companies*

**Keywords:** *companies' growth, high tech business, pharmaceutical producers*

### 1. INTRODUCTION

High-tech entrepreneurship plays important role in any economy; it acts as a driver of technological development and a source of innovations. High added value and new well paid jobs are created by technological companies. Traditionally special attention is paid to growing companies as they determine future development and competitiveness of industries and national economy. Determinants and growth factors of high-tech companies are in the focus of many research projects though results are characterized by certain diversity and ambivalence. Our paper deals with pharmaceutical industry which is a part of high-tech sector and has great social significance. In Russia growth of pharmaceutical industry is recognized as a strategic goal of health service development. Russian pharmaceutical market in 2017 was in the 14-th position in the world (Pharmaceutical market in Russia, 2017). Main tendencies of global pharma development are relevant for Russian case also. The most significant tendencies include:

- dominant positions of Big Pharma companies in production, R&D and commercialization;
- decrease of market growth and positive perspectives of developing economies especially India and China;

- integration of pharmaceutical producers to interdisciplinary research in genetic technologies and involvement of consumers in pharmaceutical production development;
- dissemination of new technologies including robots, artificial intellect etc.

Main goal of our paper is to find out factors influencing Russian pharmaceutical companies' growth and to assess companies' growth character and potential. Identification of growing companies could be done according to different criteria including absolute and relative turnover growth, number of employees, productivity per one employee etc. Choice of right criterion is itself rather complicated and questionable task. Different approaches are used in international and Russian publications.

## **2. BRIEF LITERATURE REVIEW**

Problem of growth factors identification is crucial for many publications. Most researchers identify general (external) influence factors and specific ones. General factors are related to supply and demand characteristics, and external environment. Company's resources including innovative capacities and technical competencies, financial and labor resources, management system and corporate culture, business model and others are associated with specific factors. All these factors are analyzed for developed and emerging economies. Many research papers are devoted to growth factors of high-tech entrepreneurship in developed countries. Piatier report was a pioneer research paper which focused on high-tech companies' growth factors (Piatier, 1984). Several general factors including learning effect, bank financing availability, venture capital influence, and role of standards in new products development, were identified in this publication. A number of studies based on different empirical data appeared during last years (Cefis, Marsili, 2005; Coad, Rao, 2008; Colombo, Grilli, 2010; Kane, 2010; Hall et al, 2016). It is reported that key factors include personal qualities of entrepreneur, market orientation, resources access, human capital, social capital, financial capital, intellectual property and others. Most studies assume that there is positive relationship between high technologies, innovations and growth. However, this statement needs to be tested more accurately. There are rather few studies of microeconomic factors of high-tech business growth in developing economies including Russia. Russia is a transition economy with combination of high level of research and education development and low level of innovative entrepreneurship. Development of high-tech business is limited by many factors and barriers at macro, meso and micro levels. Lack of entrepreneurial traditions (Kihlgren, 2003), unfavorable institutional environment (Aidis, Estrin, Mickiewicz, 2008; Bhaumik, Estrin, 2007), high level of administrative barriers (Molz, Tabbaa, Totkaya, 2009) and other external factors still have great influence on the development of new business in Russia (Zhuplev, Shtykhno, 2009). Authors of a few papers dealing with Russian technological companies (Shirokova et al, 2013) point out that Russian companies operate in hostile and instable environment, therefore, they have to find new ways to develop competitive business. Leadership characteristics of company's founder and team quality become extremely important (Bruton, Rubanik, 2002). Shirokova (Shirokova et al, 2012) discovered three significant variables, which have positive influence on company's growth (measured in terms of sales volume): quality certificate, restructuring, and environment hostility. Paradoxical conclusion that hostile environment has a positive influence is explained by the fact that in such case firms go through great fruitful efforts resulting in sales growth and costs decrease in short term. Under favorable conditions, they pay attention to long term goals which are not necessarily directly related with sales growth. In our paper we analyzed (Kravchenko et al, 2017) data on Russian high-tech companies provided by Business Environment and Enterprise Performance Survey (BEEPS). It was found that younger companies have greater influence on job creation than older ones. Significant differences in growth factors between companies in high-technology manufacturing and knowledge-intensive services were demonstrated.

### 3. DATA, METHODOLOGY AND RESEARCH HYPOTHESIS

Our research is based on SPARK Interfax database and open data on companies' activities. Among whole set of high-tech companies we have selected those which deal with production of medical drugs and materials used for medical purposes. Consequently we analyzed very important sector of pharmaceutical complex, which determines its current state and forms development tendencies. Using Russian National Classifier of Types of Economic Activity we have chosen part 21.4 – Production of pharmaceutical essences, and then we have excluded all micro enterprises (with turnover less than 120 mln. rubles per year). At the first step sample included 273 companies, after checking for incomplete data and extreme exclusions we have got 125 firms which were analyzed in our research. We use relative change of company's turnover (growth rate) during 2013 – 2016 period as growth indicator. Following indicators were chosen for the description of company's current state and behavior models: turnover level, age, return on assets (ROA), share of commercial expenses in turnover, share of intangible assets in turnover, turnover divided on total wages. Main indicators are presented in table 1 and general characteristics of the sample are presented in table 2. 2013-2016 time period was considered. Choice of indicators provided an opportunity to take into account different aspects of firm's activities including scale (turnover), experience (age), effectiveness of operation (ROA). Commercial expenses and intangibles depend on business model and are related either to marketing and dissemination orientation or to intellectual capital concentration. Turnover on wage indicator shows how productive labor is at the level of particular company. According to our main hypothesis company's growth could be influenced by the following factors: age; commercial expenses; intangible assets; efficiency (ROA) and labor productivity (turnover/wage).

*Table 1: Main indicators of company's performance*

<b>Indicator</b>	<b>Explanation</b>
TR	Company's turnover, mln. rubles, 2013,2016, 2013-2016
age	Company's age, number of years, 2016
ROA	Return on assets, %, 2013,2016, 2013-2016
Com ExpShare	Share of commercial expenses in turnover, %, 2013,2016, 2013-2016
Int Share	Share of intangible assets in turnover, %, 2013,2016, 2013-2016
TR_L(productivity)	Turnover on wage, rbl on rbl, 2013,2016, 2013-2016

*Table 2: General characteristics of the sample (SPARK-Interfax)*

<b>Indicator</b>	<b>Average for sample</b>	
	<b>2013</b>	<b>2016</b>
TR, mln.rbl	3008	3421
TR growth rate,%	59.7	
Age	-	18.19
ROA, %	0.08	0.08
Com ExpShare, %	2.9	5.8
Int Share, %	9.7	10.4
TR_L	13.82	11.01

Turnover growth rate was taken as dependent variable, while others were treated as explanatory ones. The traditional Ordinary Least Squares regression (OLS) method was complemented, 2013 year indicators (1-st variant) and 2013-2016 differences (2-nd variant) were used as independent variables. Several pairs of indicator (age-intangibles share, age-productivity, productivity-intangibles, change in productivity-age, change in productivity-change in



intangibles share, change in productivity-change in ROA) turned out to be correlated. Therefore, sets of models were analyzed within each variant and significant ones are presented in the next section.

#### 4. RESULTS AND DISCUSSION

Selected results of regression analysis are summarized in table 3. Calculations results revealed a number of factors which are significant for the companies' growth. Following relationships could be proposed basing on the identification of significant factors:

- More mature companies have less growth rate;
- Companies with high share of intangibles demonstrate higher growth rate;
- Companies with higher productivity increase demonstrate higher growth rate;
- Companies with high ROA demonstrate lower growth rate. This conclusion was rather unexpected; it could be explained partly by the fact that pharmaceutical companies efficiently exploiting their assets are not oriented on growth. It could be also proposed that growing companies purchase or lease great amount of new assets in order to provide growth.

As it was already mentioned growing companies are very valuable for industry and national economy development. However, set of growing actors is highly heterogeneous and, therefore, should be analyzed in more details.

*Table 3: Regression analysis results (calculation by the authors)*

<b>Dependent variable: turnover growth rate 2013-2016</b>			
<b>Variables</b>	<b>Coefficient</b>	<b>P-value</b>	<b>Quality of the model</b>
<b>Model 1.1</b>			
const.	2.354	0.000***	R <sup>2</sup> =0.190 F-statistics=8.750 p-value=0.000
Age	-0.092	0.000***	
Commercial expenses, 2013	-0.168	0.863	
ROA, 2013	-1.865	0.061*	
<b>Model 1.2</b>			
const.	0.573	0.001***	R <sup>2</sup> =0.183 F-statistics=8.376 p-value=0.000
Commercial expenses, 2013	0.067	0.945	
Intangibles, 2013	2.468	0.000***	
ROA, 2013	-2.282	0.022**	
<b>Model 2.1</b>			
const.	2.898	0.000***	R <sup>2</sup> =0.222 F-statistics=6.212 p-value=0.000
Age	-0.124	0.000***	
Commercial expenses, 2013-2016 growth	-0.006	0.513	
Intangibles, 2013-2016 growth	0.000	0.884	
ROA, 2013-2016 growth	-0.002	0.639	
<b>Model 2.2</b>			
const.	0.341	0.002***	R <sup>2</sup> =0.298 F-statistics=24.041 p-value=0.000
Commercial expenses, 2013-2016 growth	0.001	0.880	
Productivity, 2013-2016 growth	0.866	0.000***	

*Significance level: \*\*\* - 1%; \*\* - 5%; \* - 10%.*

## 5. ANALYSIS OF THE GROWING COMPANIES

We used approach based on “scale of activity-growth rate” coordinate system. Such approach helps to cluster companies and to identify interesting and perspective groups. It is also possible to make forecasts on market development basing on this classification (Strategic Analysis of the Pharma Market, Future Revenue Models and Key Players , 2005). Large-scale companies with high growth rates could be found almost in any market. Being main development drives they are extremely interesting to study. We propose to call them “Flagmen”. However, it is difficult for large firms to demonstrate high growth rates in the long run. Having reached definite level of scale many big players further only support it or even decrease in size. Such companies are also very significant as they match certain part of demand and provide certain stability for the market. We propose to call them “Stabilizers”. Limited growth could be related to definite strategy or certain projects. Long term market perspectives depend to great extent on the existence of “hidden champions” which have rather modest size but demonstrate high growth. They could make great step ahead and reach strong competitive advantage. It should be noted that being “hidden champion” is important but not enough for great results in future. Besides these three groups the fourth one could be identified; companies from this group are small in scale and have low growth rate. Such firms occupy certain niches and could play important role but in most cases they could not become leaders without special support. 81 companies from our sample (64,8%) demonstrated positive growth rate during analyzed period. Figure 1 shows positions of growing firms in the “Scale-Growth” coordinates. Market share was taken as scale indicator. Most of the growing companies (49) have small scale and low growth rates. 11 firms were included in the group of so-called “Flagmen”, 16 are “Stabilizers” according to our classification and 5 could be called “Hidden champions”, which present very interesting and perspective examples. Further analysis was concentrated on these three groups.

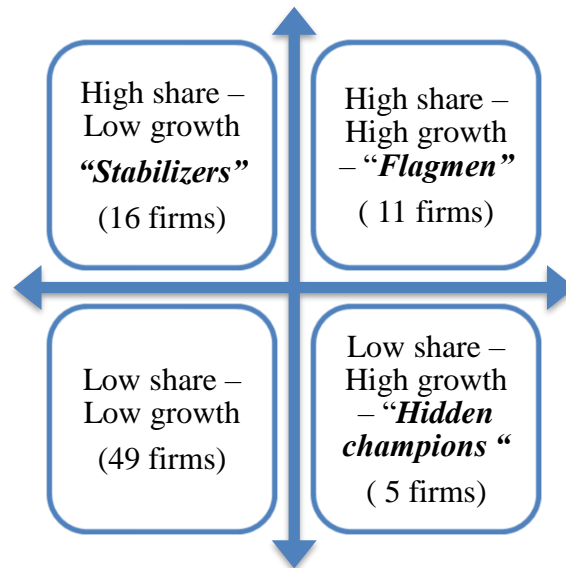


Figure 1: Growing companies in the “Scale-Growth” coordinate system

Belonging to the group with good perspectives is important but not enough for company’s real position assessment. Traditionally attention of experts is drawn by real market leaders. These firms determine market structure and influence perspectives and limitations of its development. Leading groups could be determined basing on different indicators. Existence of firms which are included in several top groups (have leading positions according to different criteria – we call them “sustainable leaders”) reflects the presence of “sustainable core” consisting from well recognized players. It is possible to predict the development of market basing on the

performance of such leaders. Top-15 groups were constructed for our whole sample basing on ranking according to selected indicators (shown in table 1). Then companies which were included in more than 2 groups were chosen. We have got 14 such companies which could be called "Sustainable leaders". Half of the firms included in this group (7 out of 14) are in the list of most recognized players of pharmaceutical market developed by experts. Matching the classification with our "Scale-Growth" scheme shows several interesting intersections. 3 sustainable leaders could be found in the group of "Flagmen", 5 sustainable leaders are representatives of "Stabilizers" and 2 are "Hidden champions". It should be mentioned that 4 sustainable leaders didn't demonstrate growth at all. Interestingly, it turned out that companies' background is not related with its growth characteristics. This means that former soviet enterprises, departments of transnational groups, research oriented firms and departments of large Russian private diversified firms operate in each segment of our growth matrix. Analyzed groups of companies were compared according to average values of significant growth factors at the final step of our research; results are presented in tables 4 and 5. We have six groups (some of them have intersections): all sample; all growing; "Hidden champions"; "Flagmen"; "Stabilizers"; "Sustainable leaders". Besides we have found 4 significant growth factors: age; ROA; intangibles share in turnover; change in productivity.

Table 5: Average turnover level and turnover growth rate for analyzed groups of companies  
 (calculation by the authors)

Name of the group	Average turnover level, bln rub., 2016	Average turnover growth rate
Whole sample	3 421	58%
Growing companies	3 557	117%
Hidden champions	746	<b>248%</b>
Flagmen	7 243	227%
Stabilizers	9 821	28%
Sustainable leaders	<b>15 649</b>	97%

Maximum levels for each column are marked with bold font.

Table 5: Average values of significant growth factors for analyzed groups of companies  
 (calculation by the authors)

Name of the group	Age	ROA		Intangibles in turnover		Productivity	
		2013	2016	2013	2016	2013	2016
Whole sample	18.2	0.08	0.08	2.90%	5.80%	13.8	11.0
Growing companies	17.7	0.06	0.12	3.73%	<b>9.17%</b>	8.9	10.5
Hidden champions	12.6	0.03	<b>0.17</b>	0.21%	0.06%	12.1	<b>16.8</b>
Flagmen	18.1	0.09	0.12	0.16%	0.25%	12.2	13.1
Stabilizers	<b>20.1</b>	0.10	0.15	0.59%	1.00%	9.6	9.4
Sustainable leaders	18.3	<b>0.13</b>	0.14	<b>14.97%</b>	3.55%	<b>15.0</b>	16.5

Maximum levels for each column are marked with bold font.

Our results show that "Hidden champions" and "Sustainable leaders" are more successful in terms of selected indicators and they demonstrate higher productivity. Leaders have greater scale than all other companies in the sample.

## 6. CONCLUDING REMARKS

Our analysis revealed that most of the pharmaceutical producers demonstrated positive growth during 2013-2016 period. Growth determinants identified with the help of regression analysis include company's age, share of intangibles in turnover, ROA and change in labor productivity. The relationship between dependent variable (turnover growth rate) and these factors is positive for share of intangibles in turnover and change in labor productivity and negative for age and ROA. Growing pharmaceutical companies are characterized by high level of heterogeneity. Most of them could hardly improve market situation themselves without special state support. Clustering of growing companies according to their activities' scale and growth rates showed that so called "Stabilizers", "Flagmen" and "Hidden champions" have high current or potential competitiveness. Real strong market leaders (even though not all of them are growing) have main market power and dominant positions. Companies which were included in two groups – "Hidden champions" and "Sustainable leaders"– demonstrate successful performance, play important role and could determine future market development. Perspectives of Russian pharmaceutical sector competitiveness are related mainly with these companies.

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## EUROPE 2020 STRATEGY – THE FIRST STEP IN THE IMPLEMENTATION OF THE 2030 ENERGY AND CLIMATE POLICY

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### **ABSTRACT**

*The paper aims to examine the assumptions of the European Commission regarding greenhouse gas emission within the objectives of 2030 climate and energy policy. European Commission assumes that by 2030 greenhouse gas emission will have been decreased by 40% in relation to 1990. This target is to be achieved through reduction of energy consumption in economies of EU states and increase in the share of energy from renewable resources in total gross energy consumption. The objective of the European Commission is analysed through estimated econometric model. Due to collinearity of explanatory variables, the method of ordinary least squares is applied for estimation of model parameters. Applying the estimated model, forecasts of greenhouse gas emission are calculated for 2030 and then they are confronted with the target assumed by the European Commission.*

**Keywords:** *econometric model, greenhouse gas emissions, ridge regression method*

### **1. INTRODUCTION**

The issue of the environment protection continues to be important, and since 1972 the environment has been protected in a special way. Environment protection started to be approached globally at the Conference in Stockholm, where United Nations Environment Programme and Declaration of the United Nations Conference on the Human Environment were developed. Since 1972 many programs focusing on environment protection have been developed. They were programs covering the whole continents as well as smaller regions. Another turning point was 1987 when G.H. Brundtland Commission on Environment and Development published a report entitled *Our Common Future*. The report defined sustainable development as the process of transformations that meets the needs of the present without compromising the ability of future generations to meet their own needs, through integrated actions in the sphere of economic and social development and in the area of environment, among others. Europe is an absolute leader in the area of environment protection. On 3<sup>rd</sup> March 2010, European Commission adopted *Europe 2020* strategy. The main objective of the strategy concerns employment, research and development, climate changes, sustainable energy consumption and education as well as combating poverty and social exclusion. The paper focuses on goals related to environment protection, therefore other objectives are omitted here. The European Commission underestimated the objectives concerning greenhouse gas emission. It assumed that by 2020 greenhouse gas emission will have declined by 20% compared to 1990 through increase in the share of renewable energy in final gross energy consumption to 20%, and reduction of energy consumption in economies of EU member states by 20%. The objective adopted in the strategy 2020 was already achieved in 2014. Such significant underestimation of the targets may lead to discontinuation of actions in some countries in the future. The goal of the paper is to verify the objectives of the assumptions of the 2030 energy and climate policy. By 2030 EU intends to have greenhouse gas emission reduced by 40% in relation to 1990. To achieve the goal, EU plans to reduce energy intensity in economy by 27% and increase the share of renewable energy in total gross energy consumption to 27%. Econometric models evaluated in the paper allow for determination of forecasts concerning greenhouse gas emission. The forecasts can be an alternative to the targets established by the EU.

## 2. LITERATURE REVIEW

The issue of environment protection, especially the problem of air pollution is often found in the literature. The problem can be studied in many aspects. Air pollution can be analysed in terms of the area in which it is observed – locally or globally; research can focus on the impact of air pollution on human health, but it can also be perceived from the point of view of relationships between the impact of environment protection on economy. Environment pollution on small areas was studied in the works of M. Gliniak et al. (2015, pp.8876-8881) and Wong et al (1999, pp. 679-683) among others. In global terms, mostly WHO deals with environment pollution (2016) while publishing their reports. Apart from WHO, scientists from all over the world, e.g. Wiedinmyer et al. (2014, pp.9523-9530), or Simkhovich et al.(2008, pp.719-726), are engaged in environment protection. In their papers all these authors address the impact of environment pollution on human health. On the other hand, B.Copeland and M.Taylor (2004), G. Haq (2001), or R. Morgenstern, W. Pizer and J-S. Shih (1998) studied the impact of environment protection on economy. Allocation of Emission Allowances within the European Union Emissions Trading Scheme to the Waste Sector was in the centre of interest of N. Braschel, A. Posch and V. Pusterhofer (2013, pp.137-145). Beside WHO, the European Commission (1994, 2004) or Eurostat (2001) also publish works concerning environment protection and related costs. Therefore, the issue of environment protection, especially air pollution is a severe problem and it is often studied all over the world. In this work, the author wants to analyse whether the objectives determined by the European Commission for 2030 in the sphere of greenhouse gas emission can be met on the one hand or maybe they are too low on the other hand. Both situations are unfavourable. There are few works concerning statistical and econometric analysis of the objectives for the EU. In their paper, Warzecha and Wójcik (2017, pp. 842-848) studied the targets assumed in Europe 2020 strategy, whereas in this paper the author examined the assumptions concerning 2030 energy and climate policy.

## 3. METHODOLOGY

The paper evaluates the econometric model that explains shaping of greenhouse gas emission in the EU depending on the share of renewable energy in final gross energy consumption and energy intensity in economies of the EU states. To evaluate the model parameters, the method of Ordinary Least Squares (OLS) was applied (Biolik, 2013, pp. 20-21; Maddala, 2006, pp. 104-107). The criterion of the least squares in the form of matrix can be presented as follows:

$$\Psi = (y - Xa)^T(y - Xa) \rightarrow \min \quad (1)$$

Which, if the condition of  $\det|X^T X| \neq 0$  is met, leads to the following solution:

$$a = (X^T X)^{-1} X^T y \quad (2)$$

In the next step, the model was verified, and thus the relevance of parameters, heteroscedasticity, auto-correlation and normality of distribution of random elements was examined. To verify the hypothesis concerning normality of distribution of random element, Shapiro-Wilk's test was applied (Shapiro, Wilk, 1965, pp.591-611). On the other hand, Durbin-Watson's test was applied to examine auto-correlation (Durbin, Watson, 1950, pp. 409-428). Whenever the test did not give an explicit answer to the question of whether the auto-correlation was statistically significant, Breusch-Godfrey's test was applied (Maddala 2006, pp.292-296). White's test was applied for heteroscedasticity analysis (White 1980, pp. 817-838).

Due to significant probability of occurrence of collinearity of explanatory variables, in the next step, zero hypothesis of the absence of collinearity was verified by the test proposed by D.E. Farrar and R.R. Glauber (Zeliaś, 1997). To verify the zero hypothesis the following statistics was calculated:

$$\chi^2_{|R|} = -[n - 1 - \frac{1}{6(2k+5)}] \lg|R| \quad (3)$$

where  $n$  represents the number of observations of each variable and  $k$  is the number of explanatory variables included in regression model. Due to occurrence of collinearity of variables, model parameters were estimated with the ridge regression method. This method was developed by A.E. Hoerl and R. W. Kennard and assumes that it is better to use weighted estimators of model parameters rather than estimators of larger variance. Ridge regression estimators can be calculated with the use of the following formula:

$$\hat{\beta}_g = (X^T X + W)^{-1} X^T y \quad (4)$$

where:  $W = wI$ .

It is assumed that  $w$  is a small value from the (0;1) range.

#### 4. RESULTS AND DISCUSSION

Since 2004, the share of renewable energy in final gross energy consumption has been gradually growing (Figure 1), and energy intensity of economy has been declining (Figure 2). According to the assumptions of the European Commission greenhouse gas emission in the EU is gradually declining at increase of the share of renewable energy and decrease of energy intensity in economies of EU member states (Figure 1).

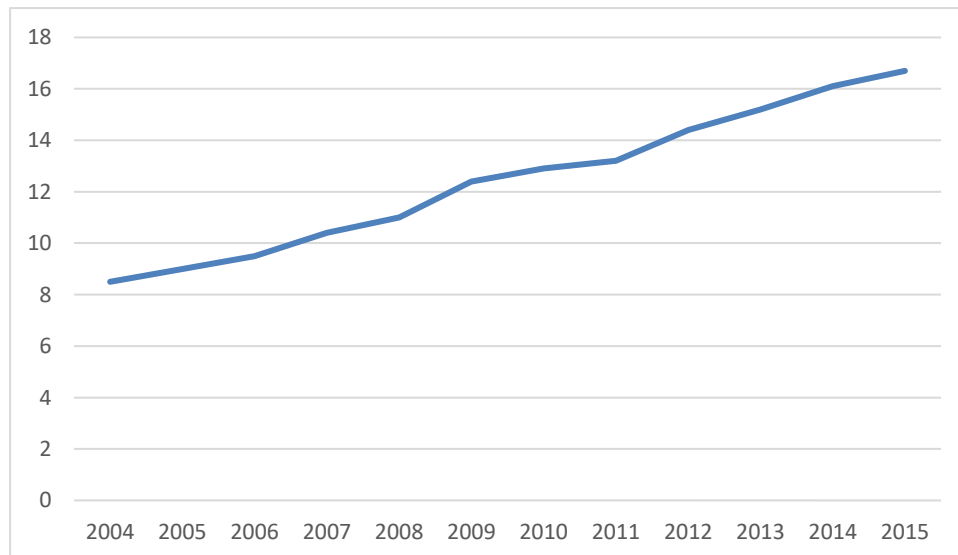


Figure 1: Renewable energy share in final gross energy consumption

Figure following on the next page



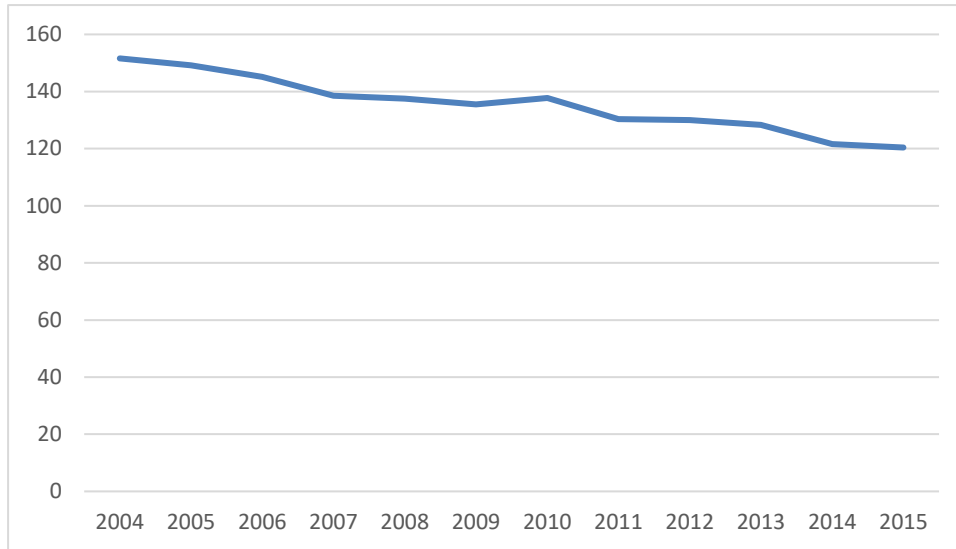


Figure 2: Energy intensity in economies of EU member states (kgoe/EUR 1000)

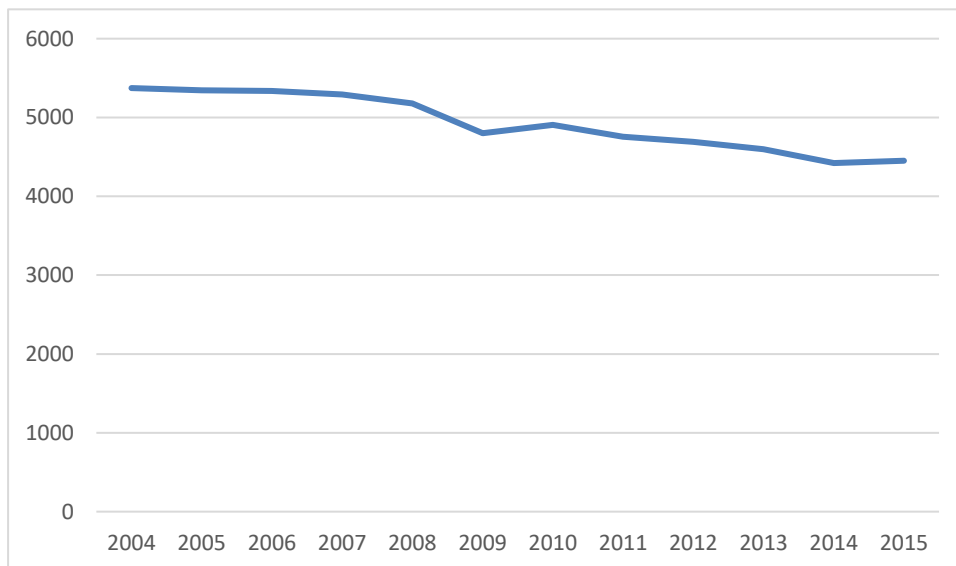


Figure 3: Greenhouse gas emission in EU (in million tons in CO<sub>2</sub> equivalent)

The model that explains the shaping of greenhouse gas emission depending on the renewable energy share (RES) and energy intensity of EU economy (EIE) was estimated with the use of the method of least squares – the results are presented in table 1.

Table 1: Model parameters estimated with OLS

	Coefficients	Standard Error	t Stat	P-value
<b>Intercept</b>	7561.22	1632.15	4.633	0.0012
<b>EIE</b>	-5.93622	9.13332	-0.6500	0.5320
<b>SRE</b>	-146.926	32.4537	-4.527	0.0014
<b>Autocorrelation</b>	DW=2.678	d <sub>l</sub> =0.812	d <sub>u</sub> =1.579	
	LMF=3.964	P-value: 0.082		
<b>Heteroscedasticity</b>	LM=5.273	P-value:0.383		
<b>Normality of distribution</b>	W=0.921	P-value:0.29		

EIE variable (EU economy energy intensity) proved to be statistically unimportant – it is contrary to the assumptions of the European Commission. Furthermore, a negative value of the parameter found at EIE variable suggests that together with the growth of energy intensity in economy, the size of greenhouse gas emission decreases. Such a situation can be affected by collinearity of explanatory variables, which is studied in the next step (table 2).

*Table 2: Farrar-Glauber's test of variable collinearity*

Statistics value $\chi^2_{ R }$	Critical value interpreted $\chi^2$
13.481	3.841

Farrar-Glauber's test confirmed occurrence of collinearity of explanatory variables. To estimate model parameters, ridge regression method was applied to eliminate negative results of collinearity. The results are presented in table 3.

*Table 3: The models estimated with the use of ridge regression method*

	Coefficients	Standard Error	t Stat
<b>Intercept</b>	894.908	193.132	4.634
<b>EIE</b>	31.297	1.217	25.721
<b>SRE</b>	-16.658	7.087	-2.350

After parameters are estimated with ridge regression method, both explanatory variables have a significant impact on dependent variable on the level of statistical significance  $\alpha = 0,05$ . Furthermore, symbols found at relevant variables are consistent with the theory of economics and therefore if energy intensity in EU economy grows by a unit, greenhouse gas emission will grow on average by around 31.3 units, and if the share of energy from renewable resources in final gross energy consumption grows by 1 percentage point, greenhouse gas emission will decline on average by around 16.6 units. To calculate the predicted greenhouse gas emission for 2030 on the basis of estimated model, projection of explanatory variables for 2030 should be calculated first. Predicted values were calculated with the use of linear trends which is shown in figures 1 and 2. Tables 4 and 5 show parameters of linear trends for explanatory variables, values of relevant test statistics, p-value numbers and projections for 2030.

*Table 4: Linear trend estimated for EIE variable*

	Coefficients	Standard Error	t Stat	P-value
<b>Intercept</b>	153.002	1.342	114.0	6.59e-017
<b>t</b>	-2.695	0.182	-14.78	4.02e-08
<b>Autocorrelation</b>	DW=1.901	$d_l=0.971$	$d_u=1.331$	
<b>Heteroscedasticity</b>	LM=2.097	P-value:0.35		
<b>Normality of distribution</b>	W=0.984	P-value:0.863		
<b>Forecast for 2030</b>	80.234			

*Table following on the next page*

*Table 5: Linear trend estimated for SRE variable*

	<b>Coefficients</b>	<b>Standard Error</b>	<b>t Stat</b>	<b>P-value</b>
<b>Intercept</b>	7.417	0.146	50.67	2.17e-013
<b>t</b>	0.773	0.02	38.87	3.03e-012
<b>Autocorrelation</b>	DW=1.973	d <sub>i</sub> =0.971	d <sub>u</sub> =1.331	
<b>Heteroscedasticity</b>	LM=1.584	P-value:0.453		
<b>Normality of distribution</b>	W=0.958	P-value:0.761		
<b>Forecast for 2030</b>	28.29			

If the present trend continues, energy intensity of EU economy by 2030 will have reached 80.234 kgoe/EUR 100, and the share of energy from renewable resources in final gross energy consumption will have reached almost 29%. Obviously, there is still a lot of time until 2030 and the trend may change for example as a result of technological development or pressure from the European Commission. Assuming projected values of explanatory variables for 2030, the projection of greenhouse gas emission will reach 2934.718 tons in CO<sub>2</sub> equivalent which represents decline by around 48.5% in relation to 1990, which is more than the objective assumed by the European Commission.

## 5. CONCLUSION

The European Commission has set the objective concerning environment protection for the member states. The objective is to reduce greenhouse gas emission in 2030 by 40% in relation to 1990. The goal is to be achieved through reduction of energy intensity in economies of EU member states and growth of the share of energy from renewable resources in final gross energy consumption. The paper aims to study if the assumed goal can be achieved on the one hand, and on the other hand to check if the set target level is not too low. In fact, greenhouse gas emission is significantly affected by both energy intensity of economy and the share of energy from renewable resources. It appears that the variables are collinear and therefore there is a strong linear correlation between them. Pearson linear correlation coefficient was -0.97 which means that energy intensity of economies declines with the growth of the share of energy from renewable resources. Collinearity of variables creates problems for estimation of parameters, therefore ridge regression method was used to estimate the parameters of econometric model. At the assumption of constant pace of changes in explanatory variables, projections for 2030 were calculated. According to predictions, by 2030 energy intensity of EU economy will have declined to 80.234 kgoe/Euro 100 and the share of energy from renewable resources in final gross energy consumption will have grown to 28.29%. Projection of greenhouse gas emission in EU in 2030 was calculated on this basis, and it reached 2934.718 million tons in CO<sub>2</sub> equivalent. Assuming this, the share of energy from renewable resources will decrease by 48.5% in relation to 1990 which means that the goal set by the European Commission was underestimated. Furthermore, as it has been mentioned above, the projections were calculated at the assumption of constant pace of changes in explanatory variables, and for the next 12 years we can expect technological progress which may affect decrease in energy intensity of economies on the higher level than currently observed. Summing up, the European Commission set the objective for the member states in the sphere of greenhouse gas emission. It can be achieved even if there are some complications. Thanks to such a policy of the European Union, Europe will still be a leader of changes aiming at improvement of natural environment.

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## **SPATIAL DIVERSITY IN DEVELOPMENT OF KNOWLEDGE INTENSIVE BUSINESS SERVICES IN THE EUROPEAN UNION**

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### **ABSTRACT**

*Changes occurring in the contemporary economies show an increase in the importance of the areas that are based on intensive use of knowledge. One of such areas, that significantly determine modern and competitive structure of economy, is knowledge intensive business services (KIBS). They include many different types of services such as computer and information, research and development, accounting and legal activities, engineering services, management consultancy etc. Application of IT tools, and using consulting services in the sphere of software and computer equipment, data processing or managing webpages is a demand of contemporary world. These services, together with engineering services, contribute to simplification of production processes as well as expansion and application of new technologies. In the processes of business activity restructuring and reorganising, research and development services, management consultancy and market researches perform important role. Enterprises that effectively use such services not only achieve comparative advantage, but also absorb highly qualified labour resources. In the light of the above considerations, the goal of the paper is to present spatial diversity of the level of knowledge-intensive business service development in European Union countries with special focus on changes in employment. The paper addresses the following research questions: What are the main determinants of KIBS development?, How deep is the differentiation in the share of employment in KIBS among the EU countries?, How is the internal structure of KIBS evolving in individual EU countries? Research period covers the years 2006-2016 and the conducted analyses are mainly based on statistical data obtained from Eurostat. The considerations in the article are conducted in the following areas: 1) determinants of knowledge-intensive business services development, 2) the analysis of KIBS development in the EU 3) changes in employment in KIBS, 4) perspective of KIBS development.*

**Keywords:** *development, globalization, employment, KIBS, services*

### **1. INTRODUCTION**

Changes rapidly occurring in recent decades, creation of knowledge economy and information society, growing significance of knowledge and human capital made the sector of Knowledge Intensive Business Services (KIBS) one of the areas of crucial importance. KIBS sector comprises companies whose key task is to provide help to other organisations in problem solving whenever it is necessary to reach for external sources of specialist and professional knowledge. They perform the key role in development and launching of new products and services on market while often being carriers as well as creators of innovations. KIBS comprises diverse services from advisory services associated with management and IT services, to research and development activity. In view of the above, the goal of the paper is to present spatial diversity of the level of knowledge-intensive business services development in European Union countries with special focus on changes in employment.

The paper addresses the following research questions:

- What are the main determinants of KIBS development?
- How deep is the differentiation in the share of employment in KIBS among the EU countries?
- How is the internal structure of KIBS evolving in individual EU countries?

Theoretical achievements collected in international literature of the subject and statistical data concerning selected aspects of KIBS functioning in Poland and other European Union member states are the basis for conducted analyses. The research period includes the years 2006-2016 which results from limited access to data on such a low level of aggregation among others.

## **2. KNOWLEDGE-INTENSIVE BUSINESS SERVICES – DEFINITIONS**

The attempts to identify and define the concept of Knowledge-Intensive Business Services (KIBS), encourage to ask the questions of what distinguishes these services from others? What criteria of classification should be adopted? Two essential issues result from the very notion of KIBS – their knowledge-intensity and their indirect character, as the recipients of this type of services represent other organisations of sector II and III rather than households. In the most comprehensive approach, the notion of Knowledge-Intensive Business Services refers to services the result of which is “knowledge creation, accumulation or diffusion” (Miles, Kastrinos, Bilderbeek, den Hertog 1995, p. 18). A similar approach is presented by Bettencourt who claims that KIBS represents ventures in which added value occurs as a result of the process of knowledge creation, accumulation and diffusion for the purpose of improvement of existing service, or application of a solution that satisfies customer’s needs within its new type (Bettencourt, Ostrom, Brown, Roundtree, 2002, p. 100-128). This is because KIBS sector is formed of companies the aim of which is to solve customers’ problems whenever it is necessary to reach for external sources of specialist knowledge. The activity of the sector is not limited to offering customers the access to information and assistance in knowledge creation or transfer, but it mainly focuses on supporting development and “expansion” of customers’ knowledge. Development of solutions that satisfy customers’ demands linking information and diverse types of knowledge, including explicit, general, technological and tacit knowledge gained from customer, as well as experience and competences acquired during implementation of successive projects. In KIBS activity, the necessity of “teaching” customers performs the key role. It is emphasised by Wood, according to whom KIBS “often offers an important technological or organisational knowledge that is important from strategic point of view, and which is not possessed or cannot be applied by customers’ workers without support or consultancy offered by KIBS companies” (Wood, 2002, p. 994). Considering the above features, knowledge-intensive business services are defined as projects in which added value occurs as a result of the process of knowledge creation, accumulation and diffusion for the purpose of improvement of existing service, or application of a solution that satisfies customer’s needs within its new type (Bettencourt, Ostrom, Brown, Roundtree, 2002). Specific nature of knowledge-intensive services shows crucial significance of relationships with customers, built in the process of constant learning, communication and development of the ability to cooperate. Thus, building appropriate relationships between service providers and customers is the key determinant of KIBS provision. Linking these elements with abstract thinking and creative problem solving contributes to succeeding in provision of knowledge-intensive services. It must be emphasised that application of professional knowledge (high knowledge intensity) and entering close interactions with customers are important both from the point of view of development of the very KIBS services and their innovativeness (Asikainen 2015, p. 77-95, Pina, Teher 2016, p. 401-416, Skórska, 2012). Studies of KIBS development cause many problems because of the lack of coherence in the sphere of their classification (Larsen, 1998, p. 16, Hermelin, 1997, p. 9, Nählinder, 2002, p. 18, Muller, Doloreux, 2009, p. 66, Toivonen, 2004, p. 242-243). Being aware of their deficiencies and considering the possibilities to gain statistical data, in further part of the paper KIBS includes the services presented in figure 1.

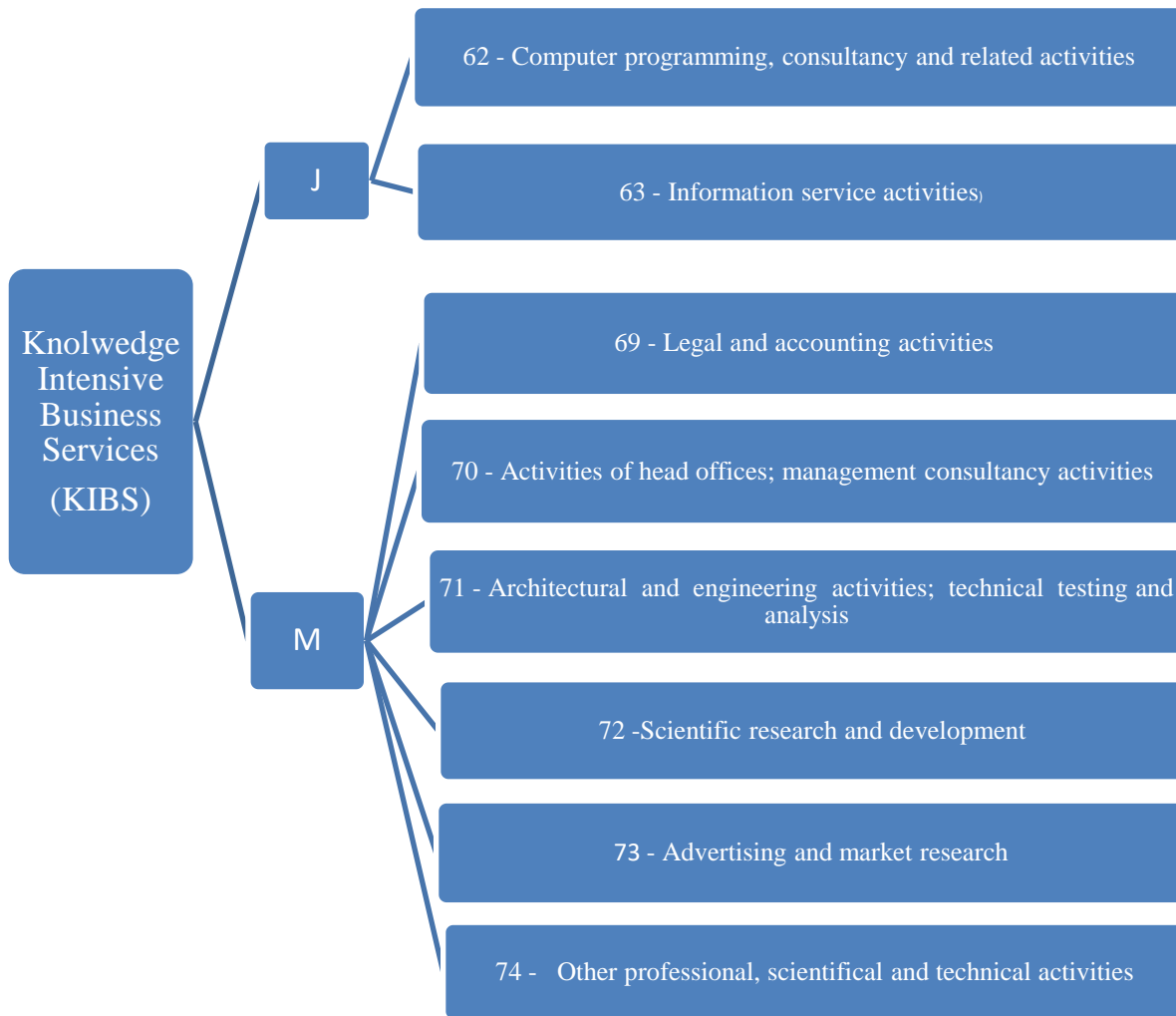


Figure 1: KIBS w klasyfikacji NACE Rev.2., (Schnabl, Zenker, 2013).

### 3. DETERMINANTS OF KIBS DEVELOPMENT

Development of KIBS is determined by a number of factors of diverse character. The power of their impact depends on the role of KIBS in the economy of a given country, size of the sector and dynamics of growth, as well as type of services provided within KIBS. Growing competition and increasingly shorter cycle of implementation of innovative solutions contributes to increasing demand on external sources of specialist knowledge provided within KIBS. Research (Howells, 1989 p. 289-299, Miles et al., 1995, p. 32-33, Miles, 2005, p. 43-46, Skórska 2016, p. 137-146) shows that development of KIBS is a result of impact of the following determinants:

- development of innovative technologies which, among others, contributed to changes in the ways in which the services are provided and increase in the scope of company activity on market,
- growing demand on diverse types of knowledge, especially related to IT,
- growth of demand on specialist knowledge of law, administration, environment protection or social issues,
- increasing demand on services and intangible products in knowledge economy,
- globalisation and internationalisation of economic activity and processes of outsourcing and offshoring related to them,

- “side effect” (spin-offs) of exclusion of business services from enterprises belonging to other economy sectors as a result of growing specialisation and dynamic development of innovative technologies,
- development of the labour market of knowledge workers,
- emergence of new companies, including starting own businesses by specialists, as a result of outsourcing and downsizing.

Enterprises are facing new challenges related to growing globalisation and development of IT technologies, as well as the lack of appropriate knowledge inside the organisation among others. This brings growth of demand on knowledge-intensive services. Development of innovative technologies and growing scope of their application in various areas of activity is one of the main reasons for growth of demand on services associated with software industry and IT consultancy that constitute the key category included in KIBS. The scope of conducted services is broad: video and teleconferencing services, data processing, website management, virus protection and protection against hackers, as well as security system operation in cyberspace. Demand on specialist services is growing under the impact of changes in regulations and legislation in financial or telecommunication sector, as well as in the sphere of environment protection where the growth of competition contributed to market segmentation and offering new products. Legal requirements result in the fact that because of objectivity of expressed opinions and expert analyses, some services must be provided by external companies, like for example auditing services. Development of KIBS is also associated with such services that need specialist knowledge, but demand on them in the company is occasional. Therefore, it is necessary to gain them from external sources e.g. from market research. The question of cost reduction is also important; therefore, it consequently contributes to outsourcing and offshoring of knowledge-intensive services (Skórska, Wójcik, 2017, p. 2409-2416 ). Focus on the core company business contributed not only to development of outsourcing, but also became the stimulus to emergence of new organisations as a “side effect” (spin-off) of labour division and specialisation in traditional business services. Specialists providing consulting or IT services locate their activity in market niches finding application for innovative technologies in their previous activity for current customers, and frequently creating new applications for those technologies. Summing up, there are many reasons why organisations decide to use external specialist services, and therefore demand on them is constantly growing. It is hard to imagine functioning of contemporary enterprises without professionally provided legal, taxation, market research and consulting services in the sphere of management of IT. Access to specialist knowledge-based services enables companies to gain comparative and competitive advantage which is especially difficult in conditions of permanent change and conducted restructuring processes. Regardless of the reasons of development of knowledge-intensive services sector, attention must be focused on the dynamics of changes in KIBS structure, high pace of entering and leaving the market, as well as growth of demand on increasingly more specialised and new services on the one hand, and KIBS concentration on core activity and outsourcing of support activities that are less important on the other hand.

#### **4. EMPLOYMENT CHANGES IN KIBS IN THE YEARS 2006-2016**

In its initial development period, KIBS did not constitute a prevailing area in service sector in quantitative terms. However, this does not prejudice the importance and significance of these services for the development of modern economy. Countries of higher level of development (e.g. Holland, Great Britain) both in 2006 and in 2016 showed the highest share of employment in KIBS in service sector (over 10%), whereas among new EU member states the rate in 2006 did not exceed 5-6% which is presented in table 1. In 2006 in the whole European Union there were over 16.9 million people employed in KIBS in 3.5 million enterprises.



It constituted nearly 11-percent share in total services, and almost 19% of added value of EUR 842 billion generated by the sector, if public services (public administration, education, health care and social welfare) are not included. Five countries, i.e. Great Britain, Germany, France, Spain and Italy, formed the substantial part of European market of knowledge-intensive services, in terms of the number of enterprises (65%), generated added value (77%) as well as the number of workers (83%). In 2006 only in Great Britain, KIBS services generated over EUR 229 billion of added value which represented 27% of added value produced in the whole EU. In terms of the number of people employed in KIBS, in Great Britain their number was over 2.4 million, slightly less in Germany – 2.1 million, in France and Italy 1.4 million. In Poland the number of people employed in KIBS in 2006 reached 475 thousand people and the share of KIBS in employment in the whole service sector exceeded 6%. Despite employment growth (by over 385 thousand people) reported in 2006-2016, the share of employment in KIBS in Poland still remains one of the smallest in the whole EU – in 2016 it was only 9.3%. The countries of the lowest share of employment in KIBS in service sector include Romania, Croatia and Bulgaria among others. This confirms the gap differing Poland and other countries of Central and Eastern Europe from highly developed countries, and the necessity to intensify actions aiming at modernisation of their economy structure. What is more, KIBS is one of the carriers of knowledge economy that is characterised by high productivity and possibilities to create workplaces for people of high qualifications the surplus of which is significant in many countries. It must be emphasised that the highest dynamics characterised Slovakia (over threefold growth of KIBS workers), Sweden (over double growth) and Bulgaria (almost double growth), which is presented in table 1.

*Table following on the next page*

*Table 1: Employment in KIBS in EU countries in 2006 and 2016, (Eurostat).*

Country	Employment in KIBS [in thousand]		Absolute changes [in thousand]	Relative changes [in %]	Share of employment in total employment [in %]		Share of employment in total employment [in %]	
	2006	2016			2006=2016	2006	2016	2006
Belgium	231 588	401 752	170 164	173,5	4,0	8,8	7,5	11,4
Bulgaria	84 096	164 557	80 461	195,7	2,6	5,6	4,8	8,8
Czech Rep.	254 884	363 549	108 665	142,6	2,3	7,2	9,5	12,4
Denmark	203 144	217 750	14 606	107,2	0,5	7,9	10,0	10,0
Germany	2 100 765	3 557 159	1 456 394	169,3	4,0	8,9	8,4	12,4
Estonia	26 162	40 756	14 594	155,8	2,3	6,7	6,9	10,1
Ireland	125 224	195624	70 400	156,2	3,5	9,5	9,4	12,3
Greece	225 665	272 140	46 475	120,6	1,0	7,5	7,6	10,3
Spain	1 140 998	1 300 487	159 489	114,0	0,8	7,2	8,8	9,4
France	1 473 441	1 860 126	386 685	126,2	1,5	7,1	8,1	9,2
Croatia	84 689	90 346	5 657	106,7	0,4	5,8	9,5	8,7
Italy	1 435 269	1 648 727	213 458	114,9	1,0	7,4	9,8	10,6
Cyprus	16 876	27 253	10 377	161,5	3,0	7,7	6,6	9,7
Latvia	36 139	67 882	31 743	187,8	3,2	7,9	6,0	11,6
Lithuania	42 452	83 755	41 303	197,3	2,9	6,4	5,4	9,5
Hungary	234 432	328 912	94 480	140,3	2,4	7,6	9,6	11,8
Netherlands	734 281	866 265	131 984	118,0	1,6	10,5	12,3	12,7
Austria	213 434	316 924	103 490	148,5	2,7	7,7	8,4	10,9
Poland	475 614	861 116	385 502	181,1	2,7	5,4	6,1	9,3
Portugal	239 422	298 578	59 156	124,7	1,2	6,8	8,4	9,7
Romania	199 620	304 805	105 185	152,7	1,2	3,7	5,6	7,7
Slovenia	47 576	69 743	22 167	146,6	2,4	7,7	9,1	12,4
Slovakia	57 627	176 481	118 854	306,2	5,2	7,1	4,4	11,8
Finland	118 140	159 489	41 349	135,0	1,7	6,7	7,0	9,0
Sweden	206 909	467 012	260 103	225,7	6,0	9,9	6,3	12,3
United Kingdom	2 457 258	3 199 287	742 029	130,2	2,6	10,5	11,3	13,0

*\*Malta, Luksemburg- lack of data*

Analysis of knowledge-intensive services shows significant diversity within internal KIBS structure that results, among others, from differences between markets on which enterprises of average size, traditions or labour methods operate. Development of innovative technologies and growing scope of their application in various areas of activity is one of major reasons for growth of demand on services related to software development and consultancy in the sphere of IT that constitute the key category included in KIBS. Finland, Bulgaria, Estonia Latvia and Romania showed the greatest share of employment (over 30-35%) in these services in 2016. On the other hand, Greece and Cyprus were characterised by the lowest share (11-12%) which is shown in figure 2. In Poland the number of workers in this sector between 2006 and 2016 grew by nearly 163 thousand people and the dynamics of changes was the highest among all categories included in KIBS. Application of IT tools and the use of consultancy services in the sphere of software and computer equipment, data processing or website management is a demand in contemporary world. Development of these and many other forms of activity is increasingly more based on innovativeness. This needs more focus on conducted research and development activity. This raises certain concerns because in Poland the employment in R&B sector does not exceed 1.5% whereas in Denmark it reaches 6.8%; in Germany, Slovenia and Hungary it is higher than 5%, at the average of 2.2% in the EU. Although in the analysed period a growth of employment in R&D was observed, the changes certainly are not enough. It must be emphasised that in all EU countries the lowest share of employment is observed in research and

development services although their significance for knowledge economy is constantly growing.

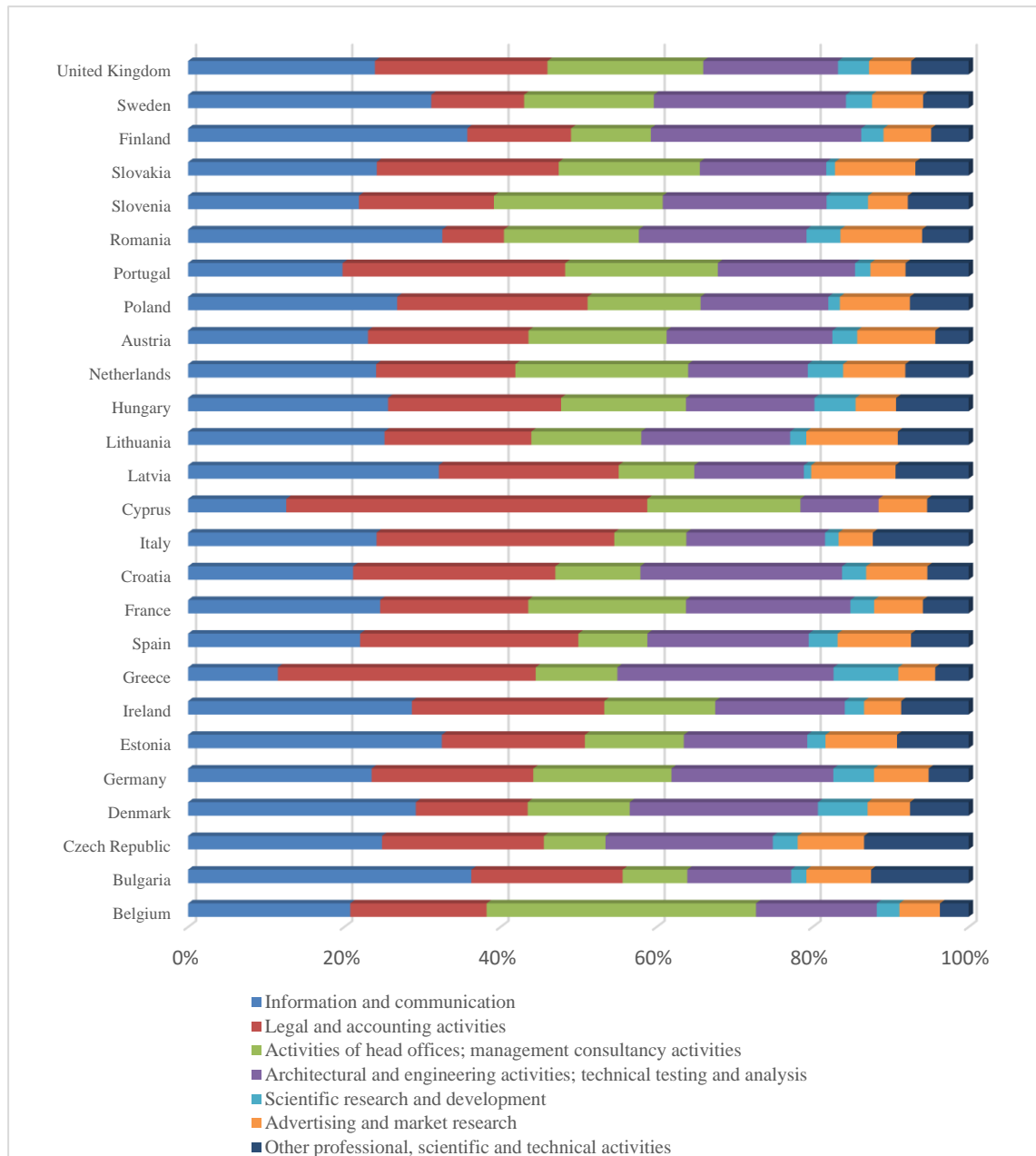


Figure 2: Employment structure in KIBS in 2016 r. - % (Eurostat)

Megatrends determining trends of changes in contemporary world as well as changes in functioning of enterprises on micro level, contributed to the growth of demand on services in the sphere of management, and changes in the nature and forms of their provision. Currently, the services more and more frequently refer to project, change and knowledge management. This is because entrepreneurs and managers realise that regardless of the knowledge and experience they have, effective functioning of contemporary enterprises is not possible without support from KIBS companies. Data analysis confirms enormous interest in this type of services in Belgium, France or Holland among others. The lowest share of employment in this sector was observed in 2016 in the Czech Republic and Bulgaria – 7.8%. Data analysis also allows to notice that beside services in the sphere of IT, legal, accounting and tax consulting activity, constitutes a predominant KIBS category in many EU countries.

The share of employment fluctuates around 20% although in Greece, in Italy and Portugal, and especially in Cyprus it is significantly higher, which can prove their specialisation in this sphere. Poland belongs to the group of countries of relatively high share of this type of services within KIBS. In the years 2006-2016 in Poland almost 2.5-fold growth in the number of people working in this sector was reported, which results from a growing number of offshoring investments located in the area of Poland among others. These investments are most often situated in large agglomerations, e.g. in Warsaw, Krakow, Wroclaw, Poznan or Katowice, thanks to which graduates from higher schools have the opportunity to be employed in them.

## **5. KIBS DEVELOPMENT PROSPECTS**

Changes occurring in contemporary economies show further, yet not equal development of KIBS in individual EU countries. On the one hand, specialisation and focusing on selected types of services will proceed, and on the other hand their spatial diversification will be intensified. It must be realised that KIBS location is associated among others with easy access to high quality labour resources which consequently leads to their concentration mainly in big agglomerations. This process can proceed and thus disparities between peripheral and metropolitan areas may increase. Further prospects of KIBS development can be noticed in efficient use of the opportunities occurring in the environment, especially benefitting from globalisation processes and the phenomena that are directly or indirectly related. Progressing development of innovative technologies as well as e-business are some of these phenomena. Consequently, this will have impact on growth of demand on specialist services in the sphere of IT and communication among others. Modern technologies affect not only the creation of new services, but they are adapted by service-providing companies that apply them in their previous activity while contributing to the growth of their development possibilities. Implementation of specific projects can require specialist knowledge for example in the sphere of biotechnology, nanotechnology or machine construction; other services focus on problem solving in the area associated with environment protection, i.e. emission of gasses, eco-design, auditing, etc. IT services can include comprehensive customer service (systemic approach to customer's problem-solving), as well as they may concern single orders (e.g. development of software for customer's needs or designing websites) or consulting with respect to IT strategy selection or in the sphere of management). Application of innovative technologies also in traditional services has impact on change in the method of their production and perception of the role they have to perform in economy. Application of modern technologies can have impact on reduction of production costs which in turn can cause growth of demand on KIBS expressed by SME sector among others (Skórska, 2015, p. 70-75). For further KIBS development in the countries of Central and Eastern Europe, including Poland, it also seems important to retain prominent position in the rankings of investment attractiveness in terms of location of outsourcing and offshoring centres. This is because high quality of labour resources, cultural and geographical proximity, similarities of legal, educational and telecommunication systems, friendly climate for foreign investments and lower labour costs determine location of this type of investments. However, existing decline in the sphere of research and development activity and faint prospects of their dynamic growth in the near future is raising significant concerns. Despite the awareness of their importance in contemporary economies, it is not translated into dynamic growth of interest in this type of activity in private sector.

## **6. CONCLUSIONS**

Building modern, competitive economy demands focussing on the direction and dynamics of structural changes that result in relocation of labour resources. KIBS is one of the areas in which gradual growth of employment is observed, although disparities in this sphere among EU countries and inside the very sector must be emphasised.

Due to increasing complexity of global economy, further growth of demand on knowledge provided within KIBS must be expected. Functioning of contemporary enterprises without professional legal and taxation services, services related to market and scientific research, consultancy services in the sphere of management or IT services provided by external companies seems impossible. In conditions of permanent change, the access to specialist services enables enterprises both to achieve comparative advantage and to compete efficiently in the international arena. Further growth of employment in knowledge-intensive services in Poland will perform a significant role not only because they constitute one of the pillars of knowledge economy but also because of the possibility to absorb the surplus of graduates from higher schools by this sector. Policy pursuit by countries in this sphere should be one of vital factors favouring this process. Within conducted structural policy, it would be advisable to focus more on the sectors that are characterised not only by high dynamics of growth, but also high labour productivity. Failing to rise to this challenge may have impact on growth of disparities in the level of socio-economic development of EU member states and also contribute to the failure in terms of appropriate use of human capital.

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## **SOCIAL AND SOLIDARITY ECONOMY AND SUSTAINABLE DEVELOPMENT IN MOROCCO: CASE OF “AU GRAIN DE SESAME” SOCIAL BUSINESS**

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### **ABSTRACT**

*The social and solidarity economy and sustainable development have several points in common; both have a common understanding of the economy that includes social and environmental concerns. Practically – as it is the case for the theory – everything seems bringing them together. The dynamics that favor the social and solidarity economy and sustainable development all meet the aspiration of the population for ethical practices like, among other things, produce and consume differently, take in to account the needs including the social and ecological emergencies, bring man again at the center of preoccupation. Regardless their forms, cooperatives play a vital role in the development of the Moroccan productive body. During the past few decades, cooperative work in Morocco has witnessed some growth in achieving the objectives of the social, economic and environmental development. Our article aims at starting a research work reflecting the social and solidarity economy in Morocco onto sustainable development on the basis of a case study from within a social enterprise in art and design works within the framework of the development sustainable and respect for the environment.*

**Keywords:** *social business, sustainable development, social and solidarity economy*

### **1. INTRODUCTION**

The severity of the current crisis is forcing States to fundamentally review the financing of public policies. Yet, the crisis is not only financial since the growing part of the economy is governed by the exclusive research of the financial profit. This situation has various social and ecological consequences, to wit: increased unemployment, declining purchase capacity, poor work habits, growing inequalities, impoverishment of the poor, degradation of environment. Some companies go even further than simply collaborating through the adoption, as a main corporate goal, to face a challenge of the company, so they could be referred to as social business. In recent years, the economic world has been witnessing an indisputable gain progress in terms of productivity, health and quality of life, except for countries suffering an absence of just repartition among countries and individuals, threatening the local and global environment on the one hand and sustainable development on the other hand. This latter should be a development process combining the ecological, the economic and the social: it is an economically efficient development, socially equitable and ecologically sustainable. However, one of the major issues of the 21<sup>st</sup> century is human capability to solve problems relating to development, social equity and environmental protection. One of the major tools to improve the sustainable development is the principle of cooperation, particularly in the field of the environment. Through their values of democracy, solidarity, sharing and mutual assistance, cooperatives play an increasingly important role in the development of economic and social council Morocco. Their attractiveness has been growing particularly since 2005: the year of the launching of the National Human Development Initiative (NHDI), encouraging the creation and sustainability of structures of the social and solidarity economy. This article discusses the role of cooperative entrepreneurship in sustainable development in Morocco.

The problematic of our research is set on the following question: How the Moroccan cooperative model does contribute to sustainable development?

To answer this question, we have divided our work in two main parts:

- We will start with the conceptual framework of our research namely: the Moroccan cooperative model and sustainable development;
- Subsequently, we will present the results of our empirical study through a study of case within a women's cooperative of art and design in the context of sustainable development and respect for the environment.

## **2. SUSTAINABLE DEVELOPMENT IN MOROCCO**

Like all developing countries, Morocco which is faces major and pressing challenges in development is fully aware of the need to preserve the environment and to meet the ecological necessities. Faced with these requirements and in accordance with these commitments, we reaffirm that is necessary to continue the policy of gradual upgrading and global economy, both in terms of economy and awareness, and with the support of regional and international partners<sup>1</sup>. In addition, the Government is setting forth a draft of a comprehensive National Chart on Environment, which will allow saving spaces, reserves and natural resources as part of the sustainable development process. The chart enables the preservation of natural sites and other historical monuments of an environment as well representing a national heritage whose protection is considered a collective responsibility that should be borne by present and future generations. Achieving goals set and defined by the national strategy of sustainable development could only be possible if accompanying measures are implemented. Scientific research has always been an important element in raising awareness regarding challenges and conditions of sustainable development. Research and development (R&D) clarify the problems, suggest solutions and provides essential material and irreplaceable guiding to the decisions of social and political actors. The transition towards a green economy necessarily brings an existing business evolution. The main sectors of activities were affected by regulation reforms and the continuous evolution of environmental standards. Business should recruit people alerted and trained to these developments. The challenge is to reconcile the content of training with the requirements of protection of the environment and promotion of sustainable development. In addition, these green crafts constitute an agreement between the protection of the environment and fighting unemployment, particularly informal employment. These green jobs represent, consequently, a new opportunity to social inclusion in Morocco: it is not only a way to creating employment for youngsters highly skilled in many areas, but also an opportunity for people who are in an insecure situation: those whose qualification level is particularly low and even those who find themselves excluded from the job market. If this strategy is based on priority actions to ensure a transition to a new model of development without creating a rupture, we should bear in mind that sustainable development is a long and intergenerational process. Results will be visible through monitoring follow-up indicators and the real transformation will be completed in a generation through training children and youth in the eco-citizen principal and values. These principals will be the basis for a real culture of sustainable development. The National Sustainable Development Strategy is aimed at changing behavior, practices and organizations, improving competitiveness in a sustainability perspective, preserving resources and contributing positively to the well-being of citizens. Citizenship sees itself as a social link bringing together the individual and the State allowing the individual to take advantage of his rights and to perform his civic and political duties. The citizenship also applies to the environment and nature. These duties are very crucial since they represent the warranty of maintaining resources vital for Earth.

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<sup>1</sup> From the speech of his Majesty the King Mohammed VI on the occasion of the Feast of the Throne, July 30, 2009.



Thus, it is a question for every citizen to behave regularly as an actor in the protection of the environment, accomplish eco-gestures in everyday life including: eco-citizen sorts his waste, saves energy, protects nature and consumes responsibly. He is informed about the good practices to be carried out. Eco-gestures and tries to change attitudes and change behavior awareness of all involved actors and citizen are therefore crucial in order to ensure success the real and lasting transformation. Certainly, such transformation needs time and it can only be completed through permanent and sustained efforts. The achievement of this transformation will only be appreciated at the very end of this first national strategy of sustainable development for the period (2017-2030); however, it is more about laying solid foundations with a spirit of intergenerational solidarity. In addition, training on sustainable development should be a priority since it represents the guarantee for a responsible generation in the future. The implication in the process of promotion of sustainable development and the change of behaviors are representing the result of the good comprehension of the challenges of the protection of the environment, social equity, the economic efficiency as well as good governance. The transition to a green economy creates an evolution in the existing crafts. The main sectors of activities are subject to regulatory reforms along with continuous evolution of environmental norms. Companies are facing this by recruiting sensitized individuals, prepared, particularly, for such evolution. The ideas or the challenge would be adapting the content of the training to the requirements of tomorrow. Sustainable development implies a change in behaviors and trends of consumption and production, thus implying, consequently, compatibility with respect for cultural diversity. At the 2002 Johannesburg Summit, culture became the fourth pillar of sustainable development, a long side the social, economic and environmental pillars. The sustainable programs should combine environmental protection, economic development, social cohesion and cultural diversity. This fourth pillar establishes strong bridges with the other three dimensions of sustainable development, while remaining complementary between them. On the other hand, promoting culture as a boost for change towards a more sustainable society means giving a central role to culture in the definition of a new project of society. It shares a sense and a vision of the future. Culture represents a fundamental factor in the sustainable development of territories. It is a factor of attractiveness, influence and territorial identity, an element to build the citizen community and its "living together", we can not imagine the sustainable development of our societies without thinking of issues relating to cultural diversity and the know how so as to preserve it and transmit it to future generations. The project of transition to a green economy must necessarily integrate cultural specificities and knowledge in order to guaranty its success. The development axes of the national strategy for sustainable development are not limited to the promotion of Moroccan.

### **3. SOCIAL AND SOLIDARITY-BASED ECONOMY: A FRAMEWORK FAVORING SUSTAINABLE DEVELOPMENT**

Social and solidarity economy brings together private formal organizations, characterized by freedom of membership and autonomous and democratic management and decision-making (the surpluses are not directly linked to the capital contributed by each member), and aiming at the creation of goods and/or services which are intended for their members or beneficiaries, in the view of general interest. On this basis, some explanations seem important. It should be noted that the SSE organizations are thus private (dissociated from public authorities) and have a legal personality, the best known of which from a legal point of view are cooperatives, mutuals, associations and foundations. One of the confusions relating to what the SSE entails and represents comes from the union of the words social and solidarity. With the current use of this expression, it seems to us that the marriage of the two terms is self-evident and natural. However, they cover two different realities that must be described before justifying their association.

The solidarity economy stands out for its purpose, which we can summarize in this way: inclusion and integration into a dimension of solidarity that goes beyond redistribution. The judgment of Saint-Luc Association, Sacré-Cœur clinic, issued in the 30<sup>th</sup> November 1973, describes the notions that are demanded by the actors of the solidarity economy, the "social utility", in these terms: "any activity that allows to overcome the inadequacy of the market economy by providing uninsured services by the market in a selflessly way because they are not profitable or do not provide enough resources ". Thus, the representation of a "repairing" unprofitable economic sector emanates certainly from this particular aspect. Typically claimed structures are represented by integration companies, adapted companies, fair trade organizations, etc. However, the solidarity we are talking about concerns the intergenerational, and even the transgenerational. Some of its actors that we had a chance to meet tackle the issues of ecological and social transition and affirm the objectives of a change towards a more cohesive society. As for the social economy, which can totally adhere to the values of solidarity, it is more defined according to the company governing and allocation of benefits. Officially, a European-wide congress held in 2002 listed seven features specific to this aspect of the SSE:

- primacy of the person and the social objective over the capital,
- voluntary and open membership,
- democratic control by the members,
- conjunction of user members interests and the general interest,
- defense and implementation of the principles of solidarity and responsibility,
- management autonomy and independence towards the public authorities,
- use of the main surpluses for the benefit of sustainable development, members and general interest.

The management of the SSE organizations is carried out autonomously (self governance), in a democratic way: the decisions of the members being able to adhere freely according to the principle of "a man, a voice". This choice emanates from the primacy of the person and the work on capital. The development of social economy implies both a necessity (not or partially satisfied by other sectors) and belonging to a social group characterized by a collective identity or a common destiny. The latter are connected to the territory and local development, where the actors build together a "stakeholder economy ». If one would examine the organisations being part of social economy, three families can be identified : cooperatives, mutuals, associations and foundations. H. Desroche describes the crack of this perimeter. He adds "uncertain components", such as the public companies falling under the control of a democratic entity, trade unions or community enterprises. Moreover, if social economy depends on the principle of double quality, shading light on the collective interest, minimizes the members' interest in front of common interest. In the end, if social economy is related to productivism and collective wealth, solidarity economy manifests productivism critique. It should be noted that this is not about a contradictory perspective but a "new" social economy, which brings about an innovative and transversal character in various fields. A space for mediation between the three spheres of the common world: civil society, the economic system and the state system, solidarity economy refers to a "new governance regime of general interest" through "co-construction". In addition, the rise of solidarity is a response to the process of social and territorial disqualification leading to exclusion and increasing inequalities. The insertion companies, the AMAP (associations for maintaining peasant agriculture), collective kitchens, solidarity tourism, intermediary associations or proximity services bring together engaged people, activists and professionals who act collectively for economic and social integration. With regard to sustainable development, it is an issue that has recently emerged. The generally accepted definition is that of the 1987 Brundtland Report. It is about a development that seeks to meet the present needs without compromising the ability of future generations to meet their

own needs. Hence, the stage set for solidarity (horizontal and vertical), will impact a relatively old sector that is driven by the principle of solidarity and is engaged in the "same fight". We can not form a specific assessment of the accuracy of the response brought by SSE to sustainable development. But it would be possible to rely on some prevailing trends in its evolution giving indications on the quality of this response. This quick review shows that it is rather sustainable development that grants currently an opportunity to be seized by offering the SSE a mode of development in accordance with its principles, and its production and regulation methods. This emerges clearly from the observation of its recent history, and even more when its own development opportunities are reviewed within the current socio-economic context. In the level of thought as well as in the practical level, the social economy has known an evolution which is reminiscent of a development qualified nowadays as durable. Its principles are combined with the philosophy of such a development as well as many of its achievements. And spontaneously, a long time before the very concept of SD was conceived, many projects that had been developed and carried out in social economy were part of an economic development which is more focused on meeting the needs of the population. For example, in response to uncertainty, collective risk management has been the responsibility of the mutualist movement within the French industrial society. Whether it comes to pension funding or organizing health insurance, the protection of property or people, the mutualist organization build solidarity networks on an appropriate scale. The green economy is an accurate response to meet the challenges of development and climate change at once. For such purpose, it would be relevant, and even opportune, for developing countries to set up a green economy road map, to be replicated at the territorial level, in order to foresee the emergence of new ways of production and consumption, while bearing in mind ecological concerns. The aim is to change development models and guide them towards the blue economy, a concept inspired by the biomimetic cycle of nature. Combating the effects of climate change requires the adoption of a comprehensive and integrated strategy for risk anticipation and crisis management with regards to the environment. This would make it necessary to examine public policies, so as to really integrate the notion of reducing climate and environmental risks. It seems important to mention some principles of sustainable development including the principle of:

- Integration of the three pillars of sustainable development and the cultural dimension: development actions must integrate the environmental, social and economic dimensions, and take into account cultural idiosyncrasies.
- Intra and intergenerational equity: development actions must be undertaken within a spirit of equity intra (between different groups of people living today) and intergenerational (taking into account the rights of future generations).
- Prevention: in the presence of a predictable risk, prevention, mitigation and correction actions must be implemented, primarily at the source, using the best available techniques at an economically acceptable cost.
- Precaution: the lack of certainty, given the current scientific and technical knowledge, should not delay the adoption of effective and proportionate measures to prevent a risk of serious and irreversible damage to the environment.
- Participation: the participation and commitment of citizens and groups that represent them are vital to define a coordinated vision of development and guarantee its environmental, social and economic sustainability.
- Good governance: the management of public affairs must be done with a concern for fairness, efficiency and transparency, and with commitment and accountability of the actors in relation to the impacts of their activities. The different stakeholders must bear responsibility and engage in the quest for solutions to find an answer to the issues of sustainable development.

Any person who, by his action, creates favourable conditions to harm human health and the environment, shall be required to ensure, or have ensured conditions suitable to avoid such effects.

#### **4. CASE OF THE SOCIAL BUSINESS AU GRAIN DE SESAME**

AU GRAIN DE SESAME is a social enterprise specialized in art and design, operating within the frame work of the sustainable development and the respect for the environment. Founded in December 2007, by the Moroccan plastic artist Asmaa Benachir, it has now an art and crafts gallery, a multicultural café and a production -training workshop in handmade ecological arts and crafts products. In addition, it is a “citizen” art promoting sustainable development and intercultural dialogue. Au Grain de Sésame business offers several services, namely:

- A multicultural café hosting debates, themed meetings and presentations.
- An art and crafts gallery presenting: sales exhibitions of national and international signature works as well as the permanent showroom of products from Au Grain de Sesam workshops of ecological arts and crafts.
- Production and training workshops in arts and ecological crafts.
- Creative workshops for adults under the theme of personal development.
- A themed based cultural exchange program "Rabat Culture" for international visitors.
- And an Ecobio market, a monthly event that takes place every first Sunday of every month.

Founded in December 2007 and officially launched in July 2008, Au Grain de Sésam art and crafts gallery presents works of design and art from diverse backgrounds, from established and emerging national and international talents, to novice or established collectors, while proposing themed artistic events in a framework of exchange and sharing. After taking place within the inescapable events of the artistic and cultural scene of Rabat, the gallery migrated in January 2014 to the entrance of the Medina of Rabat and invested a traditional house “ maison beldiya”, completely restored, located in front of the kasbah of the Oudaias, a heritage site. Now In a larger place, the project of the gallery remains deeply centered on the current creation. With a program that cleverly mixes different artistic trends characterized at the same time by diversity and originality. So many ingredients whose alchemy is helping to make Au Grain de Sesam art and crafts gallery a reference within the artistic and cultural scene of Rabat, located at the entrance of the Medina of Rabat, close to the Rue des Consuls, in front of the wall of the Kasbah Oudaias, on a heritage site. One of Au Grain de Sésame’ activities since March 2009 is a literary café. A convivial place of artistic meetings and exchanges, where Friends of Arts can come in a pleasant and relaxed atmosphere to discover promising talents and established artists, through exhibitions of paintings and artistic creations, book signing and poem readings. A platform hosting artistic events regardless of their background: contemporary or traditional, written or oral, professional or not, the sole criterion is the talent of participants. Within the context of a new concept of decoration, Au Grain de Sesame, a social firm in art and ecological design, launches the workshops in art and ecological design for the training of the insertion of women of the medina of Rabat / Salé. The products of the workshops, based on an innovative technique of paper recycling, represent a range of ingenious products in the sector of ecological arts and craft, respecting the sustainable development and improving the quality of life of the consumer as well as of people trained on their fabrication.

#### **5. CONCLUSION**

In conclusion, SSEhas some considerable assets in terms of SD. It offers the possibility of defining and pursuing collective interests and mobilizing individual energies for this purpose. From the start, its modes of organization and management have had a social and democratic foundation. Social economy and solidarity economy hold the same values: the importance

accorded to the human being within each activity, a democratic functioning, collective utility of the project ..... In other words, social and solidarity economy think differently of the human being / activity / economy relationship. In addition, the cooperative fabric is the main component of the SSE sector in Morocco, both in terms of the number of jobs created and its participation in social inclusion and economic development. Thus, a legal framework is dedicated to that: law n ° 112.12 defines the cooperatives, determines their legal status and establishes the missions of the ODCO. It is clear that, for Morocco, the cooperative system constitutes a promising economic, social, and cultural opportunity that must be grasped by the urban and rural environment in particular for its development, and that must be encouraged by the environment for its economic growth. It is also an opportunity for the administration to make a major asset for the implementation of socio-economic and sustainable development strategies. The conjunction between social and solidarity economy and sustainable development can only be achieved with strong participation and democratic vitality in terms of thought and action. The social or solidarity economic initiative is never depoliticized, and it is placed at the base of the ground for a sustainable development. In addition, female entrepreneurship in cooperatives represents an important turning point in Moroccan society. It allows women to acquire financial autonomy, to acquire self-confidence and to make decisions concerning the cooperative. Actually, they play a fundamental role in the country's sustainable development. Thus, ecologically, cooperatives participate in the protection and preservation of the environment, which means, the cooperative AU GRAIN DE SESAME, social enterprise on art and ecological design, has allowed women from the medina of Rabat / Salé to be trained and integrated, thanks to its workshops of art and ecological design, in addition to other activities. It has also improved both the quality of life of the consumer and those trained on their fabrication.

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## ASPECTS OF OPEN DATA AND ILLUSTRATIVE QUALITY METRICS: LITERATURE REVIEW

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### **ABSTRACT**

*Development of open data policies is increasing daily. While numerous papers exist based on the open data paradigm, there is a lack of structured research on the issues of open data aspects and open data quality. In order to better understand open data quality, aspects of open datasets are examined in this paper, since open data aspects are often not familiar to the users. The aim of this research is to investigate data quality of open datasets. Main idea is to examine general aspects of open datasets and establish relationship between data aspects and open data quality. In order to do so, extensive literature review is performed. Based on the literature review, guidelines for future research in this domain are addressed.*

**Keywords:** *Metadata, Open data, Quality framework*

### **1. INTRODUCTION**

Today, big data and open data are buzzwords and those research areas are receiving attention among scientific community. Open data and big data doesn't mean the same but they are closely related. Unlike big data which is characterized by size, the open data is more marked by its usage. The term size refers to huge, very complex and constantly updated sets of data, while the term usage covers publicly available data which individuals, private or public organizations can use for their desires or goals. Although, both paradigms can be very useful and powerful tool, the question is "Does it make sense to use such data if their quality is questionable?". Therefore, the main aim of this paper is to find out what makes some data open, as well as how to measure its quality. In order to achieve it, defined aim is decomposed into following two aims: 1) to determine aspects which should be taken into account while defining open data, 2) to determine certain quality metrics from existing metadata quality assessment frameworks according to identified aspects of open data. Firstly, the aspects that should be taken into account while speaking of open data are emphasized in this paper. Secondly, the paper points out most important quality metrics based on literature review. Finally, the findings of the paper are highlighted, as well as guidelines for which of those findings should be applied and how to apply it into the future researches.

### **2. DEFINING OPEN DATA**

Based on analysis of open data definition which is conducted and presented by Young and Verhulst (2016), the similar analysis is carried out within this paper. Unlike their analysis where authors want to set a working definition of open data, the objective of analysis presented here is not to propose another definition but to determine most important aspects of open data which should be included in the definition.

It should be highlighted that Young and Verhulst did not give explicit explanation of conducted analysis. Despite that, it is clear that authors had been searching if certain attribute (e.g. free, re-usable etc.) is explicitly included in the open data definition. (Young & Verhulst, 2016). The first notable difference between this two analysis of open data definition is in the naming of criteria. Young and Verhulst (2016) called them attributes, and this research uses term aspects. The reason why they are named aspects is because it is examined whether the aspect is covered by the definition, and not whether the exact word representing the aspect is contained in the definition as was case in Young's and Verhulst's work. Based on literature review, descriptions of aspects have been defined (*Table 1*).

*Table 1: Definitions of open data aspects*

<b>Aspect</b>	<b>Description</b>
<b>Free</b>	Free or rather free access means that every person should be able to access the data for free at any time without disclosure identity ("Glossary   Open Data Handbook," n.d.; "Open Data   Open Data Barometer," n.d.; "Open Data Policy Guidelines," 2016; Kerle, 2018).
<b>Negligible cost</b>	If the access to open data is charged, then amount of cost should be negligible. It should be clear that cost refers to expense of an end user to access data and not to cost of public or private data publisher (Manyika et al., 2013; Newcombe, 2015; Sahuguet & Sangokoya, 2015; "What is Open Data?," n.d.).
<b>Publicly available</b>	Publishing data as open data should be done in a way to grant access to data without dishonest limitations or access cost regarding to data usage. If data is open, it is automatically considered as publicly available, but not in reverse (Burwell, VanRoekel, Park, & Mancini, 2013; Chernoff, 2010; Gurin, 2014b).
<b>Re-usable</b>	Open data is re-usable if once published data can be used again mostly for different purpose then was primarily collected, and their re-use can only be specified under an open licence by data-holder (Burwell et al., 2013; "Glossary   Open Data Handbook," n.d.; Pasquetto, Randles, & Borgman, 2017).
<b>Can be redistributed</b>	Data can be redistributed if they are published together with permission of their redistribution. This also include combining them with other datasets ("The Open Definition," n.d.; "What is Open Data?," n.d.; "What is open data?," n.d.).
<b>Non-exclusive (no restrictions from copyrights, patents, etc.)</b>	It means that the licence acquirer would have same rights to use the intellectual property rights (IRPs) as the licensor, and both (the license acquirers and licensor) can exploit same IRPs at the same time (Blank, n.d.; "Difference between an exclusive & a non-exclusive licence   IPR Helpdesk," n.d.).
<b>Structured for usability</b>	The machine-readable denote that data is stored in a data format which can be automatically read and processed by machine or rather by computer. Also, it signifies that data is structured ("Glossary   Open Data Handbook," n.d.; "Open Data   Open Data Barometer," n.d.).
<b>Requires "Open" Licence</b>	Data and content will be open if copyright-holder will give rights over them by applying some available standard open licences ("Glossary   Open Data Handbook," n.d.; "Guide to Open Data Licensing," n.d.; "Open Licenses - Project Open Data," n.d.).
<b>Non personally identifiable</b>	There is no unique definition of personal identifying information (PII) because it relies on two things: who is defining it and for what purpose. Open data initiatives should guarantee that personal information would not be released broadly, only if the data is used according some restrictions or after the de-identification of raw data (Khaled El Emam, 2016; "Open Data and Privacy   CIPPIC," n.d.; Rumsey, 2016).
<b>Produced during business operations</b>	Apart from governments and other public institutions, open data can be released by private institutions, but data should be published under an unrestricted licence (e.g. Open Government Licence) (Heli Koski, 2015; Manyika et al., 2013; "Open data and economic growth: which link, if any?   Open Government Partnership," 2012).
<b>Belongs to the taxpayer (when not in violation of laws/privacy)</b>	If the data collected by government and public administration is funded by taxpayer's money it should be given back to the taxpayers'. If taxpayer already paid data, he/she should not have to bear the burden of an extra costs (Chernoff, 2010; Kayser-Bril, 2016; The World Wide Web Foundation, 2017).
<b>Accessible in Bulk</b>	Data is accessible in a bulk if the whole dataset can be easily downloaded and imported into a locally installed software ("Glossary   Open Data Handbook," n.d.; "Open Data   Open Data Barometer," n.d.; Joshua Tauberer, 2014).



Once the aspects were defined, the existing definitions of open data has been recognized from academic and non-academic sources published so far. Process of choosing definitions has been carried out as follows: definition listed in Young and Verhulst work (2016) is included in the research if it has not been changed within a time, and in the case that it has been changed, only most recent definition version is included; other definitions from academic and non-academic literature are also included. It should be noted that only few recognized definitions are from academic literature. The reason why this is so, lay in the fact that open data is defined in academic literature according to definitions of non-profit organizations (e.g. Open Knowledge International), institutes (e.g. McKinsey Global Institute – part of a global management consulting firm) or governments (Al-Khouri, 2014; Attard, Orlandi, Scerri, & Auer, 2015; Pasquetto et al., 2017). Altogether, sixteen definitions have been examined (Appendix A.). In order to determine aspects which should be covered in open data definition and ultimately who will formulate the definition, the Table 2 is proposed.

*Table 2: Analysis of open data definitions according to defined aspects*

	Free	Negligible Cost	Publicly Available	Re-usable	Can be Redistributed	Non-exclusive (No Restrictions from copyrights,	Structured for Usability	Requires "Open" License	Non Personally Identifiable	Produced during business operation	Belongs to the Taxpayer (when not in violation of	Accessible in Bulk
(Burwell et al., 2013)			✓	✓	✓		✓	✓				
(Young & Verhulst, 2016)	✓		✓		✓		✓					
(Monino & Sedkaoui, 2016)	✓		✓	✓				✓				
(Berghmans et al., 2017)	✓	✓	✓	✓	✓							
("What is Open Data?," n.d.)	✓		✓	✓	✓	✓						
(Acuña, 2013)				✓			✓	✓				
("What makes data open?," 2013)	✓		✓	✓		✓		✓				
("The Open Definition," n.d.)	✓	✓	✓	✓	✓	✓	✓	✓				
("What is open data?," 2011)								✓	✓	✓	✓	
(Manyika et al., 2013)	✓	✓	✓				✓					
(The World Wide Web Foundation, 2017)			✓				✓					
("Open Data Essentials   Data," 2013)	✓		✓	✓	✓	✓	✓	✓				
(Attard, Orlandi, Scerri, & Auer, 2015)	✓		✓	✓	✓		✓	✓				
(Janssen, Charalabidis, & Zuiderwijk, 2012)			✓					✓				
(Ren & Glissmann, 2012)	✓		✓						✓			
(Gurin, 2014a)			✓									

According to total number of occurrences of certain aspect in open data definitions, the aspect who has been most often occurred is Publicly Available, followed by Free, Re-usable, Requires "Open" License, Structured for Usability and Can be Redistributed. Hence, these aspects should be included in any new definition of open data. Out of a total of 16 definitions, merely three (Attard et al., 2015; "Open Data Essentials | Data," 2013; "The Open Definition," n.d.) cover aspects that have proved to be the most important.

### 3. MEASURING OPEN DATA QUALITY

Are open data of high quality? In order to answer this question, data quality metrics should be employed. Some data quality metrics were developed so far and there is a need to investigate and compare this metrics. In this chapter, we examine 10 data quality frameworks in order to identify most frequently used data quality metrics. Nine metrics were identified through literature review: consistency, completeness, accuracy, uniqueness, access and visibility, usability and comprehensibility, timeliness, value and usefulness, granularity. Hereinafter, we are examining metadata quality assessment frameworks and investigate which of the quality metrics are included in those frameworks. Identification of most important quality metrics is presented in the following table.

*Table 3: Identification of most important quality metrics based on existing data quality frameworks*

	Consistency	Completeness	Accuracy	Uniqueness	Access and visibility	Usability and comprehensibility	Timeliness	Value and	Granularity
(Behkamal, Kahani, Bagheri, & Jeremic, 2014)	✓	✓	✓	✓					
(Lourenço, 2015)		✓	✓		✓	✓	✓	✓	✓
(Drew & Nyerges, 2004)		✓			✓	✓	✓		
(Pérez, López Hernández, & Pedro Rodríguez Bolívar, 2005)		✓				✓	✓		✓
(Lee & Kwak, 2011)						✓	✓	✓	
(Veljković, Bogdanović-Dinić, & Stoimenov, 2014)					✓		✓		
(Kubler, Robert, Neumaier, Umbrich, & Le Traon, 2018)	✓	✓			✓	✓	✓		
(Vetrò et al., 2016)	✓	✓	✓	✓			✓	✓	
(Umbrich, Neumaier, & Polleres, 2015)		✓	✓						
(McMahon & Denaxas, 2016)		✓	✓		✓	✓	✓		

According to total number of occurrences of certain metric in quality frameworks, Completeness and Timeliness occurred in most of the frameworks, eight out of ten, followed by Usability and Comprehensibility.

Granularity, on the other hand, appeared only 2 times out of ten frameworks. In the following subsection we will briefly describe those metrics. By consistency we are examining do data contain contradictions. Completeness include the extent to which the used meta data keys are non-empty, where description is available and machine readable formats are included. Accuracy means the extent to which meta data schema describes the resources. Uniqueness indicates that there should be no data duplicates recorded. Data records should be unique. Access and visibility answers the question are data sets accessible to anyone for any purpose. Usability and comprehensibility represents data that are proper to be used in reporting. Timeliness indicates time period and availability of update frequency. Value and usefulness indicates established or perceived worth of open data for somebody. Granularity indicates level of detail of metadata schema.

#### 4. CONCLUSION

Field of open data grows exponentially. Significance of open data sets impose pressure on identification of open data aspects as well as quality metrics of such data. Assessing open data quality requires establishment of appropriate data quality metrics. Based on the extensive literature review, we have developed illustrative metrics for important data quality dimensions. As such, this paper provides valuable contribution to the open data definition and establishment of open data quality frameworks. However, there are still enough room for improvements. In the further research we should categorize data quality metrics to identify subjective and objective metrics which could assist in the development of the comprehensive data quality frameworks. Furthermore, we will apply techniques for assessment and improvement of the data quality. Machine learning approach could be useful in validation of open data quality metrics.

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## APPENDIX

### OPEN DATA DEFINITIONS

#### OMB Memorandum M-13-13 "Open Data Policy-Managing Information as an Asset"

"Open data refers to publicly available data structured in a way that enables the data to be fully discoverable and usable by end users. In general, open data will be consistent with the following principles: Public, Accessible, Described, Reusable, Complete, Timely and Managed Post-Release." (Burwell et al., 2013)

#### The Global Impact of Open Data, book

"Open data is publicly available data that can be universally and readily accessed, used, and redistributed free of charge. It is structured for usability and computability." (Young & Verhulst, 2016)

#### Big Data, Open Data and Data Development, book

"Open Data is private or public digital data and it is produced by collective bodies or (possibly outsourced) public services. It is disseminated in a manner structured according to a given method and with an open license that guarantees free access to it, as well as the possibility for anyone to reuse it without technical, legal or financial restrictions." (Monino & Sedkaoui, 2016)

#### Open data: The researcher perspective, report

"Open data can be defined as data that can be freely used, re-used and redistributed by anyone and can be accessed on equal terms by the international research community at the lowest possible cost." (Berghmans et al., 2017)

#### The Open Data Handbook

"Open data is data that can be freely used, re-used and redistributed by anyone - subject only, at most, to the requirement to attribute and sharealike." ("What is Open Data?," n.d.)

#### data.gov.uk

"Open data is data that is published in an open format, is machine readable, and is published under a license that allows for free reuse." (Acuña, 2013)

#### Open Data Institute

"Open data is data that anyone can access, use and share. It has to have a licence that says it is open data. Without a licence, the data can't be reused. The licence might also include attribution (person who use the data must credit whoever is publishing it) and share-alike (person who mix the data with other data have to also release the results as open data). These principles for open data are described in detail in the Open Definition." ("What makes data open?," 2013)

*Open Definition, project of Open Knowledge International*

"Open data and content can be freely used, modified, and shared by anyone for any purpose." ("The Open Definition," n.d.)

### **LinkedGov**

“Open data is non-personally identifiable data produced in the course of an organization’s ordinary business, which has been released under an unrestricted license. Open public data is underpinned by the philosophy that data generated or collected by organizations in the public sector should belong to the taxpayers, wherever financially feasible and where releasing it won’t violate any laws or rights to privacy (either for citizens or government staff).” (“What is open data?,” 2011)

### **McKinsey Global Institute**

“Machine-readable information, particularly government data, that’s made available to others. These open data sets share the following four characteristics: 1) Accessibility: a wide range of users is permitted to access the data. 2) Machine readability: the data can be processed automatically. 3) Cost: data can be accessed free or at negligible cost. 4) Rights: limitations on the use, transformation, and distribution of data are minimal.” (Manyika et al., 2013)

### **Open Data Barometer, Global Report**

“Open data must be for everyone — a right for all; it must be the data people need; and it must be data people can easily use.” (The World Wide Web Foundation, 2017)

### **The World Bank**

“Open data refers to the data or content is open if anyone is free to use, re-use or redistribute it, subject at most to measures that preserve provenance and openness. There are two dimensions of data openness: 1) legally open: data must be placed in the public domain or under liberal terms of use with minimal restrictions; 2) technically open: data must be published in electronic formats that are machine readable and preferably non-proprietary, so that anyone can access and use the data using common, freely available software tools. Data must also be publicly available and accessible on a public server, without password or firewall restrictions.” (“Open Data Essentials | Data,” 2013)

### **A systematic review of open government data initiatives, Journal Article**

“Requirements that open data should conform to indicate how to enable the free use, reuse, and redistribution of data. Open data should not discriminate any person and must not restrict the use of the data to a specific field or venture. Thus, data published in an open data format would be platform independent, machine readable, and made available to the public without restrictions that would impede the re-use of that information. Hence open data only refers to data that is available free of charge for the general public without any limitations.” (Attard et al., 2015)

### **Benefits, Adoption Barriers and Myths of Open Data and Open Government, Journal Article**

“For purpose of their research authors defined open data as non-privacy-restricted and non-confidential data which is produced with public money and is made available without any restrictions on its usage or distribution. Data can be provided by public and private organizations, as the essence is that the data is funded by public money.” (Janssen et al., 2012)

**Identifying Information Assets for Open Data: The Role of Business Architecture and Information Quality, Journal Article**

“Open Data is defined as an approach to managing data so that it enables the structured free flow of non-sensitive information to those who have a need or interest in using it, both within and across government agencies and to the public. It allows different types of users to access, organize and use data in ways that make sense to them.” (Ren & Glissmann, 2012)

**Open Data Now: The Secret to Hot Startups, Smart Investing, Savvy Marketing, and Fast Innovation, book**

“Open data can be defined as accessible, public data that people, companies, and organizations can use to launch new ventures, analyze patterns and trends, make data-driven decisions, and solve complex problems.” (Gurin, 2014)



## MEGA-ORGANIZATIONS AS A TRANSFORMATION TOOL: A REVIEW ON ISTANBUL

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### **ABSTRACT**

*Economic activities seem to have become more competitive, world-wide and more complex since the 1980s. With the emergence of globalization, especially in the post-1980 period, the increasing levels of capital circulation, the acceleration of the flow of information and developments in communication and transportation technologies have led to radical socio-economic and spatial transformations throughout the world. Unlike previous periods, global and local capital, together with the initiative of the local governments, have attempted to raise the competitive position of urban areas in the global hierarchy by investing on their underutilized fields to gain a particular identity so as to attract capital and qualified labor. In this process, it is seen that the positions and the roles of cities in the global sphere have changed dramatically with these efforts. It is observed that cities have emerged as focal points that can compete with other cities globally, independently of their countries and boundaries. The spatial requirements of newly emerging service sectors, including especially tourism and qualified production services as well as the intension of increasing capital accumulation by means of real-estate and construction sectors have led to the socio-spatial restructuring of urban areas to a great extent. This survey was developed to monitor the impact of transformational practices of such international organizations, which result in the restructuring of cities generally by means of large-scale projects. The research focuses on locating the positive impacts of mega-organizations on urban transformation practices from many respects, which includes the socio-economic, cultural and spatial dimensions. It is generally observed that those mega-organizations tend to change the hierarchical position and role of urban areas by increasing their attractiveness and competitive position globally but at the same time make life more difficult especially for the local population with limited financial and social resources.*

**Keywords:** *City Branding and Identity, Culture Industry, Global City, Mega-Organization, Urban Image*

### **1. INTRODUCTION**

The importance of the global identity value has become more prevalent in planning approaches since the 1980s; and has become a breaking point with the attempt of the global, local capital circulation and with the initiative of the local authorities. In the process of globalization, the positions and roles of the cities in the global sphere have transformed. Unlike the previous periods, cities became centers that compete with each other in order to be a focal point in the world. From this point, cities are in a position which affects both the process of globalization and is affected by this process. Investments carried out in and around the city center, large-scaled social and cultural activities and international organizations are seen to be effective in the restructuring process of the region. Habitat II Congress, the first international organization held in Istanbul in 1996, and the motto of the organization '21st Century will be the age of cities' explains the restructuring process in today's cities. In the process, it can be said that socio-cultural activities that appeal the whole country or the whole world, regardless of the borders

of the region where they are located. And socio-cultural activities have started to be applied as a planning tool. With the increasing impact of socio-cultural activities and large-scale organizations, the competition between the cities has intensified.

The research questions that form the basis of the study are:

- What are the reasons for the widespread use of mega-organizations in the cities?
- How does the urban space develop in the context of globalization process?
- What are the common characteristics of mega-organizations in terms of scale, content and approach, in the direction of the roles defined to the cities due to globalization process?
- It is seen that urban planning tools tend to make a difference between other cities within the scope of 'the world city' concept. Which projects and organizations in Istanbul can be considered as a mega-organization within this scope?
- How do the implemented projects shape the urban identity, social and spatial structure?

## **2. NEW DISCOURSES IN CITIES WITH THE GLOBALIZATION PROCESS**

It is seen that industrial production has moved away from the cities and left its place to professional occupations and service sectors. Evaluation of free space that left behind by industrial sectors in the city center and the attempt of the cities coming into prominence in the global plane have brought the process of re-organization of urban spaces. It can be said that with the globalization process, every city is trying to come into prominence not only the country in which it is located but also the whole world. In the long term, the cultural activities are used as a planning tool to attract the attention of tourists around the world. With the increase in the portion of the tourism sector, cities in different parts of the world started to compete with each other. In this process, international events and mega-organizations appear to be at the forefront. With large-scale organizations, cities develop in line with different visions and the image of the cities is directed by using cultural characteristics as an urban development tool. Planning has become the most important tool for the cities to come to the forefront by the restructuring of cities to appeal the world. The other cities become aware of this change immediately due to the developments in the mass media. According to Giddens, globalization is not only an economic phenomenon. By this evaluation, Giddens emphasizes that the process of globalization is related to the transformation of space and time. The globalization process is served as a catalyst for the acceleration of the processes of change and transformation in cities.

### **2.1. Global City Concept**

When the academic studies were examined, it was observed that the investigations of the 'global city' phenomenon were first put forward by Friedmann and Wolff. And also, Sassen made important contributions in this literature. It is agreed that the emergence of the global economy in the changing economy system is effective in the emergence of the definitions of 'global city' and 'world city'. The decentralization of industry towards countries with cheap raw materials and labor force has led to the spread of service sectors on a global scale. This process can be considered as a re-organization of economic activities in the world in the globalization period. The management of production and financial activities has led to the concentration of specialized professions and services in some cities. The cities that have the control and management of economic activities, with important transport links and tourism potential have become important nodes for the world. Friedmann (1986) defines 'global cities' as places where international capital is concentrated. Local, national or international economies are articulated in these cities (Friedmann, 1995). It is seen that where international firms' control centers, international economic activities are concentrated and the cities that located at the intersection of important transportation networks are evaluated in this context. When the dynamics behind the definition of 'world city' are examined; it is seen that the importance of the international economic activities, specialized service sectors, knowledge, technology, capital and urban

images are emphasized and Sassen (1991, 2000), Friedmann (1986, 1995) and Castells (1994) are agreed on.



*Figure 1: The Characteristics of Global City (Created by the author within the scope of the study)*

## **2.2. Urban Branding Concept**

The main purpose of 'urban branding' is to create an attractive image for the city by using urban space and other features of the city and to bring in an added value to the city in the intercity global race. In this respect, the old urban areas of the city have been restructured by urban design studies, large-scale projects, mega-organizations, socio-cultural activities and urban transformation projects. It can be stated that the common point in these approaches is to shape the city image at a competitive level with other global cities and that the urban image is being used as a strategy in the creation of new urban environments. The branding strategy, which is designed to create a brand value for a product or to emphasize the original character of that value, has been handled in a similar way for cities. However, unlike the branding of a product; different actors, social structure and the physical space of the city are given priority in the branding strategies (Karavatzis ve Ashworth, 2005). By creating a new and attractive image for the city, different strategies have been put forward within the framework of the urban branding concept which aims to attract tourists and become the focal point on the global level.

## **2.3. Urban Image Concept**

The concept of 'urban image' defines the abstract formed by the concrete and abstract information in our mind. Kevin Lynch (1960) investigated whether the physical properties of the cities were changeable. In his research, the concept is identified as 'in addition to many other roles of urban views, views that need to be perceived, remembered and enjoyed' (Lynch: 1960). In the historical process, it can be said that the urban form developed as a special design subject and planning tool. Considering that the globalization phenomenon has accelerated in recent years, as investments focused on reshaping the city in terms of tourism, it can be said that the image of the city has become consciously organized instead of its spontaneous structure. The fact that the urban image is produced as a matter of fact or used as a planning tool by the actors due to contribute tourism. The concept of urban image has changed in cities that are trying to come to the forefront in the global sphere in the direction of urban branding concept. Firstly, the image of the city that started to be used in the 1960s started to change with the acceleration of globalization in the 1980s and changed with the urban branding concept in 1990s. In addition to the definition of the case, by using as a tool it can be stated that similar urban images have started to form different cities around the world.

## **2.4. Urban Identity Concept**

We can say that, the difference between urban identities occurs only when it compares with another individual or city identity. Similarly to the individual identity, urban identity is defined as the characteristics of the urban texture that distinguish it from other cities. When the concept of urban identity is considered, it can be explained as a definition that does not have a cause-effect relation. Each city has an unique identity in line with its components. However, due to the fact that urban identity has developed according to many factors and has a dynamic structure. So the restructuring process of urban identity has been mentioned under the influence of globalization processes.

## **2.5. Culture Industry Concept**

Zukin (1998) examines the culture-based development policies; evaluates the urban developments related to the globalization process within the scope of urban life styles. Zukin (1998); stated that the cultural qualities of cities are used as a means of transformation. These changes in cities indicate the formation of 'cultural industries'. This culture-oriented approach brings the use of culture as means of transformation and it's reflection on economic investments. These transformations of the city accompany the formation of cultural industries.

Together with the globalization phenomenon which gained momentum after the 1980s, it is seen that economic developments were directed the cultural strategies in cities. The planning approaches of urban space gained importance in this period and the use of culture as a planning tool became widespread. The importance of cultural characteristics, the creation of tourism centers. The increasing importance given to the cultural activities can be given as examples to this occasion. It is possible to see such approaches becoming widespread in the competition between the cities which are trying to come to the forefront in the global plane.

“Cultural strategy of development, reflects the importance of urban centers with a symbolic economy based on abstract product types such as financial instruments, information and culture, arts, cuisine, fashion, music and tourism.” (Zukin, 1998: 826). The symbolic economy mentioned is supported by cultural approaches.

## **2.6. Global Cities and Istanbul**

According to Sassen (1998), there is no certain ranking and number for global cities. The intensity of activities based on the service sectors may change over time, depending on the activities of international companies. Similar to the content of the phenomenon of globalization, the concept of 'being global' and the 'global city' are explained independently from the borders and evaluated independently from the countries. The ranking may change depending on the activities in the global economy. Due to the literature review, it is possible to say that there are more than one global hierarchy of global cities. However, it is determined that there is no definitive evaluation in the literature about the second degree global cities. Tokyo, London, New York is the subject of a common judiciary on global city order. The cities which have intense trade and communication with other countries, intense banking and finance businesses and headquarters of those can be evaluated as 'global cities'. It can be said that the global cities create urban images independent from their countries. As mentioned before, there is no certain determination in the global city ranking or grouping, and there are different approaches. But the most common approach is the alpha, beta and gamma cities described in 1999. According to the activities of accounting, law, advertising, banking and finance sectors, 122 cities were evaluated. 55 of the cities evaluated in three classes as alpha, beta, gamma were included in this group. The remaining cities are considered to be a fourth category which is 'progressing towards becoming a world city.' 10 Alpha Cities: London, Paris, New York, Tokyo, Chicago, Frankfurt, Hong Kng, Los Angeles, Milan, Singapore. 10 Beta Cities: San Fransisco, Sydney, Toronto, Zurich, Brussels, Madrid, Mexico, Sao Paulo, Moscow, Seoul.

A few of the city of 30 Gamma Cities: Amsterdam, Prague, Beijing, Rome, Barcelona, Istanbul etc. Istanbul ranks 30th among Gamma Cities and 50th in alpha, beta and gamma rankings. No Turkish city other than Istanbul is included in this list and Istanbul is the beta city in the 20th plane. By the four criteria mentioned above, Istanbul is the beta city in the 20th place in the advertising sector, it was ranked 52nd in the legal services, and 42nd in the banking sector. But it is not able to enter the list in accountancy services. The heat map displaying the world's most photographed points shows that the largest concentration is in Istanbul in Turkey. This situation illustrates the developments in communication technologies and the mobility of the population in the world. And it shows the fact that the cities are the focal points independent of their borders.

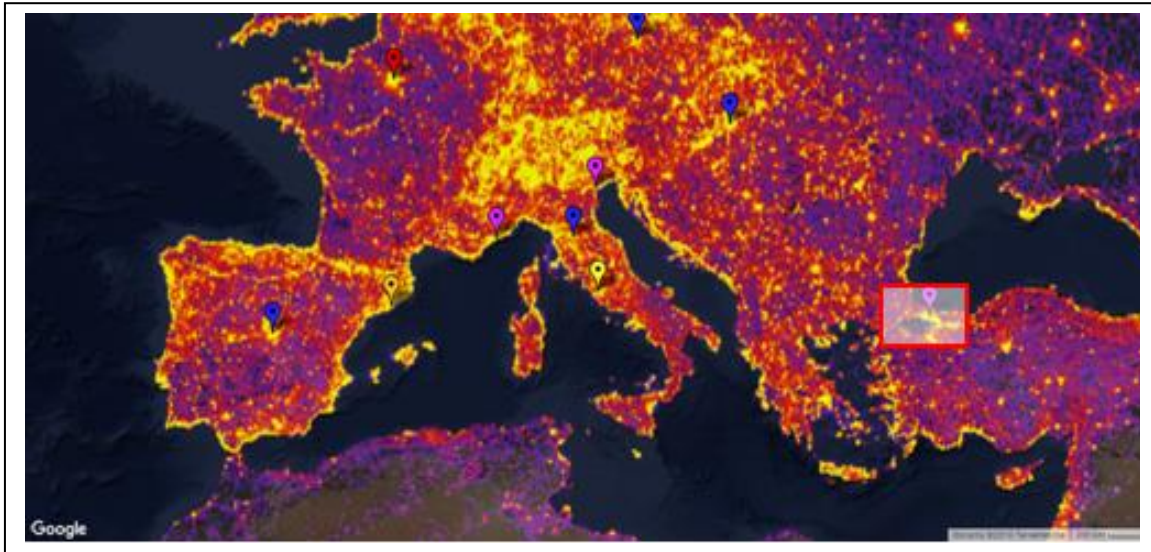


Figure 2: Most Photographed Points In The World (<http://www.sightsmap.com/#>)

### 3. THE RESTRUCTURING PROCESS IN ISTANBUL

When cities are evaluated in the context of globalization, it is seen that urban centers are affected by globalization process in different levels because of the multi-layered characteristic of the city center. Thus, the meaning and the structure of the urban centers revive and restructure. When the changes on the cities are examined, it can be said that the most important effect of globalization is on the urban image and urban identity. It is thought that it should be considered from a historical perspective in order to define the reasons for the restructuring process and to monitor the transformation in the city center. The field research was conducted in Istanbul due to its historical and authentic texture and hosting international organizations. Istanbul has been seen as an important field research, in terms of having these two local and global identities together. And Istanbul is the only example that can be given as a global identity due to its unique characteristics in Turkey. It is examined that urbanization and transformation process taking place in Turkey, gained momentum in the last 15 years and it is an unfinished process. It is possible to see the renewed and old texture together in the city center. With this process, infrastructure services and industrial development are expected to produce solutions by anticipating the problems of existing and renewed structure. However, Turkey's rate of capital is not enough to provide this advance, this transformation has brought many problems (Tekeli, 2008: 49). Istanbul has an unique geopolitical location between the continents of Europe and Asia; located on the hinterland and major trade axes between the Balkans and the Middle East. 19th century is called as a period that Istanbul has the characteristics of 'a world city' both in economic activities, in demographic structure and in socio-cultural areas.

### **3.1. Globalization Process and The Development Dynamics**

Parallel to the political and economic background prevailing in the national arena, Istanbul has the stages of the development which is shaped by neoliberal approaches. In this section, the development and restructuring process in Istanbul has been examined. Istanbul is started to be shaped as a global city in the period of increasing level of political approaches that has the aim to include the Turkish economy in the global economic activities since the 1980s. It is emphasized that Istanbul should be included in the international capital flow. It has been adopted by the authorities that it is necessary to implement large scaled urban projects in the city and to host mega-organizations (Öktem, 2006: 57). Since the 1980s, unlike from the previous periods Turkey's capital accumulation head towards land speculation. The change in the capital accumulation process has also changed the division of labor between cities and urban system. It can be considered as a period when some cities come to the forefront. For example, cities like Istanbul, Ankara, Izmir, Bursa, Ankara, Adana increased from 45.9% to %49.2 between 1979-1997 period (Ataay, 2001: 90). Istanbul is identified as the showcase of the neoliberal approaches in Turkey. Decentralization of industry, multi-stored business centers that is located in the remaining industrial areas, hotels, luxurious residential areas and shopping centers, the evaluation of the historical core as a tourism area, transformation of slum area into multi-stored residential areas according to the rehabilitation development plans can be given as examples in line with this neoliberal approaches. It is seen that local authorities have increased powers of making, approving, implementing and modifying on the planning stages. This situation indicates the development of the city in accordance with the partial implementations. It is a period in which the cultural characteristics are emphasized since the 1990s. First of all, it is seen that the 'global city' concept is emphasized by academicians on different platforms like History Foundation and WALD. The global city concept was effective in shaping the policies that are pursued in this period, which will be beneficial for both the country and the city. Privileged zoning rights, large-scale shopping centers, the construction of the luxurious residential areas and the business centers have been halted and the importance of the city's historical, cultural identity and natural potentials have been emphasized. However, the use of the Tourism Incentive Law in the same period, guaranteeing the rights of special construction has provided the basis. And have been added as new partial implementation tool that is by-passing the protected areas and the planning decisions. The central business district of the city continued to evolve along the important transportation axes. Between Büyükdere Maslak axis and Zincirlikuyu-Maslak, where the 1980 Master Plan does not foresee the development of the city on this basis because of it's advantages, a structure that consists offices, residences and shopping complexes in the form of a skyscraper that is supported by the central and local authorities. Being an international business center is related to the intense settlement of international companies in this region. The rise of luxurious hotels in the historical center and the increasing numbers of shopping centers in every point of the city can be considered among the important development dynamics in the city. Some of the villages in the eastern provinces migrate to major urban centers, especially Istanbul. The population of Istanbul was 4.741.890 in 1980s, 7.309.190 in 1990s, 10.033.478 in 2000s. (TÜİK İstatistiki Verileri, Konularına Göre İstatistikler). Istanbul was highlighted as a 'world city' in the Environmental Plan, which was approved in 2009. The main objective of the plan is defined as the restructuring and reorganization of Istanbul. Among the aims, increasing entrepreneurship is defined as marketing, creating urban image, local development, strategic planning and taking place of big urban projects in the city. After the earthquake of 1999, the concept of urban transformation has emerged for the first time with the attention of 'buildings under risk' and 'risky regions'. Urban transformation projects became an important tool in shaping cities as a means of implementation but mainly concentrated in urban centers, slum areas, old industrial areas or ports. It is remarkable that one of the common features of these regions is the high rent values.

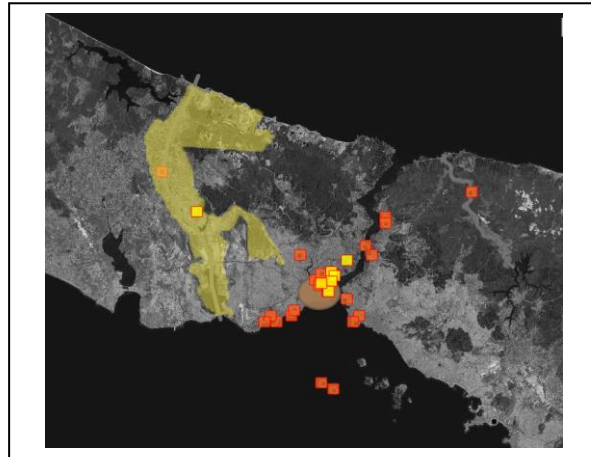
It can be also said that the use of the mega-organizations as a development tool due to provide resources for urban transformation projects became more important in the marketing and restructuring of the city. European Capital of Culture, application to the Olympics and the Ataturk Olympic Stadium, Formula 1, The NATO Summit, UEFA European Champions League Final Game, Eurovision Song Contest, Moto GP, World Architecture Congress, 2009 World Water Forum, United Cities and Local Governments World Council Meeting can be given as examples for this process. The projects like F1 Formula Track is also starting to take place as well as the luxurious residential areas located partially all over the city and on the periphery of the city, university campuses, schools. The spatial distribution of the social groups and the residential preferences of them have triggered spatial segregation on the urban space. The upper income group prefers to live on the slopes of the prestigious districts like Bosphorus, the forests in the northern part or in the suburbs of the city. And some of them is also settled down in the old historical city center, by displacing the lower income groups living here. In literature initiated the process called gentrification. Restoration of old houses in urban centers and the change of social structure of the neighborhoods, as the process called 'gentrification' continued to accelerate. The city's unique historical texture, natural and socio-cultural characteristics are evaluated independently from the upper scale planning processes. It is seen that in the globalization process, real estate and tourism oriented projects are highlighted and the planning decisions can be ignored. When the mega-organizations that are hosted in Istanbul are evaluated it has seen that the organizations that are hosted are especially with the concept culture, sports and politics.

*Table 2: Cultur-Oriented Organizations In Istanbul*  
 (<http://politikaakademisi.org/2016/09/05/buyuk-etkinlikler-ve-kentlere-etkileri-istanbul-ornegi/>)

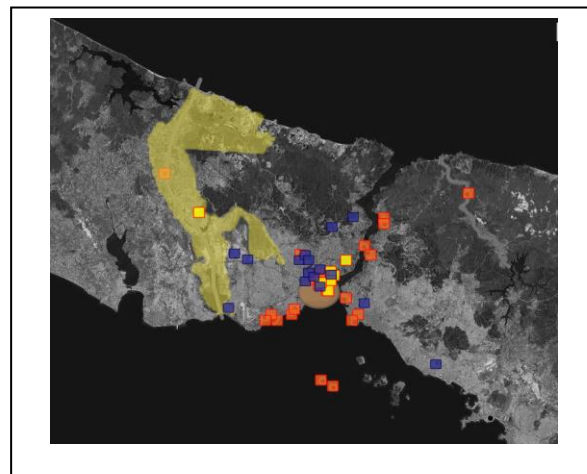
Mega-Organization	Category	The Year of Realization
Habitat II Conference	Cultural	1996
European Basketball Championship	Sport	2001
Eurovision Song Contest	Entertainment/Cultural	2004
NATO Summit	Politics	2004
UEFA Champions League Final	Sport	2005
Red Bull World Racing Series	Sport	2006
European Strategic Forum	Cultural/Politics	2007
Formula 1	Sport	2007
UEFA Final Cup	Sport	2009
World Basketball Championship	Sport	2010
European Capital Of Culture	Cultural	2010
FİLA World Wrestling Championship	Sport	2011
European Basketball League Final Four	Sport	2012
WTA Tour Championship (Tennis)	Sport	2011-2013
World Indoor Athletics Championships	Sport	2012

Istanbul has been the scene of international organizations and large-scale projects according to create brand value in order to stand out among the world cities. It can be said that large-scale urban transformation projects are becoming an important development tool in the

reorganization of global capital. The list mentioned above shows the cultural organizations that took place between the 1949-2012. However, another important issue for Istanbul is the Olympic Games candidacy period between 2000-2020. Although Olympic games could not be hosted during this period, infrastructure services were developed within this scope. In this respect, it has been effective in the restructuring of the city in terms of planning approaches. In the process, although a total of five times of candidates for the Olympics, it can not be performed. Istanbul was nominated for the first time in 2000 and was eliminated in the first round. In 2004, re-nominated and beaten in the first round for the second time. In the 2008 nomination, the construction of Ataturk Olympic Stadium and Sinan Erdem Sports Hall in accordance with Olympic standards are among the implementations carried out in this process. After being eliminated in 2008 and 2012, the city was once again referred to the 2020 Olympics, but was dismissed against Tokyo. In order to create the urban image, the scope of of the 'urban transformation' is changed. Not only flagship projects but also the rehabilitation plans that take place in the large slum areas are considered within this scope. Neoliberal policies, regulations, tourism incentive laws, investments of central authorities and the major tourism projects have been influential in shaping Istanbul's tourism accumulation.



*Figure 3: Tourism and Culture Oriented Development  
(Created by the author within the scope of the study)*



*Figure 4: Tourism and Culture Oriented Development  
(Created by the author within the scope of the study)*



## 4. CONCLUSION

It is possible to observe the results of the globalization process and global urban policies in many areas. Projects implemented with the assumption that the share gained from the global economy will be increasingly distributed to all classes, on the contrary, it has intensified income inequality and social polarization in the city. A number of transformations in the city have made the distinction between the winners and the losers more significant. In the long term, this phenomenon is reflected in the urban space and brought the spatial segregation. The deepening of problems such as unemployment, social and spatial segregation in Istanbul can be thought as a result of entering the 'world city' competition. According to many sources in literature, these urban problems exist not only in Istanbul but also in cities that are recognized as global cities such as New York, London, Paris, Tokyo. In the process of branding, the presentation of cities to the international market and the projects or investments realized in this direction caused the city to develop in a way that is apart from the other cities in the country. While the interregional divide is increasing, development models that respect ecological growth limits should be adopted especially in Istanbul. Each city is participating in the competition between cities with similar projects, a successful project is being imitated, a new and more creative project is always on the agenda and others can remain out of the agenda immediately (Hall, 1998).

### 4.1. Potentials

- It is an important tool for preserving and transferring cultural heritage to future periods.
- It is effective among cities and countries in overcoming the socio-economic boundaries that prevent cultural interaction, expanding the radius of interaction and increasing cultural exchange.
- By developing the urban image, cities with a title can find the necessary resources in urban and spatial interventions more easily.
- The regions where the facilities belonging to the mega-organizations are considered as prestige regions, also direct the urban renewal and development for its neighborhood.
- The importance of cultural characteristics has increased with the emphasis on urban identity.
- It is possible to convert the tourism revenues into new investments.
- Mega-organizations and cultural events appear as a means of introducing the city to the world, revitalization of projects and revitalization of cities.

### 4.2. Risks

- Where the unique identity values and cultural values are to be emphasized, the locality should be highlighted.
- Similar practices should be avoided in every city that ignores the original thresholds of cities.
- Urban spaces should not be shaped to create only the urban image and should be considered as areas where cultural interaction as a public space is realized.
- Urban spaces should not only be tourism oriented but also shaped to meet the needs of local people.
- The process should perform as a result of participatory and transparent processes.
- While selecting prestige points within the city, it is necessary to avoid the partial approaches, the approaches that evaluate the whole region together should be appropriated.
- Each approach, including mega-project or mega-organization with cultural characteristics, needs to be included in a comprehensive planning process.

- Although it has emerged as a culture-oriented development tool, the implementation of similar approaches in different cities brings about the same risk of becoming similar.
- Depending on economic developments, due to the sharpening of disparities in social structure, the increase of gated communities this situation reflects the urban space at the same time.
- As the number of cities participating in the global competition increases, the risk of decreasing the global share taken from the tourism sector can be decreased.

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## SUSTAINABLE INVESTMENT IN WESTERN EUROPEAN COUNTRIES – A MULTIDIMENSIONAL APPROACH

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### **ABSTRACT**

*This study analyzes the factors affecting the development of sustainable investment in Western European countries such as: Austria, Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Spain, Sweden, Switzerland and the United Kingdom. These countries have been chosen intentionally because the authors wanted to analyze a homogenous research sample of highly developed European countries. According to Eurosif, sustainable investment has been present in all of the selected 12 countries. The intention of the authors is not to compare the countries per se, but to use the quantitative economic and socio-cultural data in order to find the similarities and differences between them and to indicate the groups of countries with a similar approach to sustainable investments. To solve the problem, the multivariate technique was used – correspondence analysis (CA). The results show significant diversification of the countries in terms of socio-cultural perspective, economic, socio-demographic, ecological and innovative factors.*

**Keywords:** *ethics in finance, socially responsible investing*

### **1. INTRODUCTION**

The studies on investing that complies with the concept of Responsible Investment (RI) have so far concentrated more on profitability and effectiveness of such investments, simultaneously treating socially responsible investors (in the majority of the studies) as a homogeneous group (Dervall et al. 2011) rather than on the socio-cultural aspect, which has been often omitted. Sandberg et al. 2009 claim that cultural differences may well explain this diversification of socially responsible investments but it is unlikely that these differences will be identified in the nearest future. Another aspect left undiscussed in conducted research includes economic factors, which are the cornerstone of such investments. Many studies relate this issue with a new trend focused on the assessment of the influence socially responsible actions have, also including investments on the financial market, on the stability of the financial system. This problem became apparent after the Global Financial Crisis in 2007 (GFC/2007) when the whole world faced the challenge of how endure the effects of a head-on collision with the crisis. The effects of the crisis were and are still visible in different areas long before its first wave passed by. It transformed itself from a financial crisis into economic and further political one. The questions about its sources are well justified. According to the analysts, the reasons should be found in the activities of particular institutions, people, excessive greed and lightheadedness, supported by an improper or even harmful State's policy. This problem was also a challenge to ethical finance, due to the necessity to look for financial stability. This issue was and still is investigated by many analysts (such as: Milano, 2011; Arvidsson, Peitersen, 2013; Puaschunder, 2017; Nofsinger, Varma, 2014; Janik, Jędrzejowska-Schiffauer, 2018).

## 2. THEORETICAL BACKGROUND

Europe is not homogenous either in a cultural or economic sense. The division into the countries of Western and Eastern Europe is clear. Still, the differences are less and less visible. Here, it should be emphasized that Poland has been qualified to 25 most developed countries. Developed from the economic perspective does not mean, however, that it should be treated the same in terms of its approach to ethical finance. The idea of Socially Responsible Investing (SRI) is not new and its roots in the modern history of the world can be found at the beginning of 18<sup>th</sup> century. In those times it was mainly driven by religious values. Many religions provide examples of socially responsible approach to investing. The Methodist Church in the UK, when started allocating its resources on the stock market in the 20s of the 20<sup>th</sup> century, avoided investing in "sinful enterprises" such as those trading in tobacco, alcohol, weapon or dealing with gambling (Berry, 2015). Muslim investors who act pursuant to Koran and its interpretation avoid investing in companies dealing with pornography, gambling and lending money with loan interests or pork production (Binmahfouz, 2016). Modern SRI is based on growing social consciousness of investors. As soon as in the 60s of the 20<sup>th</sup> century a series of social anti-war and anti-racist campaigns was created aimed at educating investors about social consequences of their decisions, i.e. no support was given e.g. for companies providing raw materials and semi-finished products for weapon production. Also ecological disasters influenced greatly the decisions made by socially responsible investors. Investors eliminated from the portfolio such companies which contributed to ecological disasters or limited investments in the regions threatened with such catastrophes. Not all studies confirm such actions unconditionally. Barnea et al. claim that on the basis of the conducted research, ecological investors may force companies which pollute the environment to implement reforms, however any actions in terms of social responsibility (growth of funding for SR) make the companies polluting the environment underfinanced (Barnea et al. 2005). From the beginning of the 90s of the 20<sup>th</sup> century social responsibility started developing rapidly in the USA, Europe and in other continents. A very important factor which contributed to this growth was the movement of ethical consumerism in which consumers are prone to pay more for products manufactured according to their personal values. Such issues as environmental protection, human rights protection and working conditions became important while choosing SR investments. The growth of ethical consumerism encourages to search for information on ethical business activities while taking investment decisions. However, the research made in the years 2010-2012 on the basis of the analysis of annual corporation reports show the differences in promoting ethical business activities. An even bigger discussion was observed in 2012 rather than in 2010 on ethical treatment of employees and the activities limiting risk among consumer goods suppliers. The results also showed that the companies listed in DJSI (*Dow Jones Sustainability Index*) lose the opportunity to promote their ethical activities and do not optimize their attractiveness for investors, who want to support ethical companies (Huhmann, Conner, 2014).

## 3. RESEARCH METHOD

On the basis of earlier conducted research which correlated selected variables with SRI/1000<sup>1</sup>, the selection of variables was made that significantly influence the volume of SRI/1000. The variables were chosen according to the data coming from 2015. They constitute the latest source of information on socially responsible assets in the countries of Western Europe (SRI Eurosif Study, 2016, p. 12). Correlation analysis helped specify socio-cultural as well as economic factors, which significantly influence SRI/1000 in Western Europe. In order to assess mutual relations between the categories of selected variables, a multi-dimensional analysis of correspondence was applied (MCA – Multiple Correspondence Analysis) – selected results of

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<sup>1</sup> SRI calculated for 1000 inhabitants.

the research were presented in the graphs below. There is a data analysis technique for nominal categorical data used to detect and represent underlying structures in a dataset. For the purpose of the research, each quantity variable was ascribed to three categories reflecting the level of this phenomenon.

## 4. RESEARCH RESULTS

### 4.1. Socio-cultural factors

Hofstede presented in his book *Culture and Organizations – Software of the Mind* (Hofstede, 1990, Hofstede et al. 2010) the data from seventy-six countries and five cultural dimensions: Power Distance Index (PDI), Individualism vs. Collectivism (IDV), Masculinity vs. Femininity (MAS), Uncertainty Avoidance Index (UAI), Long Term Orientations vs. Short Term Normative Orientation (LTO) and Indulgence vs. Restraint (IR). The country's scores in the dimensions are relative and assume values from 0 to 100 for each dimension. The higher the value, the stronger concrete cultural dimension. The diagram below presents only cultural dimensions, which were significantly correlated with SRI/1000. Additionally, the share of Catholics and Protestants was presented in the group of the societies of selected countries.<sup>2</sup>

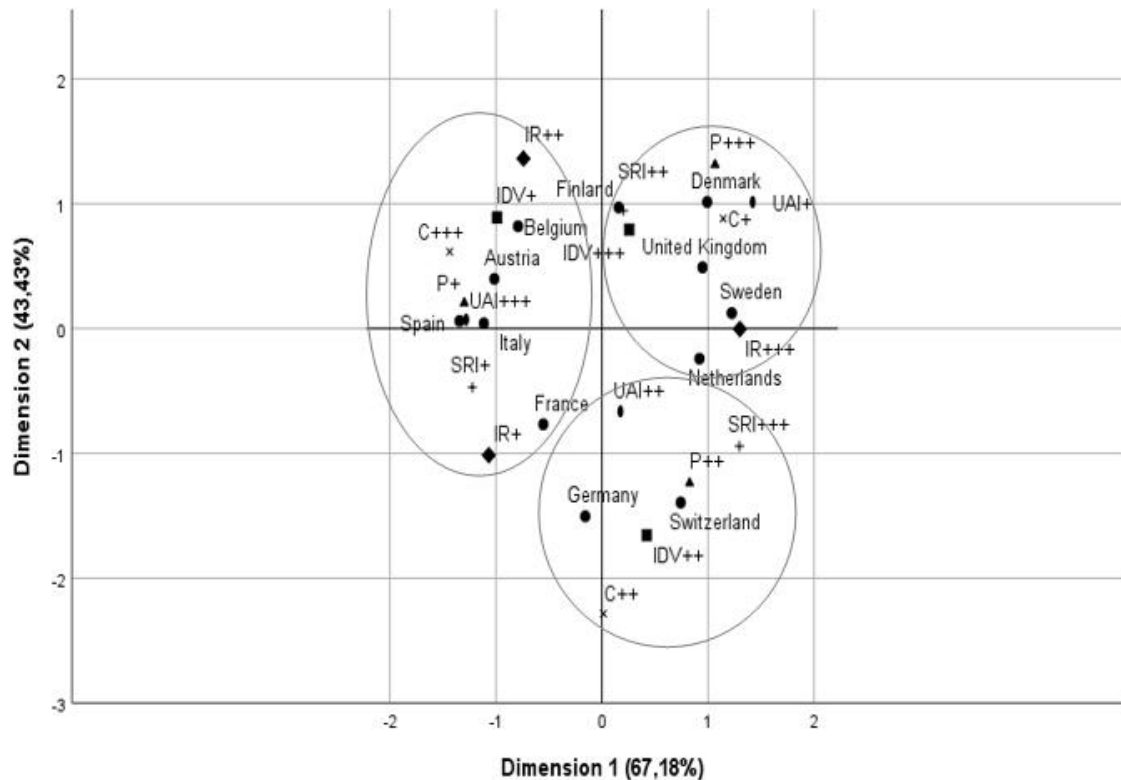


Figure 1: Correspondence (MCA) diagram of the following features: SRI/1000 [SRI]; Hofstede and others: Individualism vs. Collectivism [IDV], Uncertainty Avoidance Index [UAI], Indulgence vs. Restraint [IR]; share of Catholics [C]; share of Protestants [P]. Source: the authors' own analysis, level: + weak; ++ moderate; +++ strong, Dimension 1 explains 67.18% of variance, Dimension 2 explains 43.43% of variance.

The graphic representation of correspondence analysis indicates that the countries of low SRI/1000 (Spain, Austria, Italy, Belgium) were characterized by high share of Catholics, high

<sup>2</sup> Religious structures described in Special Eurobarometr, Biotechnology Report, 2010, pp. 382-383, available at: [http://ec.europa.eu/commfrontoffice/publicopinion/archives/ebs/ebs\\_341\\_en.pdf](http://ec.europa.eu/commfrontoffice/publicopinion/archives/ebs/ebs_341_en.pdf), access: 20.09.2018

Uncertainty Avoidance Indices (UAI), low and average Indulgence vs. Restraint (IR) indices and low Individualism vs Collectivism (IDV) indices. The countries of an average SRI/1000 (Denmark, United Kingdom, Finland) were characterized by high share of Protestants (P), high indices: Individualism vs. Collectivism and Indulgence vs. Restraint and low Uncertainty Avoidance. In the countries of high SRI/1000 (Switzerland) the share of Catholics (C) and Protestants (P) in the society were moderate as well as average levels of the indices were similar: Individualism vs. Collectivism and Uncertainty Avoidance. The division into these groups was confirmed by the hierarchical clustering (Figure 2).

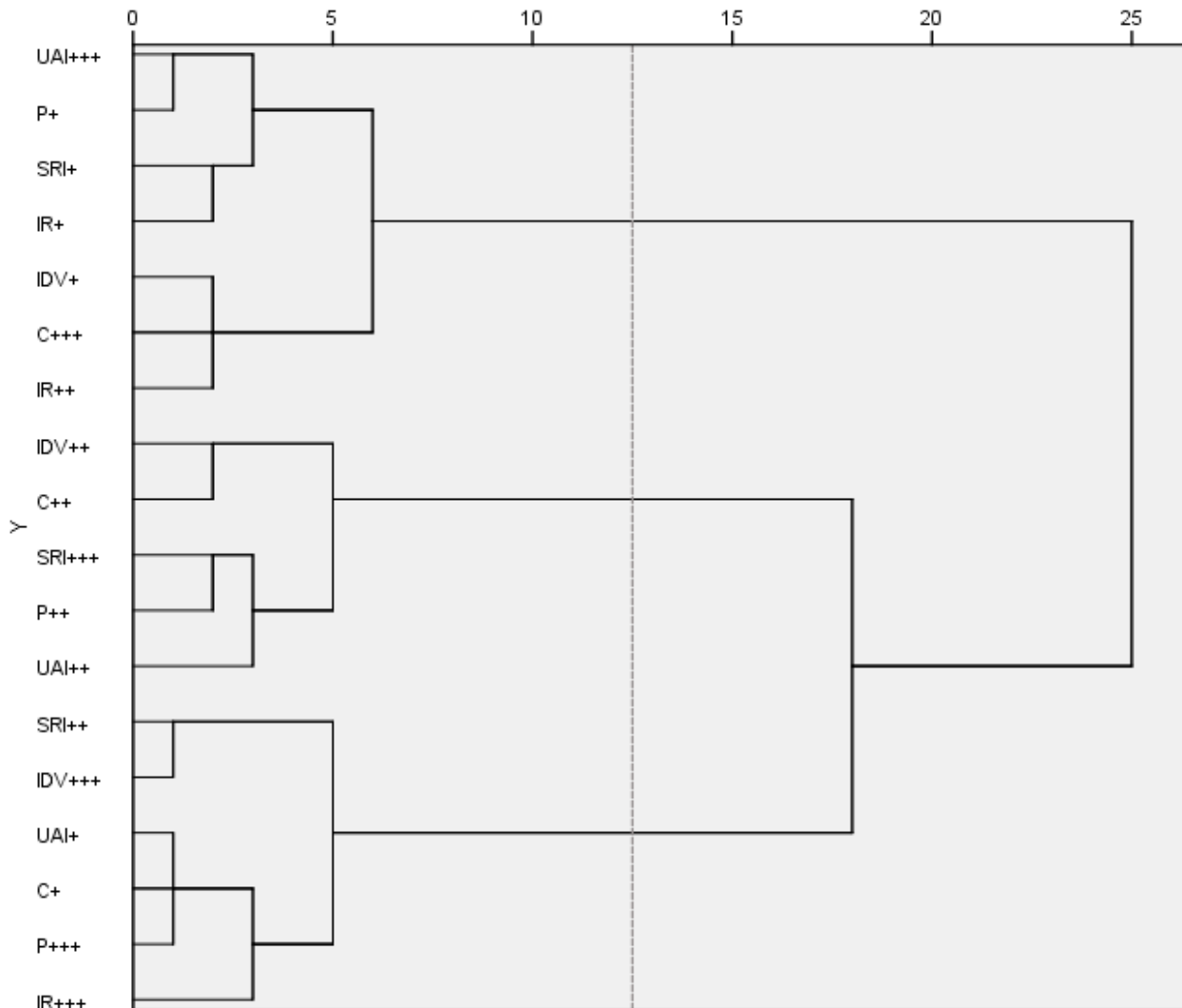


Figure 2: Dendrogram of category grouping on the basis of MCA of the features SRI/1000; [SRI]; Hofstede's indicators: Individualism vs. Collectivism [IDV], Uncertainty Avoidance [UAI], Tolerance/Indulgence vs. Restraint [IR]; share of Catholics [C]; share of Protestants [P]. Source: the author's own analysis

Fig. 3 presents a multi-dimensional interrelation between SRI/1000, Corporate Ethics (CE), and Corruption Perception (CP) – indicator<sup>3</sup> based on Corruption Perception Index (CPI). CPI is a composite index presenting the perceived level of corruption of public sector. The data come from economic and expert research conducted by different independent institutions.

<sup>3</sup> On the basis of CPI, a variable was created which shows the preception of corruption. High levels of CPI correspond to low values of the variable (CP), which means a low level of corruption in perception.

The index amounts to the values between 0 – high level of corruption to 100 – public sector is perceived as “not corrupted”. Corporate ethics (CE) – this index, developed by the World Economic Forum, specifies corporate ethics of a company measured as ethical behavior in interactions with public officials, politicians and other firms.

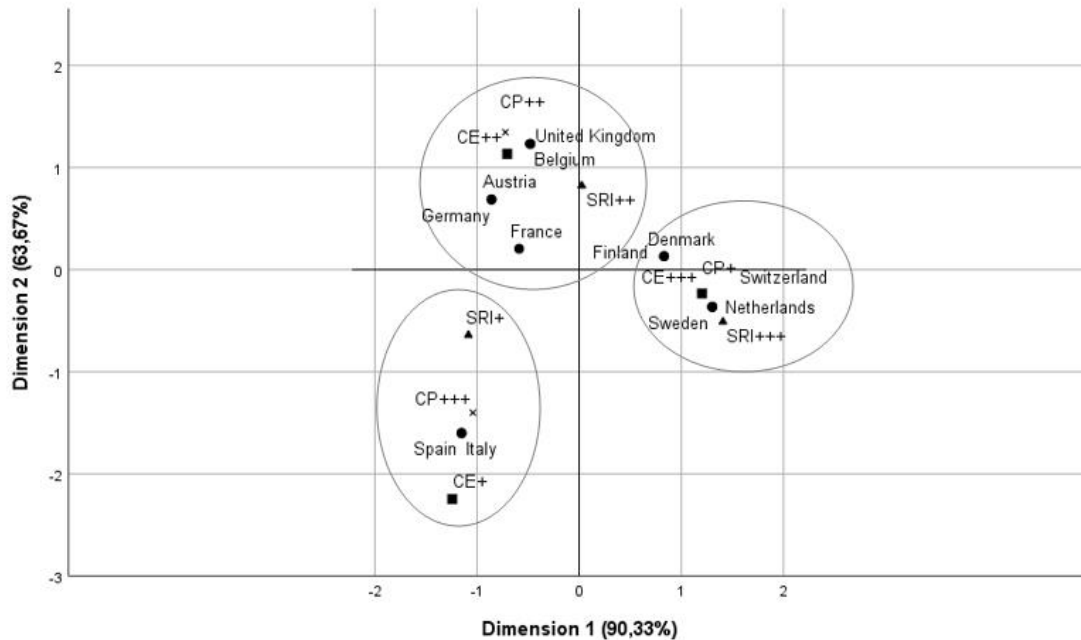


Figure 3: Correspondence (MCA) diagram of the following features: SRI/1000 [SRI]; corporate ethics [CE]; Corruption Perception [CP]. Source: the authors' own analysis. Dimension 1 explains 90.33% of variance, Dimension 2 explains 63.67% of variance.

SRI/1000 reached the highest level in the countries characterized by high corporate ethics and low perceived corruption such as Switzerland, Denmark and the Netherlands, whereas relatively low corporate ethics and high perception of corruption was recorded in Italy and Spain – the countries of the lowest SRI/1000 (with the exception of Austria – in spite of low SRI/1000, its indices were positive).

#### 4.2. Economic factors

Fig. 4 presents three variables significantly correlated with SRI/1000. These include: GDP per capita, Global Competitiveness Index (GCI) and Human Development Index (HDI). The value of GDP per capita is calculated according to the Purchasing Power Parity (PPP) and is expressed in commonly agreed currency PPS (Purchasing Power Standard) against the average for the European Union settled as equal to 100 (UE28 = 100). The Global Competitiveness Index is a composite index specifying the capabilities of particular countries to guarantee a long-term economic growth. It is equal to the values from 1-7, where 7 means the biggest competitiveness. The Human Development Index (HDI) is a synthetic measurement of society development. It measures average achievements in a country taking into consideration the basic areas of human development such as long and healthy life (health), access to knowledge (education) and a decent level of life (income). The HDI is expressed as the value between 0 and 1. Since 2010 the HDI is calculated on the basis of the following factors:

- average life expectancy;
- average number of schooling years for people aged 25 and more;
- expected number of schooling for children starting education;
- GDP per capita calculated according to Purchasing Power Parity (PPP \$).



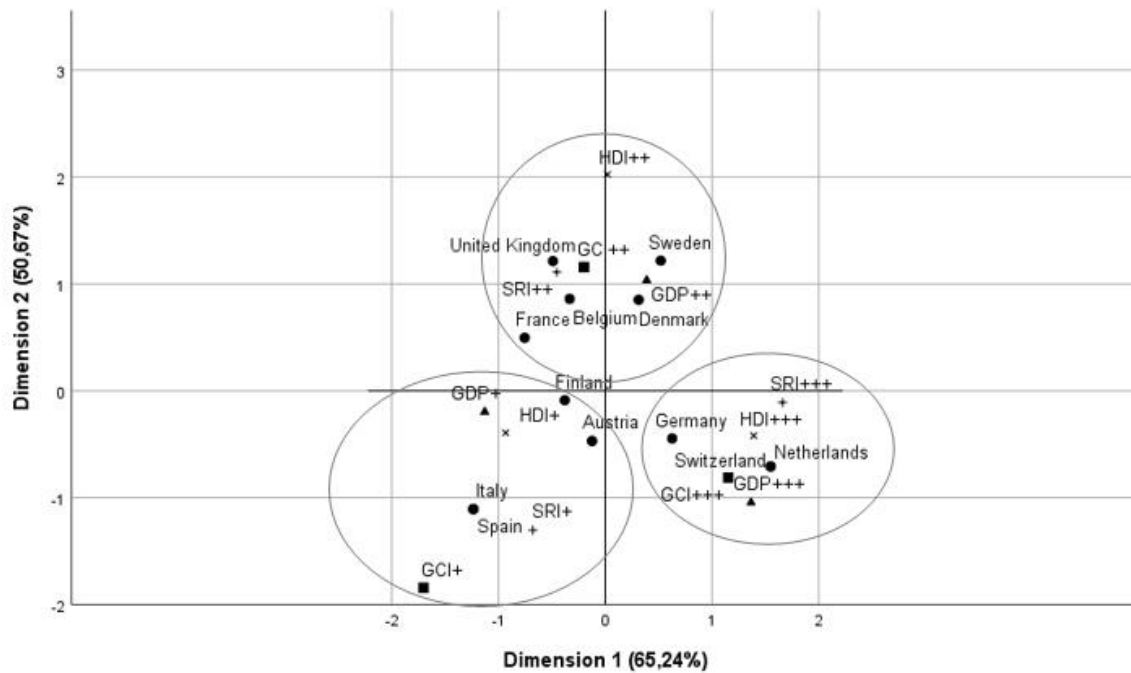


Figure 4: Correspondence (MCA) diagram of the features: SRI/1000; [SRI]; GDP per capita [GDP]; Global Competitiveness Index [GCI]; Human Development Index [HDI]. Source: the authors' own analysis. Dimension 1 explains 65.24% of the variance, Dimension 2 explains 50.67% of the variance.

The graph of projecting categories of selected economic indices in the two-dimensional space indicates clearly the connection of SRI/1000 with the level of the economic growth, human development and competitiveness of economies. High levels of SRI/1000, GDP per capita, HDI and GCI occurred in Switzerland and the Netherlands, the lowest in Spain and Italy and in Austria. Fig. 5 presents three variables also significantly correlated with SRI/1000 showing economy marketization and the development of financial market. Market Capitalization as % GDP – the ratio of capitalization of a given stock market to GDP, expressed in percentage, is considered to measure the development of a given stock market as well as the measurement for the economy and its marketization. As capital markets analyses indicate, in order for a particular market to influence processes in a national economy, it should achieve capitalization at least at the level of 20%. Mature capital markets in economically developed countries are characterized by the level of capitalization/GDP amounting to more than 60%. Financial Market Development – the variable which is a combination of a few indices of market and legal character.

Figure following on the next page

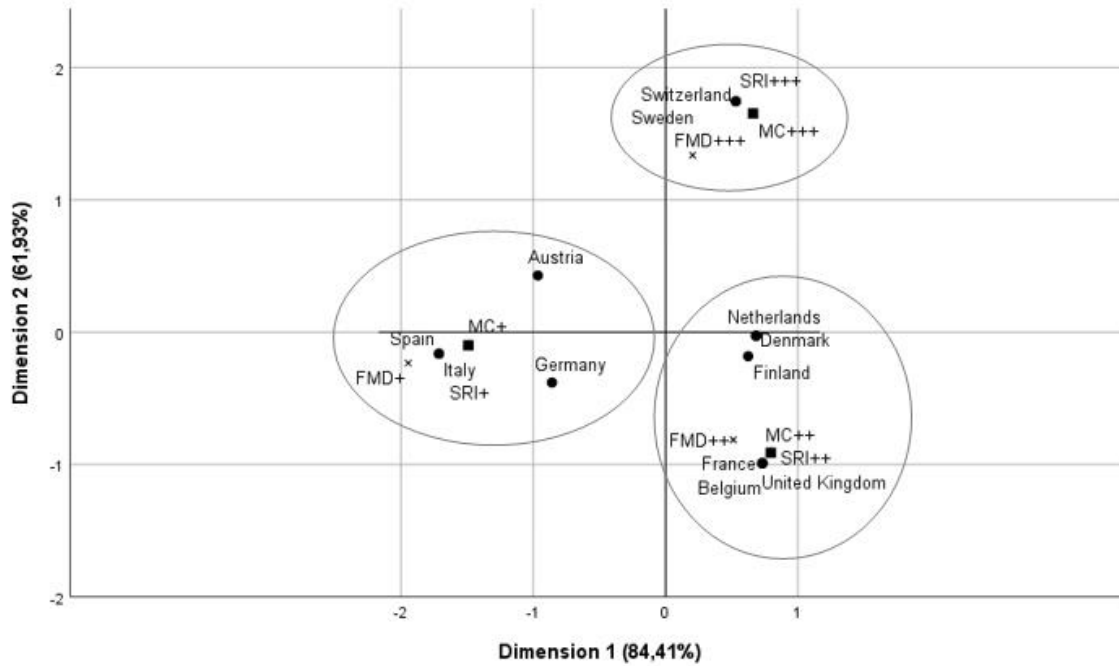


Figure 5: Correspondence (MCA) diagram of the features: SRI/1000 [SRI]; market capitalization of listed domestic companies (% of GDP) [MC]; financial market development [FMD]. Source: the authors' own analysis. Dimension 1 explains 84.41% of the variance, Dimension 2 explains 61.93% of the variance.

A strong positive correlation was also shown in the case of the volume of SRI/1000, the development of financial market and the level of market capitalization (% GDP). These relations were presented in graph 5 – the division into three groups is clearly visible. The highest indices occurred in: Switzerland and Sweden; moderate in the Netherlands, Denmark, the UK, France, Finland and Belgium. Low indices were recorded in Spain, Italy and Germany – including Austria though its financial market is relatively highly developed.

## 5. CONCLUSION

Religious structure seems to have a very significant importance if socio-cultural factors are concerned. As the research clearly showed, countries of low SRI/1000 had a relatively highest share of Catholics; Spain, Austria, Italy and Belgium. Simultaneously, the same group of the countries was characterized by a high level of Uncertainty Avoidance (UAI) and low level of Individualism vs. Collectivism (IDV) as it was concluded from the analysis of corporate culture according to Hofstede et al. The societies of low level of individualism and prone to avoid uncertainty were poorly engaged in socially responsible investments. In the case of two other analyzed factors related to business ethics and perception of corruption it may be concluded that the higher the perceived corruption and the lower level of corporate ethics, the fewer SRI/1000 assets. This condition was particularly visible in Italy and Spain, whereas a significantly more favorable situation indicating low corruption level and high level of corporate ethics connected with a high value of SRI/1000 was observed in Switzerland, Sweden, the Netherlands and Denmark. Selected variables characterize in a versatile way the economic situation (GDP per capita) and the competitiveness (GCI) countries as well as their social development (HDI). The countries of high SRI/1000 enjoyed the highest values of indices in the indicated areas. These countries include: Switzerland, the Netherlands and Germany. The weakest countries again included Italy and Spain. Marketization of these economies and the development of financial markets also significantly influences the volume of SRI/1000.

The strongest group included two countries: Switzerland and Sweden whereas the weakest included: Spain and Italy. The conducted multi-dimensional analysis of the socio-cultural and economic data indicated that these countries show certain similarities. Italy and Spain reached low levels of variability in the analysis and consequently were classified into the weakest group. Switzerland, Sweden and Germany, when compared to other countries, represent the highest level of socio-cultural developments and in the majority of the enumerated countries<sup>4</sup> SRI/1000 was high.

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<sup>4</sup> Germany are an exception here, since the level of SRI/1000 was average.

## UNIVERSITY SOCIAL RESPONSIBILITY (USR) AS A WAY OF COMPETITION IN A TURBULENT ENVIRONMENT – POLISH CASES

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### **ABSTRACT**

*The social responsibility (SR) model is based on the strategy of building relationships on mutual trust and gaining mutual benefits by both the organization and specific groups of stakeholders. This model refers to the principles of sustainable development in relation to business, governmental and non-governmental organizations (NGOs) as well as universities. The maximum concentration on the construction of trust-based relations with stakeholders, as well as their skillful management should be an integral part of the business strategy of each organization, including universities. The aim of the article is to analyze the perception of social responsibility by two selected universities, the public SGH Warsaw School of Economics and the private WSB University in Wroclaw. The research area is the awareness of stakeholders within the scope of building the strategy of social responsibility of higher education institutions. Based on the research carried out by the authors, the following hypothesis was formulated: dialogue and cooperation between stakeholders is the basis of the university social responsibility strategy. Based on preliminary research, the following conclusions can be formulated: when incorporating the social responsibility strategy into their structures, higher education institutions in Poland should begin the process by paying attention to internal relations. This can be inferred from the assumptions of the model developed on the basis of research. The organization is able to achieve further levels of advancement of the social responsibility concept with a solid foundation only.*

**Keywords:** *university social responsibility (USR), business model, social responsibility (SR) strategy, education, SGH – Warsaw School of Economics, WSB – WSB University in Wroclaw*

### **1. INTRODUCTION**

Changes taking place in global markets since 2007–8 (the period of global economic crisis) have led to reconfiguration of business activity of an organisation in several aspects: economic, political, environmental and ethical alike. Zygmunt Bauman describes the present time as an 'interregnum', a state in which 'the old is dying and the new cannot be born'. The duration of this state is not yet known as the changing social system is currently undergoing disintegration, creating a not yet fully defined new structure (Baumann et al., 2017, p. 35). On the other hand, Rifkin (Rifkin, 2012) describes the 21st century as the time of the internet and renewable energy, providing the foundations for the emerging era of cooperation. According to the authors, the above changes create an environment that is conducive to the development of SR.

#### **1.1. Business models as a benchmark for building an SR strategy in higher education institutions**

An analysis of the activities of various organizations allows us to conclude that more and more often business models are used to create a method of operation in the market not only for enterprises, but also for NGOs or universities, both private and public. The universities themselves are evaluated and classified in various rankings (Akerlof, Shiller, 2017).

This approach results in the drive to create various types of process measures (in the case of universities, focusing primarily on educational and research processes), on the basis of which the progress of research work (e.g. the number of publications, the place where a given paper or book is published, number of quotations) is assessed, as well as the effects of teaching students. What matters is the adjustment of competences gained by students to the needs of a dynamically changing market and the remuneration that they can obtain after completing the basic education process (bachelor's degree, master's degree, PhD) in a given university. Therefore, further on the authors focus on outlining a business model and strategy of action as the strategy provides a basis for the way of functioning of a university. Analysis of scientific literature on business models (i.a. Osterwald, Pigneur, Tucci, 2005; Betz 2002; Tikkanen, Lamberg, Parvinen, Kallunki, 2005, Obłój 2002, Slywotzky, Morrison, Andelman 2000; Koźmiński 2004) demonstrates that there is no uniform approach among authors to the definition of a business model and strategy of action. A significant increase in the number of publications on the business model has been observed since the last decade of the 20th century, which, according to the authors, is related to the collapse of the previous way of gaining competitive advantage on the market, and, as a result, to economic crises. (Brdulak H., 2012). The authors, in their search for elements providing a basis for the concept of a business model, most often refer to the concept of value, the theory of innovation, resource theory, transaction costs or a network in a wider sense. Based on literature analysis, it is therefore assumed that a business model is the way in which a company creates and captures value. (Kavadias, Ladas, Loch, 2017). Important factors influencing the model include the price formation mechanism and the principles of cooperation (interacting with other entities in the market to create and/or capture value). The network of connections and relations between independent organisations for the purpose of creating and allocating value in the market is referred to as the ecosystem (Davidson, Harmel, Marshall, 2015). If we refer the above considerations to universities, it can be concluded that in the current environment it is necessary to strengthen the interaction of universities with other entities in order to capture value, such as a graduate with competences corresponding to the market demand and research which supports the activities of enterprises. The need to improve the quality of education as well as to create a system of continuous education is a serious challenge for universities looking for new models of operation. The ecosystem is changing, too. The number of students is decreasing as a result of declining birth rates in Poland and Europe. To survive, universities must attract students from countries with a high natural growth rate. Based on the business model, universities build a strategy that may include a social responsibility strategy. Strategy can be defined as a 'game plan' (Thompson, Strickland 1998) or a complex plan whose aim is to link internal competitive advantages with the challenges arising from the external environment (Glueck, Jauch 1984). The company's mission or overriding objective are also referred to as a strategy (Steiner, Miner 1977). In the lean management concept, increasingly used in various organizations, strategy is the 'far north', which we aim to achieve by implementing a specific action plan (Rother 2011). The above definitions outline a certain area of the authors' understanding of the notion of strategy with the fitting social responsibility strategy – the subject of this article.

## **1.2. Fundamentals of building social responsibility in higher education institutions**

Higher education institutions which have decided to implement the SR strategy primarily draw from general guidelines recommended for organisations, such as ISO 26 000, AA 1000, Standard SA 8000 or GRI reporting guidelines for non-financial data. International and national initiatives most frequently include OECD Guidelines for Multinational Enterprises ([www.oecd.org](http://www.oecd.org)), The Caux Round Table Principles for Business ([www.cauxroundtable.org](http://www.cauxroundtable.org)) or the principles of the UN Global Compact ([www.unglobalcompact.org](http://www.unglobalcompact.org)), and with reference to universities, The Erfurt Declaration on University Autonomy (1996), the Talloires Declaration

(ulsf.org) and The Principles of Responsible Management Education – PRME (www.unprme.org), worked out within the UN Global Compact initiative. In the 1980s, for the first time in the research and debate on social responsibility of organizations, an integrative approach emerged, initiated by Drucker (Drucker, 1984) and next developed by Prahalad (Prahalad, 2004), and Porter and Kramer (Porter, Kramer 2006; Porter, Kramer 2011). The representatives of the approach present the conviction that the occurrence of social or environmental problems should be treated in terms of market opportunities. Engaging in pro-social activities is in this context a manifestation of the search for new, undiscovered opportunities (Brdulak H., Dąbrowski T., Jastrzębska E., Legutko-Kobus P., 2018), such as eco-innovation and open innovation.

### **1.3. Eco-innovation and open innovation as opportunities for the development of business models and university social responsibility strategies**

Eco-innovation is characterised by a holistic approach, focused primarily on compliance with sustainability criteria ('from cradle to cradle thinking'). An important feature is the social, cultural and ethical context (<http://ec.europa.eu/environment/eco-innovation/>). The concept of open innovation implies an open and collaborative approach to the innovation process. Organisations applying the open innovation model acquire the necessary knowledge and innovation within the network that is being built up (research institutions, suppliers, users, customers and competitors). The latest definition of open innovation highlights the deliberate management of knowledge flows (inside and outside) within an organisation, including cash and non-cash flows in line with its business model (Chesbrough, Bogers, 2014, p. 17). In both categories the authors see an opportunity and support for the creation of university models, as well as for the development of a social responsibility strategy taking account of the applicable legal environment in which an organisation operates. Compliance with the law in force in a country provides a basis for codes of conduct, which are an integral part of CSR. Changes in the legal environment have a significant impact on the business model and strategy of a university. Such changes took place in 2018 in Poland with regard to higher education.

## **2. LAW 2.0 CHANGES IN HIGHER EDUCATION IN POLAND – (SUCCESSFUL?) AN ATTEMPT TO ADAPT TO CHANGING MARKET REALITIES**

One of the manifestations of changes in the models of functioning of an organization is, among others, the passing of the new Act – Law on Higher Education and Science in Poland. This act, also referred to as Law 2.0 or the Constitution for Science, has been in force since 1 October 2018 in all Polish universities and is assumed to be a comprehensive reform of higher education. Due to a process approach, the implementation period of the changes contained in the act has been staggered over several years. The reform was inspired mainly by the willingness to adapt to the changing market environment, including the expectations of business towards university graduates, and to adjust the cooperation model within the so-called entrepreneurship triad: universities, business and local governments. The act assumes that universities and other research institutions have the mission of contributing to the innovativeness of the economy, development of culture and co-shaping of moral standards in public life (Act of 20 July 2018 – Law on Higher Education and Science, 2018). It should be stressed that in this article, the analysis of the document is aimed at considering the potential impact of changes taking place in the market environment on various types of organizations, in this case on the academic environment). As mentioned in the introduction, one of the directions of changes in the functioning of market entities is the emphasis on creating a network of connections with other entities to create or capture value. Networking obliges the entities to pursue and promote diversity, which is a prerequisite for success. Hence, it is worth looking at the provisions of Law 2.0.

### **2.1. Evaluation of scientific activity rather than faculties – establishment of universities of applied sciences and academic (scientific & research) universities**

The provisions of the act place even greater emphasis on the evaluation of universities than before. The document links the university's capacity to the evaluation of scientific research conducted every four years by the Science Evaluation Commission (Komisja Ewaluacji Nauki – KEN). The scientific activity of the university carried out in specific disciplines will be subject to evaluation, not the faculties, like so far. Depending on the evaluation results, a university receives the category of an academic institution (three highest grades A+, A, B+ on a five-point scale in at least one discipline) or a university of applied sciences (B and lower grades). The latter will be able to provide education only in practical studies, while losing the right to offer postgraduate doctoral studies. More emphasis will be placed on research and scientific development in academic institutions. A division into academic universities and universities of applied sciences seems to be a good idea, especially in the context of growing demand for professionals from various industries. However, a university of applied sciences ceases to combine the function of a scientific and didactic entity, becoming only a didactic entity. There is a risk, therefore, that the transfer of scientific knowledge, which is one of the basic functions of universities, will disappear completely in the course of time. Thus, it seems that Law 2.0 fails to account for the idea of supporting diversity which consists in combining the scientific offer with the acquisition of skills within a specific professional profile or in building a network of connections between entities as part of cooperation of scientists at home and abroad.

### **2.2. Classification of scientific disciplines – narrow specialisation**

Similar dissonance is aroused by the provisions of Law 2.0 related to the classification of scientific disciplines. They are modelled on the division applied by the Organisation for Economic Cooperation and Development (OECD). Within a specific time frame, each researcher must declare that they represent one or two disciplines. A researcher assigned to two disciplines also declares the percentage share (the result must add up to 100%) of their involvement in scientific activity in the declared discipline. Every two years a scientist has the right to change the discipline. This stands for a joint evaluation within a single university of an entire homogeneous group of e.g. political scientists. Since the emphasis on the interdisciplinary nature of science is high nowadays, many scientists are against being assigned to a narrow discipline as they usually identify with more than two disciplines. Moreover, the OECD list itself lacks consistency. Disciplines vary from country to country. For example, applied linguistics is regarded as a social science in the UK and classified as humanities in Poland; it has been overlooked that the distinction between the two disciplines is quite questionable and controversial. Hence, the act, again, does not seem to support interdisciplinarity; it even imposes limitations in this respect. There is a risk that researchers, forced to publish in a declared discipline as part of performance appraisal, will be reluctant to merge into interdisciplinary teams owing to issues with narrowly profiled scientific journals.

### **2.3. University federations – between public higher education institutions**

Among the changes in the way of functioning of an organization, the authors indicate the creation of a network based on cooperation between different types of entities. A step in this direction is a provision in Law 2.0 on federations. It should be stressed that this provision applies only to public higher education institutions. Private universities, of which, according to the data contained in the POL-on system ([www.polon.nauka.gov.pl/](http://www.polon.nauka.gov.pl/)), there are about 250 with nearly 150 public ones, have not been covered by the above regulations. Perhaps the reason for this omission is the fact that in November 2017, 75.1% of the 1.3 million students in total studied at public universities ([www.stat.gov.pl](http://www.stat.gov.pl), 2017), although nearly 25% of the students still studied at non-public universities.

A federation may be established by a public academic institution (with at least B+ grades) with another public academic institution or with an institute of the Polish Academy of Sciences (PAN), research or international institute. Two public universities of applied sciences will also be allowed to establish a federation. A federation will be subject to joint evaluation in a given field, it will be able to conduct scientific activity, educate doctoral students and award scientific degrees (academic universities) and commercialize the results of scientific activity. Thus, the provision of the act raises doubt. The promotion of linear cooperation between academic universities and universities of applied sciences and the emphasis on the exclusion of private higher education institutions may deepen the differences and polarise the academic community in the future. This is a completely different direction from that of the USR concept. The partial analysis of the new act proves that changes in the market environment have been noticed. However, the act will not, as the authors see it, be neutral in terms of USR. Excessive parametrization adversely affects the development of science whose strength is lack of 'humility'. The lack of support for interdisciplinary activities and the creation of federations may reduce the quality of research and education. Disintegration of the academic environment and more difficult cooperation with business, NGOs or local governments may occur. Thus, let us look at the results of a research survey on the perception of USR. Internal and external stakeholders of two Polish universities took part in the survey conducted by the authors in 2018: a public university, SGH Warsaw School of Economics (SGH) (the survey was conducted within the scope of the rector's grant by the team: H. Brdulak, T. Dąbrowski, E. Jastrzębska, P. Legutko-Kobus), and a private university, WSB University in Wrocław (WSB).

### **3. ANALYSIS OF SURVEY RESULTS IN SGH WARSAW SCHOOL OF ECONOMICS IN WARSAW AND WSB UNIVERSITY IN WROCLAW**

#### **3.1. Design of the survey**

Research on the perception of university social responsibility was carried out as part of two SGH rector's grants, among SGH employees in 2017, and in 2018 – among external stakeholders also including students, doctoral students and participants of courses organised by the university (one category) and external institutions, including enterprises, public administration, local organisations, other higher education institutions and graduates. In this paper, the analysis is based on the 2018 survey due to the direct participation of the co-author of this article in the research. The closed-ended survey questions were answered by 207 people. The survey was based on closed-ended questions with the final open-ended question. The five-point Likert scale was used. The evaluation was focused on internal and external relations, research and education. The largest group of respondents were students and participants of other forms of education at SGH (88%), next graduates (15%) and business (13%). The result does not add up to 100 % as the respondents could indicate that they belong to more than one group. The survey at WSB in Wrocław was based on the questionnaire made available by SGH in Warsaw, on the initiative of doctor Anna Brdulak in cooperation with professor Halina Brdulak. The project was launched at the end of September 2018. Before the paper was submitted, in mid-October 2018, 34 respondents participated in the survey. Due to the small number of respondents, the results should be treated as a guideline rather than hard data. As opposed to SGH, at WSB the largest group of respondents were research and teaching staff (61%) and administration (41%, multiple choice answers were possible, so the result does not have to add up to 100%). In the case of 47% of the respondents, the relations with the university were between 6 and 10 years, and in the case of 26%: 11–15 years.

#### **3.2. The area of internal relations**

At SGH, 94% of respondents confirmed that higher education institutions should create a social responsibility strategy (88% for WSB).



In the case of internal relations, respondents stressed respect for students' rights, dialogue with stakeholders, counteracting mobbing and discrimination, ensuring good working conditions and development of employees as key elements of the university's social responsibility strategy (over 90% of indications). When assessing the actions to be taken by universities as part of their social responsibility, external stakeholders paid the greatest attention to the need for more extensive dialogue and taking into account students' rights (almost 50%) as recommended actions. It also indicates a very important role of communication in building a social responsibility culture. In the survey conducted at WSB, in the case of internal relations, 100% of the respondents (answers: definitely yes and rather yes) were of the opinion that, first of all, a university should provide development opportunities for its employees. Respondents pointed to the dialogue with employees, counteracting discrimination and mobbing, engaging in dialogue with students and respecting their rights (97% each) as further important activities within USR. The reason for choosing such answers may be the fact that mainly university employees took part in the survey. In this context, however, the previous results may be questionable. According to them, internal relations as the most suggested area for USR implementation were ranked third only, following internal relations and education. Similar to SGH, employee volunteering (65%) and student volunteering (79%) enjoyed the least support at WSB. Given the previous results, this may indicate that the basic needs of internal stakeholders related to a good and sustainable working environment must be met first. Only later can programs on a more advanced level be created.

### **3.3. The area of external relations**

At SGH, relations with business as a key area of building a social responsibility strategy (98%: the sum of yes and rather yes answers) were ranked first, and then: observance of ethical standards in contacts with the environment (99%) and relations with other universities (95%). The results obtained at WSB were slightly different. When evaluating specific USR activities in the area of external relations, according to the majority of respondents by far the greatest emphasis should be placed on compliance with ethical standards in contacts with the environment and participation in shaping the social and economic reality (97% of definitely yes and rather yes answers) and on relations with local communities (94%). Respondents attached the least importance to charity activities (76%). These results may indicate a high awareness of the role played by the university in the system of relations between different types of market entities and responsibility for the quality of these relations.

### **3.4. The area of research**

The next analysed area concerned the importance of research within university social responsibility, e.g. at SGH. Stakeholders paid particular attention to adherence to research ethics (86% of definitely yes and rather yes answers), as well as to research in the area of sustainable development and adherence to the internal research code (81% of yes answers each). The results were similar at WSB. As many as 88% of employees believed that the ethics of scientific research should be observed at a responsible university (73% of definitely yes answers). According to 79% of the respondents, research conducted at a responsible university should concern the subject of sustainable development, responsibility and ethics.

### **3.5. The area of education**

In the fourth analysed area, education, 99% of SGH stakeholders considered it crucial to ensure high quality educational activities while ensuring better adjustment to market needs (93%). At the same time, as many as 90% of the respondents stated that education in the field of sustainable development, as well as ethics and education of the society (university of the third age, children's university) are important areas of USR.

It is worth mentioning that in the research conducted in 2017 among SGH employees similar indications were obtained in the analysed four areas, with an even greater emphasis on relations with other universities. Similar to SGH, at WSB for almost all stakeholders (97%) the most important in the context of USR was the provision of high quality education with appropriate adjustment to market expectations (94%) and the training of specialised personnel (94%). 82% of respondents see a need for increased efforts to educate the public, both within the university of the third age and children's university. After comparing the expectations towards a responsible university with the current practice of WSB, it can be concluded that the university should place greater emphasis on the development of the educational offer addressed to senior citizens and children, improving the quality of education and education in the field of organisational ethics, social responsibility and sustainable development. Moreover, the high rate of hard to say or don't know answers may suggest that it will be necessary to improve the information flow among internal stakeholders.

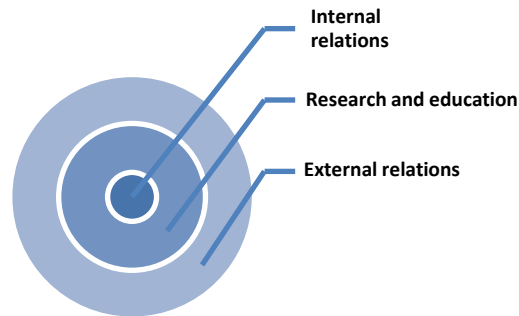
### **3.6. Focus areas in the process of building a social responsibility strategy – recommendations**

Areas that SGH should focus on in building a social responsibility strategy, ranked according to percentage indications, are as follows: high quality education (100%), employee dialogue and respect for students' rights, and dialogue with students and participants in other forms of education, such as doctoral students and other students (99%), ensuring good working conditions and employee development (98%), compliance with ethical standards in relations with the environment and relations with business (96%), education for market needs, counteracting discrimination and mobbing, relations with other higher education institutions (94%), supporting student organisations and taking care of employees' health (93%) as well as ensuring work-life balance (91%). Similar results were achieved in surveys conducted among SGH employees, yet the sequence was slightly different. The quality of education came in first, followed by almost the same indications: observance of ethical standards in contacts with the environment, employee dialogue, counteracting discrimination and mobbing, employee development, respect for students' rights, participation in shaping the social and economic reality, educating specialized personnel, relations with graduates, education of the society, dialogue with students, observance of research ethics, taking care of employees' health and environmental protection. As regards WSB, nearly half of the respondents (47%) declared that they did not undertake any SR activities. 41% of the respondents are active in the field of education, and more than one third of them (multiple answers were possible, results do not add up to 100%) put emphasis on internal relations. It may be worrying that as many as 35% of the respondents, when asked about raising the subject of corporate social responsibility (CSR) during their classes, gave a negative answer. One third had no opinion on this. Similar results were obtained after posing the question about sustainable development (32% of answers were: I don't raise this subject, and 32% were: Hard to say). It should be stressed, however, that 50% of the respondents raised the issue of business ethics during their classes. The results clearly indicate the existence of huge implementation and educational potential, in particular for stakeholders not involved in social responsibility. Further research in this area and initiating dialogue between stakeholders opens up space for relations between all groups involved in the activities of the university and then developing a coherent strategy document.

### **3.7. Outline of the model for the creation of university social responsibility**

On the basis of an analysis of survey results and additional workshops with external SGH stakeholders, an outline of a model was created, which may become a cornerstone for building a university social responsibility strategy. At the core of the model are internal relations, which provide a basis for building the educational offer of the university, conducting research and

further on establishing external relations. Only a solid basis underlying the organisation, and in the case of universities especially conducting employee dialogue, providing opportunities for employee development, taking care of good atmosphere at work, counteracting discrimination and mobbing, or taking care of the employees' health determines the transition to the next levels of social responsibility strategy implementation. Without a strong foundation, it is not possible to take the SR strategy to the next level.



*Chart 1: The model of creating a university social responsibility strategy; correlations between key areas (H. Brdulak, T. Dąbrowski, E. Jastrzębska P. Legutko-Kobus, 2018)*

#### 4. CONCLUSIONS

In times of reconfiguration of business models, the role of and requirements placed on universities are also changing. Of particular importance are the issues related to social responsibility of an organization based on shared responsibility for sustainable development. The strategic objective of higher education is to improve quality in three main areas of activity: quality of education, scientific research and cooperation of universities with the environment. Openness to dialogue, as well as awareness of education to satisfy the needs of society and the market are becoming as important as ever. Surveys conducted among stakeholders at two universities in Poland definitely confirm the need to develop a social responsibility strategy with particular emphasis on the above-mentioned areas. Hence, it seems that university authorities ought to focus in particular on the development of internal and external relations. In the proposed model of building a social responsibility strategy, internal relations are an essential driver of interdisciplinary research. On the other hand, research conducted in accordance with the highest ethical standards in cooperation with other organisations may create R&D facilities for enterprises. It is also important to define who the institution is for and in which environment it operates. In the opinion of the authors, however, the role of a university should be specified through its mission. SGH has the following mission statement: 'SGH Warsaw School of Economics is an innovative economic university that develops intellectual potential and creates leaders in response to the challenges of the future. It is an influential centre for academic research, new ideas and initiatives undertaken by the academic community and alumni, as well as by business representatives, NGOs and public administration. As an autonomous and socially responsible university, SGH promotes ethical citizenship through its teaching, research and social engagement activities.' ([www.sgh.waw.pl](http://www.sgh.waw.pl)). At WSB, the mission emphasises the importance of external relations: 'Innovative, friendly, and practically focused – helping you change your world.' (<https://www.wsb.pl/wroclaw/o-uczelnii>). In both cases there is a reference to cooperation, which is the basis of social responsibility. It is therefore essential to establish and maintain a continuous dialogue with both closer and further stakeholders to get to know their expectations. Universities that have developed and implemented a social responsibility strategy, or are planning to do so, will provide a better basis for attracting students from other, non-European countries, which is particularly important in view of the decline in the birth rate in Europe.

Such universities are more likely to be chosen by young people planning their careers in Europe. They will also become a better workplace for employees, whose motivation will translate into the quality of work and, consequently, the educational offer.

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# IMPACT OF INSTITUTIONAL FRAMEWORK AND TAX POLICY ON FOREIGN DIRECT INVESTMENT IN SELECTED EUROPEAN UNION COUNTRIES

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## **ABSTRACT**

*Foreign direct investment represents the basis of economic growth of each country and affects the economic, technological and social environment and volume of trade more than any other type of capital. Accordingly, each country is trying to attract foreign direct investment and foreign capital. In order to achieve this, it is important that each country is politically stable, has a skilled and educated workforce with relatively low labor cost, a stable and administratively simple tax system. Institutional development and quality, i.e., a favorable institutional framework create an incentive environment for investment activity and have a key role in attracting foreign direct investment. Investment protection, business security, incentive tax policy, investor confidence in the legal order of the state, and security of ownership rights are the most important selection criteria that will determine the direction of the movement of foreign capital and determine the investment attractiveness of an individual country. The progress of the institutional environment and the favorable macroeconomic environment create good foundations for a profitable investment and, consequently, make the country more attractive to foreign investors. But, on the other hand, the increased inflow of foreign direct investment can further boost the process of institutional development. In this regard, the development of institutions and the growth of FDI are two processes that are simultaneously and interactively pursued, which are continuous and which, with their progress, lead to the growth and development of the society as a whole. This paper will try to analyze and explain the main effects of institutional framework and tax policy on foreign direct investments in selected EU countries. Mainly it will be focused to show the flow of the FDI in the countries and whether the changes in the institutional framework and tax policy have an impact on the FDI in selected EU countries.*

**Keywords:** *EU countries, foreign direct investment, institutional framework, tax policy*

## **1. INTRODUCTION**

Researching and analysing the problem of accumulation of physical capital and its impact on economic growth is mostly focused on the role of FDI in economic growth. It is often said that such a type of investment produces external effects in the form of technology and technological progress, which can certainly result in greater economic growth. Also, FDI can offer a number of benefits to capital-intensive countries, including high growth, higher exports, higher wages, and greater productivity through the spread of technology to local businesses. The amount of FDI inflows in each country depends on several different factors, and the most significant are (Bevan and Estrin, 2000):

- macroeconomic stability, i.e. economic growth, low inflation and exchange rate stability
- institutional stability including tax regime, transparency of law and degree of corruption,
- political stability,
- unit labour costs,
- the size of the domestic market,
- openness of the economy,
- membership in the European Union, which is of particular importance to the transition countries.

Foreign direct investment has not always had the largest share in international financing, but since 1980 they have been characterized by a trend of steady growth. In such a form of private international financing, a foreign company is established in the form of a subsidiary, a representative office or an independent enterprise, and the purchase of shares of shares of foreign joint stock companies, where the owner of the invested capital has the right to control the enterprise abroad in which it invested at least 10 % of the total capital of the company you invested. Such investments allow for a number of benefits to investors themselves, such as circumventing the customs barriers of country in which investment is made and lower labour costs than in the investor residence country. The effect of FDI on growth is widely discussed in economic literature. Increased interest in this area of research also coincides with increased interest among politicians in attracting more and more FDI inflows over the last decades. Since the early 1980s, many countries (including those developed) have abolished many restrictions imposed on inflows of foreign capital. Indeed, in recent two decades the rate of growth of FDI has exceeded the growth rates of world trade and GDP. The reason for the increased efforts to attract more FDI stems from the increasingly widespread opinion that FDI has several positive effects, including productivity gains, new technology transfer, new processes, management techniques, technical know-how on the local market, and international manufacturing networks. In addition, FDI is not unstable as some other forms of capital (e.g. short-term capital) and are less destructive (World Bank, 1999).

## **2. LITERATURE OVERVIEW**

Researches that analyze the influence of institutions on investment and economic growth confirm that there is an impact and can be measured, but there are different conclusions when it comes to the significance of this impact as well as factors that lead to institution growth and consequently to economic growth. Most authors, below, emphasize the protection of property rights, political freedom, government quality, and the level of political stability as institutions which are very important for generating investment and economic growth. Barro (1991) conducted the first research on the role of institutional quality in long-term growth in the example of 98 countries where he proved a positive link between institutional quality and economic growth. Mauro (1995) found a statistically significant link between institutions, investment and economic growth, and Knack and Keefer (1995) have shown that the growth and quality of institutions lead to higher GDP growth rates. That findings also confirm Kaufmann, Kraay and Zoido-Lobaton (1999). Chong and Calderon (2000) have identified causality, which they have found to be two-way and that institutions encourage growth, but also that growth leads to the emergence of new, better institutions. They have shown that the influence of institutions on economic growth is greater in poor countries. Rodrik, Subramanian and Trebbi (2002) measured institutions through the rule of law and the protection of property rights. They have proved the great importance of institutions for investment and economic growth. Bassanini, Scarpetta and Hemings (2001) have found that the role of institutions can be positive and negative. It is positive because economic growth is driven by innovation, the macroeconomic environment, trade openness investment and the development of financial

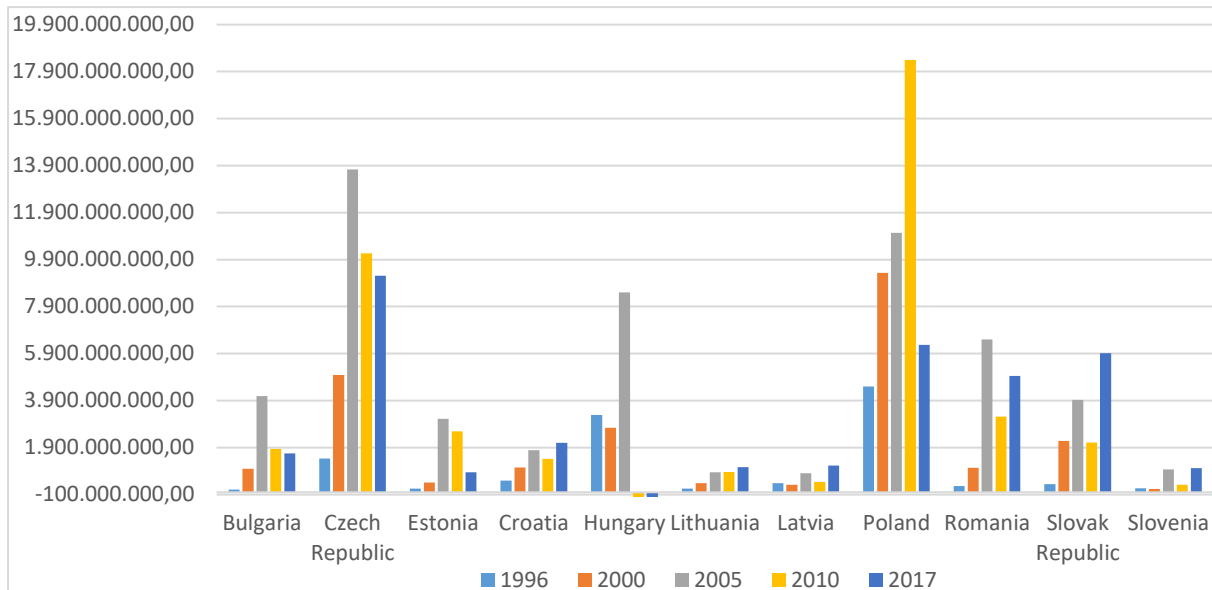
markets, which is the result of good institutions. Negative impact is when weak institutions, like strict regulation and administrative constraints on market efficiency, have a negative impact on overall economic growth. The difference in the quality of institutions will affect the difference in economic growth. Meon and Weill (2003) find that better institutions are associated with greater macroeconomic efficiency, and that the greatest influence have institutions such as the rule of law and government efficiency. Furthermore, Acemoglu (2005) considers that countries with macroeconomic instabilities and slow growth have weak institutions. This also includes inefficiencies in the protection of property rights for investors, which have favored the spread of corruption and a high level of political instability. Algan and Cahuc (2010) emphasize the importance of a legislative framework that is crucial to the development and design of a favorable institutional environment that generates investment and economic growth. Easterly (2013) points out that economic growth is always and everywhere the result of investment activity, and that investment is conditioned by developed institutions. Goes (2015) links institutional quality to the level of gross domestic product per capita and concludes that more developed countries, i.e. those with higher levels of gross domestic product per capita, have more developed and better institutions than countries with lower per capita GDP. Comin and Mestieri (2016) come to the conclusion that countries with highly developed institutions that effectively protect property rights are quicker adopting new technologies into their economic systems, which ultimately have far-reaching effects on long-term economic growth. Although, researches on the impact of institutional development on economic growth are numerous, authors agree in one, that the influence of institutions on investment and economic growth exists (Buterin, Draženović, Jakovac, 2018).

### **3. CHANGING TRENDS IN THE FDI FLOW IN SELECTED EU COUNTRIES**

In this chapter there will be analyzed FDI trends and comparison in 11 selected EU countries that have similar starting points in socio-economic development and at the same time have undergone an institutional change process. These countries are Czech Republic, Slovakia, Hungary, Poland, Estonia, Latvia, Lithuania, Bulgaria, Romania, Slovenia and Croatia. Until the beginning of transition, foreign direct investment in these countries was at the low level due to a policy that discouraged foreign investors and imposed various administrative barriers to foreign capital inflows but also due to an uncertain investment environment (Johnson, 2006). The largest amount of foreign direct investment was attracted by the Czech Republic, Hungary and Poland. The governments of these countries have officially encouraged foreign investors and have provided significant relief to foreign companies, such as tax exemptions, customs benefits, infrastructure improvements and direct stimulus. The necessary condition for all these privileged conditions was the favorable institutional environment that these governments have intensively created from the beginning of the transition. But the positive effects of foreign direct investment were not limited to the companies to which they were involved, but also to numerous other domestic companies that benefited from the knowledge of foreign investors in the field of technology and marketing. In Poland, foreign investment has become the most common form of capital inflow needed for stabilization and economic growth over the transition period. It can be said that the successful transition model in Poland was marked by the development of the private sector. (Buterin, 2015) According to one research, foreign direct investment is attributed to the contribution of 39% economic growth rate in the first years of transition, from 1991 to 1995 (Zakharov, Kušić, 2003). Poland's success is evidenced by the fact that from the beginning of the transition until 2004, when Poland joined the European Union, greenfield investments accounted for 58% of total foreign investment (Kornecki, 2006).

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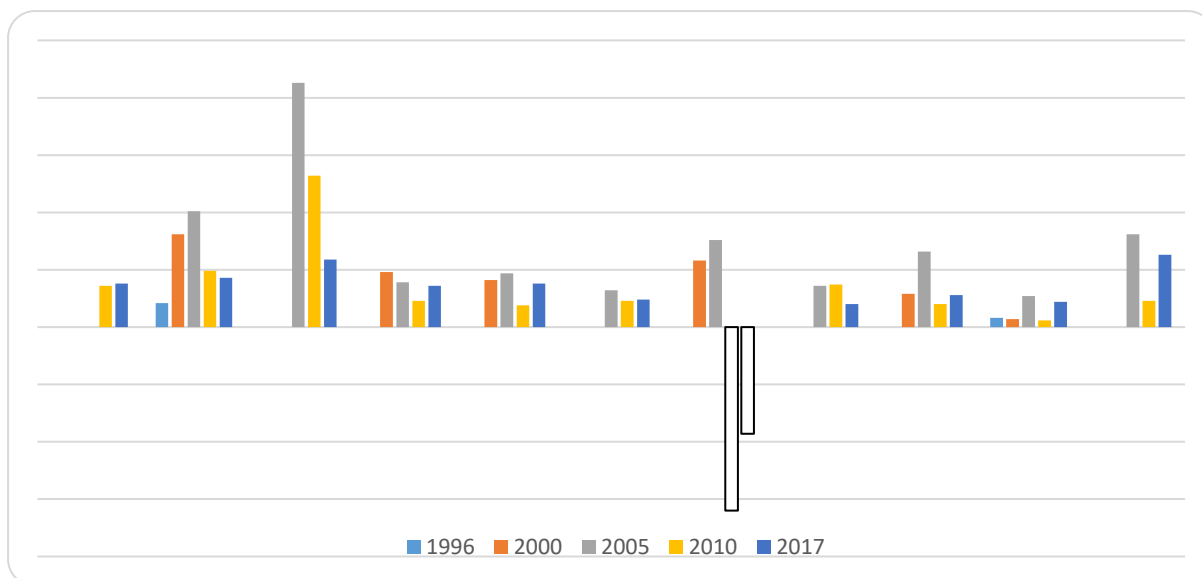




*Figure 1: Foreign direct investment, inflows (current US\$)  
 (authors' compilation according to the data of The World Bank, 2018.)*

It should be noted that, in Slovakia, foreign direct investments, especially greenfield investments, are starting to increase significantly with the change in policy pursued by Slovak Prime Minister Meciar and with the implementation of the institutional reform that followed. Estonia, Latvia and Lithuania did not attract significant amounts of FDI, but the impact of such FDI levels on their growth rates was positive. This can be explained by the fact that these are small and open economies, whose economic structure is less complex and diversified (Bačić, Račić, Šonje, 2004). Slovenia has also not attracted significant direct foreign investment, but the Slovenian privatization process has destimulated the inflow of foreign capital. Slovenia was the only transitional country that did not support foreign investment to modernize its economy, finance a budget deficit, or raise funds to repay foreign debts. The Slovenian model of privatization has favored domestic investors, placing considerable non-transparent restrictions on the entry of foreign investors (Družić, 2003). Romania and Bulgaria were unsuccessful in attracting foreign direct investment by almost 2002. The process of EU enlargement to Romania and Bulgaria and the institutional changes associated with joining the EU have led to a significant interest of foreign investment companies in these two countries (Carstensen, Toubal 2004). In Romania, the view to institution development began to change after the first ten years of transition. In that time the attitude of foreign investors to Romania began to change, and did significant inflow of foreign direct investment (Birsan, Buiga 2009).

*Figure following on the next page*



*Figure 2: Foreign direct investment, inflows (% of GDP)  
 (authors' compilation according to the data of The Eurostat, 2018.)*

In Hungary, the situation was specific, as it was attractive to foreign investors, but it quickly became a significant investor country itself. From the beginning of transition, Hungary has based its strategy of economic development and reintegration into the world economy to attract foreign investment. In Hungary, the greenfield investment was very high. Since the earliest start of transition, the protection and security of private property, the legislative framework and consistent law enforcement, contract security, and the general development of institutions, in Hungary was a priority. Croatia is steadily below the average of the listed transition countries, except for 2003, when there are a number of large privatizations in Croatia and in 2010 when large capital outflows occur in Hungary due to the crisis. Apart from Hungary, Poland and the Czech Republic, which attracted most foreign direct investment, even Romania and Bulgaria were ahead of Croatia. However, the real problem of foreign direct investment that Croatia has managed to attract lies not so much in their amount but in their type and consequently in their effects on the Croatian economy. There are no greenfield investments in Croatia that would create new values and would have a positive impact on employment. Most of the investments were in the form of takeovers of ownership shares through privatization, and revenues were spent on filling budget deficits (Sisek 2005).

#### **4. FDI AS A RESULT OF FAVORABLE INSTITUTIONAL FRAMEWORK AND TAX POLICY - EXAMPLE OF SELECTED EU COUNTRIES**

##### **4.1. FDI and favorable institutional framework**

In the selected EU countries, foreign direct investments have directly or indirectly influenced their direction and growth dynamics. All the countries have not been equally successful in attracting foreign direct investment, partly because of the degree of development or size of the market, and partly because of institutional reasons. When deciding on investment in foreign country, investors analyze various factors, including labor costs, market size and regional connectivity, bureaucracy and corruption, business environment quality, macroeconomic stability of the host country, and the overall institutional framework. If the existing institutional framework was favorable for investments, and if the size of the market and the cheap and skilled labor created prerequisites for profit, investors had motives for investment. One of the most important institutions for the investment activities growth is the protection and security of property rights. Without the security of the property rights, the investment initiative will be reduced, especially investment in research and development that requires engagement of

significant funds and is potentially very profitable. Ownership or political instability often attracts speculative capital or capital of suspected origin which, due to increased risk, expect rapid short-term returns (Bilas and Franc, 2006). Due to its impact on investment, the institution of property rights protection throughout history was the cornerstone of the development of Western countries (Dang, 2009). The macroeconomic, and in particular, the institutional environment of the selected EU countries has the most significant influence on attracting foreign direct investment. The level of fulfilling the contract, the level of openness of the country, but above all, the quality of the institutions become important factors in decision-making by foreign investors on investment in a particular country (Anghel, 2006). Institution's development reduces the asymmetry of information available to domestic and foreign investors and makes business conditions more transparent and equitable to everyone. Countries that were able to meet these criteria attracted the highest quality of foreign direct investment and ceased to be perceived as former socialist countries with poor people and inexpensive labor force. Even so, they become countries whose companies are investing abroad which was almost unimaginable at the beginning of the transition process. Institutional change has proved to be crucial for such a development moment of selected EU countries. Furthermore, Romania and Bulgaria, began to attract foreign direct investment with the time lag, when they were forced to initiate institutional change due to EU accession. Namely, reality shows that some countries, because of their political and institutional risks, are constantly being rejected by investors. Investment protection, business security, investor's confidence in the legislative framework, and ownership security will be the most important selection criteria that will determine the direction of foreign capital and the investment attractiveness of the country. As it was in history, so it is for selected EU countries, that institutions development is a very important factor for economic development. Encouraging for the countries that are in the process of transition may be the results of research, where progress in institutional quality can have the same effect as if the country suddenly becomes the neighboring state of full financial resources (Bénassy-Quéré, Coupet, Mayer, 2007). Institution development accelerates and encourages the foreign direct investments, regardless of whether their impact on economic growth is positive or not. The following graph shows the institutional development of selected EU countries. None of the observed countries is ranked in the Free class where the index value is over 80. Mostly free countries are those whose value of Economic Freedom Index is between 70.0 and 79.9. where the Czech Republic, Estonia, Latvia and Lithuania joined in 2017. All other countries were moderately free, with index values of 60.0 to 69.9. In 1996 only Czech Republic and Estonia were ranked as moderately free countries, while all other countries were poorer. Slovakia, Hungary, Poland, Latvia and Slovenia were ranked mostly unfree, while Lithuania, Bulgaria, Romania and Croatia were in the class of subsisted economic freedom (repressed). In that sense, there has been made a respectable progress in the institutions development in all selected EU countries. The institution's progress has reflected on the attractiveness of foreign investors and investments that came through the later period (Buterin, Draženović, Jakovac, 2018).

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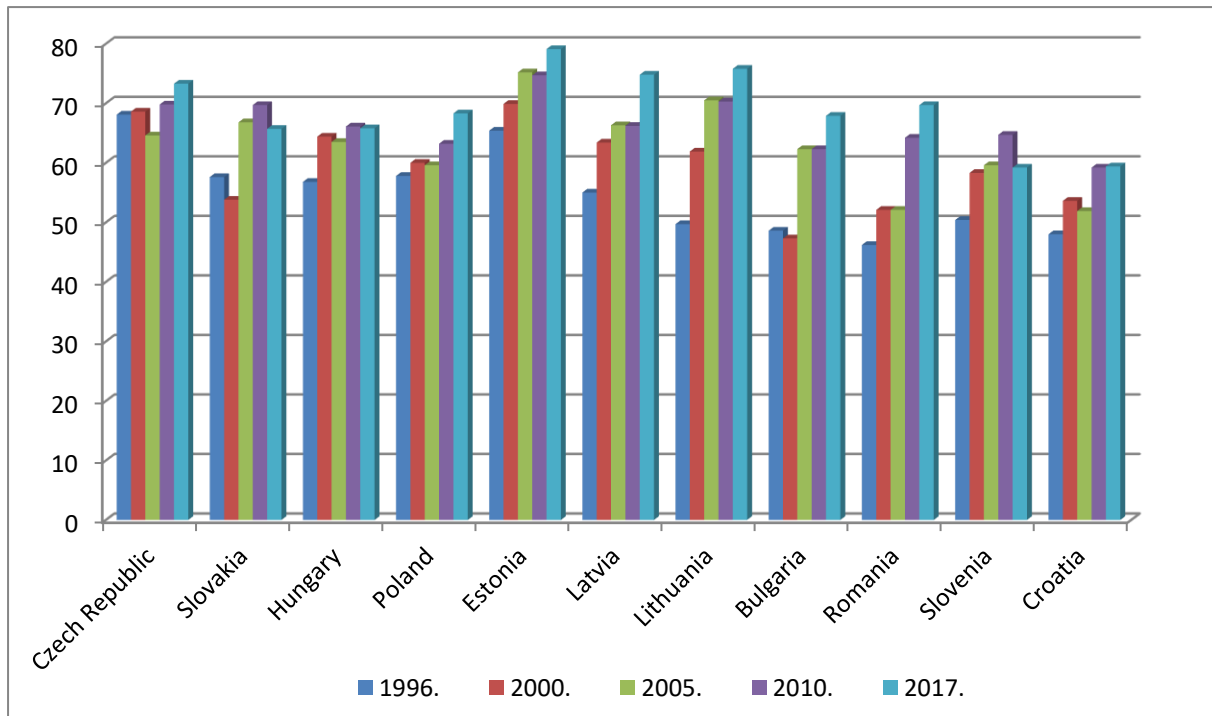


Figure 3: Heritage index of institutional quality (authors' compilation according to the data of Index of Economic Freedom, 2018)

There is a strong interaction between the foreign direct investment and the institutional process. On the one hand, the advancement of the institutional environment and the favorable macroeconomic environment create good foundations for a profitable investment and consequently make the country more attractive to foreign investors. But on the other hand, the increased inflow of foreign direct investment can further boost the process of institutional reform. In this regard, institutional development along with foreign direct investment and economic growth are processes that are simultaneously and interactively ongoing, are continuous and which lead to the growth and development of the society as a whole. Part of the selected EU countries have started such a path since the very beginning, part joined later and soon realized visible economic shifts, and the rest of the countries can help the cognition that institutional reform is a process that can always be initiated, regardless of the backdrop that has emerged in the meantime.

#### 4.2. Impact of tax policy on FDI

From the perspective of politics and the government, attracting FDI is widely considered to be beneficial to the investment-receiving country because investments offer new opportunities for economic growth, enable higher wages, higher employment and higher tax revenues. On the other hand, all of that previous mentioned lead to a greater degree of welfare in the country. Among the instruments that can be used to attract investment, taxes play a key role. Over the last decade, in order to attract FDI, many countries have significantly reduced their corporate income tax rates. In addition to the countries tend to reduce the statutory corporate income tax rate, many countries also approve other different corporate income tax incentives and reliefs (Figure 4).

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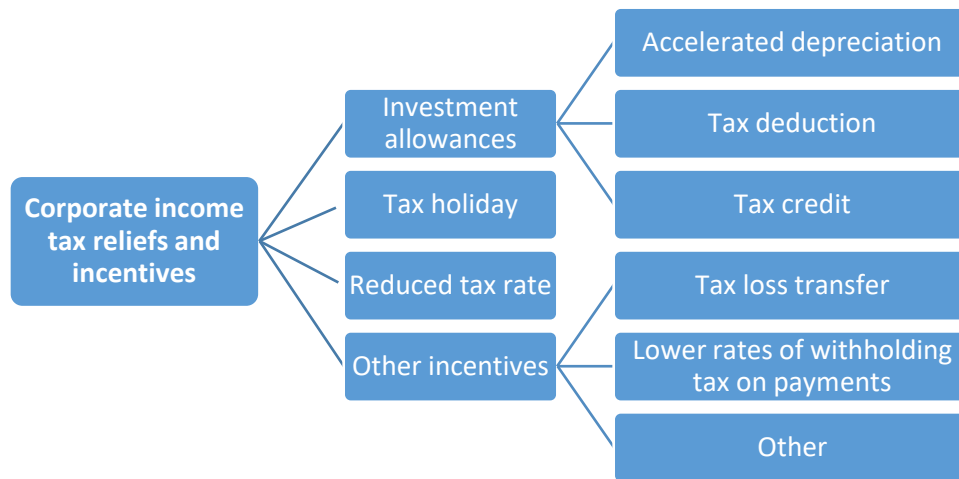


Figure 4: Corporate income tax reliefs and incentives  
 (authors' compilation)

According to Figure 4, in the following Table 1 it will be presented tax incentives for investments in the 9 selected countries because Estonia does not grant any investment incentives and reliefs, while Slovak Republic only grants incentives for R&D and for income from the commercial use of intangible assets. The other selected countries have a more complex system of tax incentives and reliefs.

Country	Incentives and reliefs
Czech Republic	<p><b>For investment:</b>  <i>Tax holiday</i> (10 years) equal to the amount of their tax liability for newly established enterprises or equal to the amount of the increase in their tax liability as compared to the greater tax liability of the previous 2 years for existing enterprises.                      The main conditions for these incentives are:                      - For the manufacturing industry: at least 20 new jobs an investment of at least CZK 100 million (of which at least 50 million must be invested in machinery).                      - For technological centers: at least 20 new jobs and an investment of at least CZK 10 million (of which at least 5 million must be invested in machinery).                      - For strategic services centers: the number of newly created jobs must be at least 20 (in the case of software development centers); at least 70 (in the case of shared-services centers); and at least 500 (in the case of customer support centers).</p> <p><b>Other incentives:</b>                      - for R&amp;D;                      - for professional development support of employees                      - employment incentives for each disabled employee</p>
Hungary	<p><b>For investment:</b>  <i>Tax credit for the promotion of development</i> for the investments with a present value of at least HUF 3 billion (HUF 1 billion for a prioritized municipality and HUF 500 million if the investment is made by a SMEs) as well as investments of a specific nature related, inter alia, to environmental protection, film production and creation of jobs. Each type of investment must satisfy a number of conditions, e.g. an increase in the number of jobs, new or extended facilities or new or substantially changed production processes. The new facilities or jobs created must also be maintained for a certain minimum period. The tax credit can be used up to the 16th tax year from the tax year in which the notification of or request for the tax credit was submitted  <i>Incentives for SMEs</i> - an investment credit when taking out a loan from a financial institution for the acquisition or production of tangible assets. Such taxpayers may deduct from their tax due 100% of the interest paid in respect of loan agreements.  <i>Tax incentives in relation to investments in start-up companies</i> - deduction from taxable base an amount equal to three times the acquisition value of the shares in start-up companies. This deduction may not exceed HUF 20 million per year.</p>

	<p><i>Tax credit for the implementation and operation of investments made for energy efficiency purposes</i> - tax credit equal to 30% of the eligible costs of the investments up to a maximum of the present HUF value of EUR 15 million. For SMEs the credit is increased by 20% and 10% respectively.</p> <p><b><u>Other incentives:</u></b></p> <ul style="list-style-type: none"> <li>- for film production</li> <li>- for performing artists</li> <li>- employment incentives</li> <li>- for R&amp;D</li> <li>- for sport subsidies</li> <li>- for real estate investment trusts</li> <li>- deferred taxation for the promotion of business growth</li> <li>- for electric charging stations</li> <li>- accelerated depreciation</li> </ul>
Poland	<p><b><u>For investment:</u></b></p> <p><i>Tax incentive for new investments or creating new jobs</i>- a (partial) tax exemption for taxpayers if they undertake new investments or create new jobs within the <i>entire</i> territory of Poland. Taxpayers who meet quantitative and qualitative criteria are entitled to a tax exemption up to the amount of the regional State aid granted in a given region. The maximum amount of the regional State aid is 10% to 50% of the qualifying expenditures, depending on the region in which the investments take place. The percentage is 20% higher for small enterprises, and 10% higher for medium-sized enterprises. Permits to benefit from the tax exemption will be issued for 10, 12 or 15 years depending on the intensity of State aid granted in a given region.</p> <p><b><u>Other incentives:</u></b></p> <ul style="list-style-type: none"> <li>- accelerated depreciation</li> <li>- for special economic zones</li> <li>- tonnage tax</li> <li>- for R&amp;D</li> </ul>
Latvia	<p><b><u>For investment:</u></b></p> <p><i>For investors in economic zones and free ports</i> – the company is entitled to an 80% tax credit and it is applicable in a tax year only to the extent that it, together with associated reliefs in respect of immovable property tax, together with the accumulated direct tax relief, does not exceed 55% of the value of accumulated investments (for small enterprise) and 45% for medium-sized enterprise. If it is neither small nor medium-sized, the ceiling is 35%.</p> <p><i>Substantial long-term investments</i> - the invested amount must exceed EUR 10 million and the investment must be made within 5 years of the date on which the project is approved. The investment project has to be completed before 31 December 2025 and must begin a new business operation, modernize or extend existing operations so as to enable manufacture of a new product line or provision of a new type of service or make a significant alteration to the existing operative process. The premises in which the investment is put to use must be owned by the taxpayer or be leased for at least 13 years from the date of the inception of the investment project. Investment in buildings and structures may not exceed 40% of the whole.</p> <p>The tax credit is granted in the 25% of the investment amount up to EUR 50 million; and 15% of the investment amount exceeding EUR 50 million but not exceeding EUR 100 million. Excess tax credits may be carried forward for 16 tax periods.</p> <p><b><u>Other incentives:</u></b></p> <ul style="list-style-type: none"> <li>- tonnage tax</li> </ul>
Lithuania	<p><b><u>For investment:</u></b></p> <p><i>For investors in free economic zones</i> – tax holiday (6 tax years full exemption) and for the 10 following tax years the corporate income tax rate will be reduced by 50%. The main conditions are that the investment in the company is at least EUR 1 million and at least 75% of the income of the tax year is comprised of income from the activities within a free economic zone. Such tax incentive also applies if the average number of employees is not less than 20, the investment in the company is at least EUR 100,000 and at least 75% of the income of the tax year is comprised of income from the provision of services within a free economic zone.</p> <p><b><u>Other incentives:</u></b></p> <ul style="list-style-type: none"> <li>- tonnage tax</li> <li>- small company relief</li> </ul>

	<ul style="list-style-type: none"> <li>- other such as accelerated depreciation, exemption of investment income from corporate income tax, tax incentive for film production, for credit unions, cooperatives and companies employing disabled, unemployed or convicted persons.</li> <li>- for R&amp;D</li> </ul>												
Bulgaria	<p><b><u>For investment:</u></b>  <b>Corporate income tax exemption</b> – 100% exemption for company which has production activities exclusively in qualifying municipalities with high unemployment. Specific conditions or exclusions apply to render this incentive compatible with EU State aid rules are:</p> <ul style="list-style-type: none"> <li>- regional aid: the amount of the waived tax must be invested within 4 years in a qualifying “initial investment” that must be maintained for at least 5 years</li> <li>- <i>de minimis</i> aid: the amount of the waived tax must be invested within 4 years (not necessarily in an “initial investment”) and must, together with any other <i>de minimis</i> aid, have been under EUR 200,000 during the last 3 years</li> </ul> <p><b><u>Other incentives:</u></b></p> <ul style="list-style-type: none"> <li>- employment incentive</li> <li>- tonnage tax</li> <li>- agricultural incentives</li> <li>- investment schemes</li> <li>- scholarship deduction</li> </ul>												
Romania	<p><b><u>For investment:</u></b>  <i>Tax holiday (10 years)</i> for taxpayers exclusively carrying out innovation, research and development, and related activities.</p> <p><b><u>Other incentives:</u></b></p> <ul style="list-style-type: none"> <li>- for R&amp;D</li> <li>- accelerated depreciation</li> <li>- for free economic zones and industrial parks</li> </ul>												
Slovenia	<p><b><u>For investment:</u></b>  <i>Investment allowance</i> - reduction of taxable base equal to 40% of the amount invested in equipment and intangible assets. The allowance is limited to the tax base of the relevant tax year. Any unused allowance may be carried forward for 5 tax years. Should the taxpayer alienate the respective asset within the next 3 tax years, the tax base must be increased for the amount of investment allowance used.</p> <p><b><u>Other incentives:</u></b></p> <ul style="list-style-type: none"> <li>- for R&amp;D</li> <li>- employment-related reliefs</li> <li>- donations</li> <li>- tonnage tax</li> </ul>												
Croatia	<p><b><u>For investment:</u></b>  <i>Reduced corporate income tax</i> – tax holiday (10 years) with some special conditions (required amounts of investment and the minimum number of new employees for each reduced rate:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Investment (EUR million)</th> <th style="width: 30%;">Number of employees</th> <th style="width: 40%;">Rate (%)</th> </tr> </thead> <tbody> <tr> <td>Up to 1</td> <td>5</td> <td>9</td> </tr> <tr> <td>1 – 3</td> <td>10</td> <td>4,5</td> </tr> <tr> <td>3 and over</td> <td>15</td> <td>0</td> </tr> </tbody> </table> <p><b><u>Other incentives:</u></b></p> <ul style="list-style-type: none"> <li>- accelerated depreciation</li> <li>- tax-free zones</li> <li>- regional incentives</li> <li>- for R&amp;D</li> <li>- for education and training</li> </ul>	Investment (EUR million)	Number of employees	Rate (%)	Up to 1	5	9	1 – 3	10	4,5	3 and over	15	0
Investment (EUR million)	Number of employees	Rate (%)											
Up to 1	5	9											
1 – 3	10	4,5											
3 and over	15	0											

Table 1: Corporate income tax incentives and reliefs in the selected EU countries (IBFD, 2018, authors' compilation)

Based on the data in Figure 1 and Figure 2 and mentioned tax incentives in the Table 1 some conclusions may be drawn. Table 1 shows that Hungary has in fact the largest number of different tax incentives for investments but Hungary is the only of the analysed countries that have not realized FDI inflows in the last years. Poland has the incentives that are conditioned by the number of new jobs and new investment (but not by the size of the investment).

Nevertheless, Poland stands out as a country that has a very large inflow of FDI. Further, we can note that the Czech Republic approves a tax holiday which is, the same as in Croatia, conditioned by the number of employees and the size of the investment and that both countries had a similar share of FDI in GDP in 2017. It can also be seen that Estonia has a rather large share of FDI in GDP despite not granting any tax incentives within the corporate income tax.

## 5. CONCLUDING REMARKS

Research has shown that the developed and stimulating institutional framework is an important factor in attracting foreign direct investment, and consequently in increasing the rate of economic growth. One of the most important institution for the investment activities is the protection and security of property rights. Not all countries were equally successful in attracting foreign direct investment. The countries whose institutions were developed and which strongly boosted the implementation of institutional reform motivated foreign investors to invest. This was the case in the Czech Republic, Slovakia, Hungary and Poland, which have attracted the largest amount of FDI from all observed EU countries. The rest of the observed countries joined to this path later and quickly realized the visible economic shifts. It can be said that institutional development encourages foreign investment, and then leads to higher rates of growth, but on the other hand, the increased inflow of foreign direct investment can boost the process of institutional change. These are processes that are interactively and simultaneously ongoing. The results of the research in the field of impact of tax incentives on FDI do not provide basis for clear-cut recommendations but what can be concluded is that tax incentives are not a crucial element in attracting FDI. One of the recommendations would be to make a revision of the tax relief system on the one side, while on the other side countries must ensure macroeconomic, institutional and political stability in order to attract FDI.

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## KEEPING TRACK OF SUSTAINABILITY PROGRESS - BENCHMARKING INSIGHTS FROM INTERNATIONAL INDEXES

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### **ABSTRACT**

*Accompanied by a plethora of controversies, sustainability – assumed and proclaimed by the Agenda 2030 (UN, 2016) as global concern and desideratum – has become a ubiquitous hot topic nowadays: both positive and negative references to it are made each day, emphasizing on the complexity and dynamism of this ever emerging and never ending process. However, sustainability's multiple facets and kinds of expression seem to be more visible at the lower levels of the global system, where the search for sustainability phenomenon – fuelled by the (media intermediated) positive interplays between the increased accountability of firms and the proliferation of highly informed customers – has led to the disruption of industries and ways of life. Thus, concepts and practices such as: sustainable travel, fashion, fisheries or consumption; green products, processes, buildings, or jobs; eco-friendly energy, materials, cars, or cities – have redefined industries and/or created new ones, while changing peoples' lives. But: what is the aggregate effect of all these transformation, their cumulative impact?; what positive and/or negative spillovers have they generated and to whom? – these are the questions this paper ultimately aims to answer to. The main objective of the paper is to find out how are countries positioning themselves against the requirements of global sustainability, and what is the measure of their real progress towards them. Based on the analysis of a series of internationally renowned reports and indexes – such as: The Global Sustainable Competitiveness Index (SolAbility, 2017), The Sustainable Development Goals Index (Sustainable Development Solutions Network & the Bertelsmann Stiftung, 2018), and the Sustainable Society Index (Sustainable Society Foundation, 2016) – the paper will compare and contrast data and indicators across countries, in order to identify and benchmark the progress different groups of countries have made towards sustainability, as well as the main challenges ahead of them.*

**Keywords:** *Agenda 2030, Sustainability, Sustainability Indexes*

### **1. INTRODUCTION**

Following the Millennium Development Goals, the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development have officially come into force on 1 January 2016. The "17 Goals to transform our World" represent "a call for action by all countries (...) to promote prosperity while protecting the planet" and they refer to: (1) No poverty; (2) Zero hunger; (3) Good health & well-being; (4) Quality education; (5) Gender equality; (6) Clean water & sanitation; (7) Affordable & clean energy; (8) Decent work & economic growth; (9) Industry, innovation & infrastructure; (10) Reduced inequalities; (11) Sustainable cities & communities; (12) Responsible consumption and production; (13) Climate action; (14) Life below water; (15) Life on land; (16) Peace, justice & strong institutions; and (17) Partnerships for the goals (UN, 2016). Later on, the General Assembly has adopted (on 6 July 2017) the Resolution containing "the global indicator framework for the SDGs and targets of the 2030 Agenda for Sustainable Development", which will be refined annually when necessary (UN, 2017); at this point, the official list "includes 232 indicators on which general agreement has been reached". In the same time, a "dissemination platform of the Global SDG Indicators Database" has been developed – in order to provide "access to data compiled through the UN System in preparation for the Secretary-General's annual report on <<Progress towards the Sustainable Development Goals>>" (<https://unstats.un.org/sdgs/indicators/database/>).

Moreover, Sustainable Development Goals Reports are annually released (UN, 2018a), as well as Reports of the Secretary-General on the Progress towards the Sustainable Development Goals (UN, 2018b), accompanied by Statistical Annexes (UN, 2018c). But sustainability – and particularly its country-related perspective/dimension is not a new topic; quite the opposite: a plethora of academics and/or different organizations have had sustainability on the top of their agenda, trying to develop different frameworks in order to properly capture and define the concept, to make it operational at country level and to assess / measure the progress towards some pre-determined goals/targets, both before (Moran, Wackernagel, Kitzes, Goldfinger, Boutaud, 2008; Hák, Moldan, Dahl, 2012; WEF, 2014) and after (Strezov, Evans, Evans, 2017; Schmidt-Traub, Kroll, Teksoz, Durand-Delacré, Sachs, 2017, Leal Filho et al., 2018) the emergence of the SDGs. The remainder of the paper is organized as follows: the second section is dedicated to the analysis of the “oldest” index (whose development and publication have started in 2006) – the Sustainable Society Index (SSI) – which is “showing at a glance the level of sustainability of a country” (Sustainable Society Foundation, 2017); the third section will address the “younger” (firstly developed in 2012) Global Sustainable Competitiveness Index (GSCI) – which is “a measurement for social, environmental and economic development. Measuring wealth, and prosperity – inclusively” (SolAbility, 2017); the fourth section will deal with the “youngest” index (available since 2016) – the SDG Index – which “provides a report card for country performance on the historic Agenda 2030 and the SDGs” (Bertelsmann Stiftung, Sustainable Development Solutions Network, 2018); then will follow the conclusion and finally the bibliography.

## 2. THE SUSTAINABLE SOCIETY INDEX (SSI)

In order to address the question “How sustainable is your country?” in a concrete, measurable manner, the Sustainable Society Foundation has developed a composite tool – the Sustainable Society Index (SSI) – which it has been published every two years since 2006. Based on the Brundtland Report definition of sustainable development, SSI considers that “a sustainable society is a society: (a). that meets the needs of the present generation; (b). that does not compromise the ability of future generations to meet their own needs; (c). in which each human being has the opportunity to develop itself in freedom, within a well-balanced society and in harmony with its surroundings” (Sustainable Society Foundation, 2017). The SSI Framework (Table 1) gathers 21 indicators, grouped in 7 categories, which form and define the 3 wellbeing dimensions of SSI: human, environmental, and economic.

Table 1: SSI Framework (<http://www.ssindex.com/ssi/framework/>)

Sustainable Society Index						
Human Wellbeing			Environmental Wellbeing		Economic Wellbeing	
Basic Needs	Personal Development & Health	Well-balanced Society	Natural Resources	Climate & Energy	Transition	Economy
Sufficient food	Education	Income distribution	Biodiversity	Energy use	Organic farming	Gross domestic product
Sufficient to drink	Healthy life	Population growth	Renewable water	Energy savings	Genuine savings	Employment
Safe sanitation	Gender equality	Good governance	Resources consumption	Greenhouse gases		Public debt
				Renewable energy		

As concerns the most recent SSI available (2016): (a). 154 countries have been ranked on the three dimensions, based on a scale of 1-10 (10=sustainable, 1=not sustainable); (b). the scores of the indicators were aggregated into scores for the three wellbeing dimensions; (c). the dimension levels have not been aggregated “into one single figure for the overall index [...due

to...] the negative correlation between Human and Environmental Wellbeing” (Sustainable Society Foundation, 2017).

The analysis of the 2016 SSI reveals the following:

If considering the SSI Scores – by Dimensions (Table 2): Human Wellbeing (HB) scores the best – in terms of both maximum and minimum; Environmental Wellbeing (EB) scores the second in terms of minimum and the last in terms of maximum, while Economic Wellbeing (EcW) scores the second in terms of maximum and the last in terms of minimum. With averages (both per country and per person) above 6,4 (on the scale of 1-10), the human dimension of sustainability is far ahead of the environmental dimension and especially of the economic one.

Table 2: SSI 2016 Scores – by Dimensions (<http://www.ssfindex.com/data-all-countries/>)

2016 Dimensions	Human Wellbeing	Environmental Wellbeing	Economic Wellbeing
Maximum	9,00 (Finland)	8,13 (Burundi)	8,43 (Norway)
Average per country	6,45	5,02	4,41
Average per person	6,41	4,76	4,60
Minimum	3,12 (Chad)	1,52 (Qatar)	1,28 (Mauritania)

If considering the Top 5 and Bottom 5 countries, by Dimensions (Table 3): five high income European countries make the Top 5 on the human and economic dimensions of sustainability (only Norway being present in both of them, but in opposite places); with respect to the environmental dimension, Top 5 is occupied by five African (four of them low income, and the fifth lower middle income) countries. The Bottom 5 on the HW dimension is made by five African low income countries; four Western Asia high income countries and a Central Asia upper middle income one are making the Bottom 5 of EW, while the Bottom 5 of EcW is occupied by three African countries (two of them with lower middle income, and the third one with low income) and two (upper middle income and lower middle income respectively) Asian countries. Central African Republic (the second country that appears twice), scores the fourth global in terms of EW and the penultimate global in terms of HW.

Table 3: SSI 2016 – Top 5 & Bottom 5 Countries, by Dimensions  
 (<http://www.ssfindex.com/results/ranking-all-countries/>)

Human Wellbeing		Environmental Wellbeing		Economic Wellbeing	
Top 5 (1-5)	Bottom 5 (150-154)	Top 5 (1-5)	Bottom 5 (150-154)	Top 5 (1-5)	Bottom 5 (150-154)
Finland	Guinea-Bissau	Burundi	Oman	Norway	Iraq
Germany	Niger	Togo	Saudi Arabia	Switzerland	Congo
Netherlands	Congo Democratic Rep.	Lesotho	United Arab Emirates	Estonia	Yemen
Iceland	Central African Republic	Central African Republic	Turkmenistan	Sweden	Mozambique
Norway	Chad	Uganda	Qatar	Czech Republic	Mauritania

### 3. THE GLOBAL SUSTAINABLE COMPETITIVENESS INDEX (GSCI)

Aiming “to measure sustainable success and competitiveness of nations that integrate all three dimensions of sustainable development”, (SolAbility, 2017), SolAbility has developed a comprehensive Global Sustainable Competitiveness Index (GSCI), which it releases annually (since 2012). Considering that “sustainable competitiveness is the ability to generate and sustain inclusive wealth without diminishing the future capability of sustaining or increasing current wealth levels, [...] the sustainable competitiveness model is based on a pyramid (Figure 1), where each level is required to support the next higher level. In the top-down direction, the different levels of the pyramid have influence the state of the lower levels” (SolAbility, 2017).

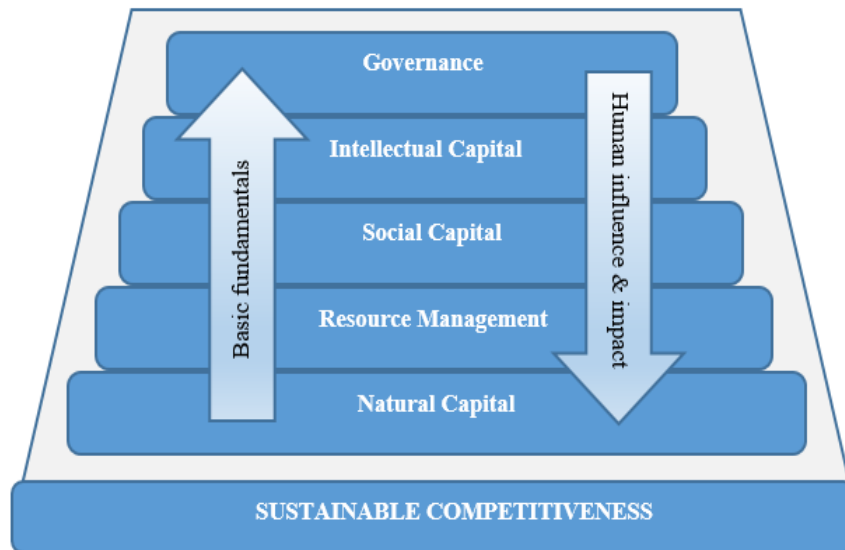


Figure 1: The Sustainable Competitiveness Pyramid (SolAbility, 2017)

With reference to the most recent Global Sustainable Competitiveness Report and GSCI (2017): (a). “the GSCI is based on 111 measurable and comparable quantitative indicators”; (b). 180 countries have been included; (c). for each indicator, country scores were calculated from 100 (highest) to 0 (lowest); (d). “the Sustainable Competitiveness Index is calculated based on the [...] sub-indexes, each weighted equally” (SolAbility, 2017).

The analysis of the 2017 GSCI reveals the following:

In terms of GSCI 2017 – Top 5 & Bottom 5 Countries (Table 4): the overall score of GSCI varies from 60,5 (Sweden – quite far from 100) to 30,2 (Iraq); five HIC European countries make the Top 5, while the Bottom 5 is composed by three African countries (two LIC and one HIC) and two Asian countries (one LIC and the other one UMIC).

Table 4: GSCI 2017 – Top 5 & Bottom 5 Countries (<http://solability.com/the-global-sustainable-competitiveness-index/downloads>)

Top 5	Country	Score	Bottom 5	Country	Score
1	Sweden	60,5	176	Haiti	34,5
2	Norway	58,2	177	South Sudan	32,3
3	Iceland	57,6	178	Seychelles	32,0
4	Finland	57,4	179	Yemen	31,0
5	Denmark	57,2	180	Iraq	30,2

In terms of sub-indexes scores (Table 5): Governance capabilities has the highest average score (47,4), while Intellectual capital has the lowest average score (38,3) – against the GSCI average score of 43,7; looking at the maximum values, Intellectual capital scores the highest (79,0), while Resource intensity scores the lowest (58,6); looking at the minimum values, Social capital scores the highest (29,1), while Intellectual capital scores the lowest (12,1).

Table 5: Sustainable Competitiveness Scores – by Sub-indexes (<http://solability.com/the-global-sustainable-competitiveness-index/downloads>)

	Sustainable competitiveness	Natural capital	Resource Intensity	Intellectual capital	Governance capabilities	Social capital
Average	43,7	44,5	41,4	38,3	47,4	46,7
Max	60,5	71,2	58,6	79,0	68,7	63,2
Min	30,2	18,4	28,7	12,1	22,7	29,1

In terms of GSCI 2017 – Top 5 & Bottom 5 Countries – by Sub-indexes (Table 6): out of the Top 5 countries by GSCI only two countries score for two categories of Top 5 countries by sub-indexes (Sweden and Norway), while the other three countries (Iceland, Finland and Denmark) score for just one category; out of the Bottom 5 countries by GSCI, South Sudan is the only country that also score (at two categories) for Top 5 countries by sub-indexes; other countries score for both Top 5 and Bottom 5 Countries (at different sub-indexes): Democratic Rep. of Congo and West Bank & Gaza, while countries such as Kiribati, Chad and Central African Republic score for two categories of Bottom 5.

*Table 6: GSCI 2017 – Top 5 & Bottom 5 Countries – by Sub-indexes*  
 (<http://solability.com/the-global-sustainable-competitiveness-index/downloads>)

Rank	GSCI Sub-indexes – Countries & Scores				
	Natural capital	Resource Intensity	Intellectual capital	Governance capabilities	Social capital
1	Laos (71,2)	Norway (58,6)	South Korea (79,0)	Ireland (68,7)	El Salvador (63,2)
2	Guyana (70,5)	Luxembourg (58,4)	Sweden (69,3)	Czech Republic (67,8)	Azerbaijan (62,9)
3	Democratic Rep. of Congo (66,9)	Iceland (58,1)	Norway (66,7)	Romania (65,0)	West Bank & Gaza (61,6)
4	Cameroon (63,8)	Finland (57,1)	China (66,7)	New Zealand (64,1)	Singapore (60,7)
5	Sweden (63,6)	Germany (56,6)	Denmark (66,5)	Germany (62,7)	Bolivia (60,0)
...	...	...	...	...	...
176	West Bank & Gaza (23,8)	Fiji (29,5)	South Sudan (16,7)	Solomon Islands (28,6)	USA (35,1)
177	Bahrain (22,6)	Swaziland (29,5)	Uganda (16,7)	Sao Tome & Principe (28,3)	Ukraine (34,5)
178	Jordan (21,9)	Kiribati (29,5)	Central African Rep. (15,1)	Chad (27,9)	Mauritania (31,9)
179	Cyprus (20,4)	Democratic Rep. of Congo (29,3)	Madagascar (14,4)	South Sudan (27,1)	Russia (30,7)
180	Lebanon (18,4)	Central African Rep. (28,7)	Zambia (12,1)	Kiribati (22,7)	Chad (29,1)

#### 4. THE SDG INDEX (SDGI)

Aiming to benchmark the performance of countries on the SDGs – by presenting “a revised and updated assessment of countries’ distance to achieving the SDGs, [...while including...] detailed SDG Dashboards to help identify implementation priorities for the SDGs, [...and...] a ranking of countries by the aggregate SDG Index of overall performance” (Bertelsmann Stiftung, Sustainable Development Solutions Network, 2018), Bertelsmann Stiftung and Sustainable Development Solutions Network have annually produced and released (since 2016) the SDG Index and Dashboards Report. As regards the 2018 edition of the Report: (a). “country profiles are generated for all 193 member states but total country scores and ranks are available for 156 countries”; (b). it includes 86 global indicators – which means, on average, around five indicators per goal, but the actual number of indicators per goal varies between one (SDG10) and fourteen (SDG3); (c). “the global SDG Index score and scores by goal can be interpreted as the percentage of achievement (Lafortune, Fuller, Moreno, Schmidt-Traub, Kroll, 2018).

The analysis of the 2018 SDG Index and Dashboards Report reveals the following:

If considering the Top 5 and Bottom 5 countries by SDGI Score (Table 7): The SDGI scores vary from 84,98 (Sweden) to 37,66 (Central African Republic); Three Northern Europe (OECD members and High Income) countries top the 2018 ranking, while three Middle Africa (Low Income) countries are positioned at the bottom of it; Top 5 is completed by two Western

European countries, while Bottom 5 is completed by an Eastern Africa (Low Income) and a Western Asia (MENA, Lower Middle Income) country.

Table 7: Top 5 and Bottom 5 countries by SDGI Score, 2018  
 (<http://www.sdgindex.org/reports/>)

Top 5			Bottom 5		
Rank	Country	SDGI Score	Rank	Country	SDGI Score
1	Sweden	84,98	152	Yemen, Rep.	45,66
2	Denmark	84,61	153	Madagascar	45,59
3	Finland	83,00	154	Congo, Dem. Rep.	43,39
4	Germany	82,28	155	Chad	42,81
5	France	81,22	156	Central African Republic	37,66

If considering the Income Classes (Figure 2): The High Income Countries' ranks vary from 1 (Sweden – 85,0 SDGI) to 106 (Qatar – 60,8 SDGI); The Upper Middle Income Countries' ranks vary from 23 (Belarus – 76,0 SDGI) to 144 (Angola – 49,6 SDGI); The Lower Middle Income Countries' ranks vary from 28 (Moldova – 74,5 SDGI) to 152 (Yemen, Rep. – 45,7 SDGI); The Low Income Countries' ranks vary from 102 (Nepal – 62,8 SDGI) to 156 (Central African Rep. – 37,7 SDGI).

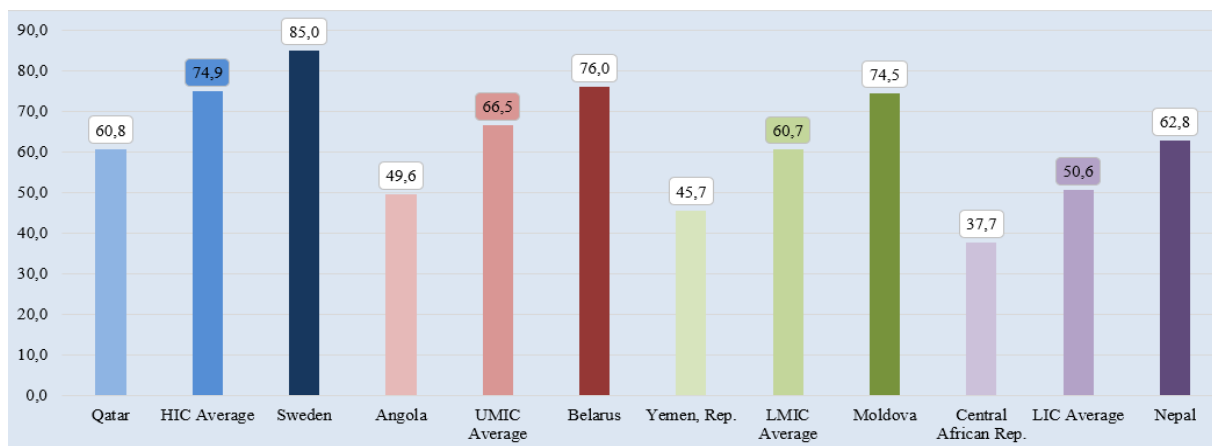


Figure 2: SDGI 2018 by Income Classes (<http://www.sdgindex.org/reports/>)

If considering the regions used for the SDG Index & Dashboard (Figure 3): The OECD region gathers 35 countries, ranking from 1 (Sweden) to 84 (Mexico); The E. Europe & C. Asia region gathers 24 countries, ranking from 21 (Croatia) to 151 (Afghanistan); The LAC region gathers 23 countries, ranking from 33 (Costa Rica) to 145 (Haiti); The East & South Asia region gathers 18 countries, ranking from 43 (Singapore) to 126 (Pakistan); The MENA Region gathers 15 countries, ranking from 60 (United Arab Emirates) to 152 (Yemen, Rep); The Africa region gathers 41 countries, ranking from 88 (Cabo Verde) to 156 (Central African Rep.).

Figure following on the next page



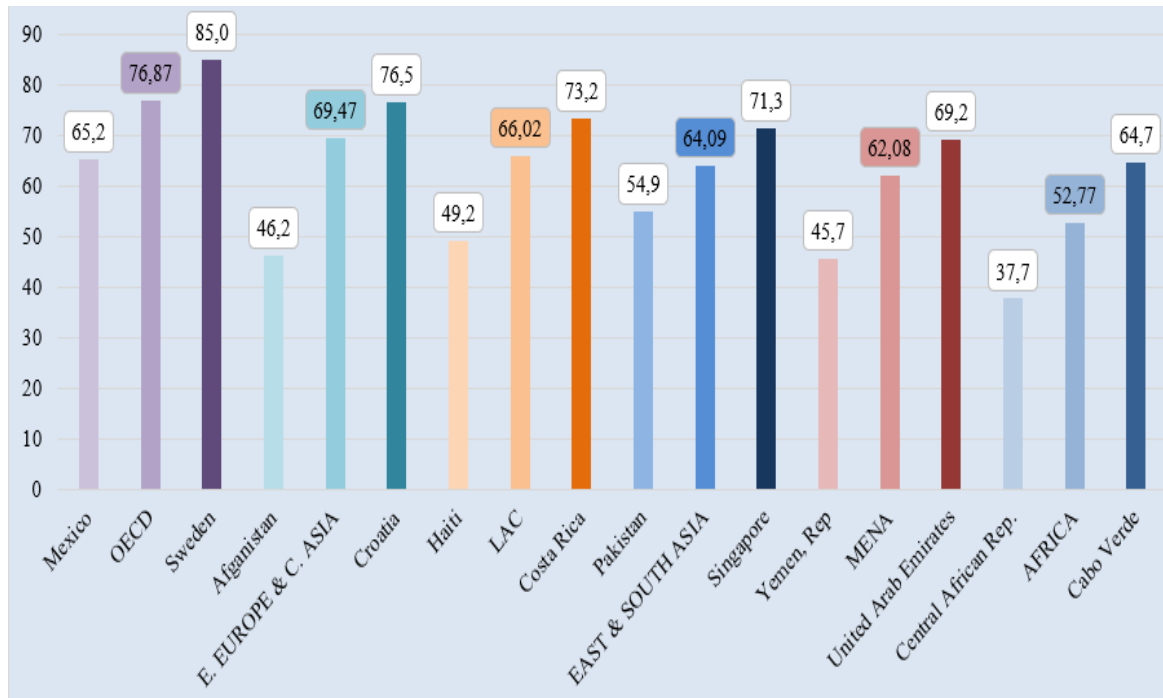


Figure 3: SDGI 2018 Regional Scores (<http://www.sdindex.org/reports/>)

## 5. CONCLUSION

As regards the evolution of countries towards sustainability and the challenges ahead, the SDG Dashboards (Figure 4) provide an eloquent picture of both the progress made by countries and the unsolved issues – as the SDG Dashboards’ “color scheme (green, yellow, orange and red) illustrates how far a country is from achieving a particular goal” (Lafortune, Fuller, Moreno, Schmidt-Traub, Kroll, 2018). A synthesis of the main aspects – by SDGs (and regions) is presented in Table 8.

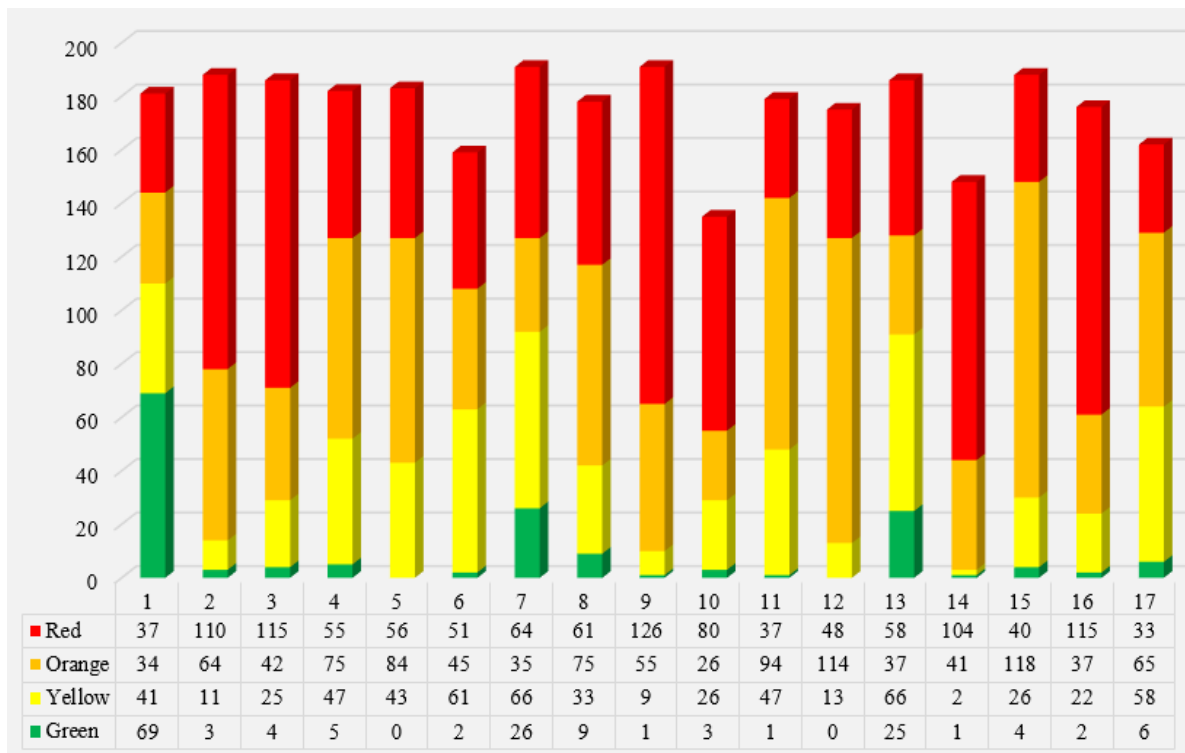


Figure 4: SDG Dashboards 2018 (<http://www.sdindex.org/reports/>)

*Table 8: SDG Dashboards – main findings & challenges ahead – by SDGs*

<p><b>1. No poverty</b> – available data: 181 countries; missing data: 12 countries                  It is the most “balanced” goal, with the highest “green area” – 69 countries, and the second best in terms of “red lights” – 37 countries. Three regions (OECD, Eastern Europe and Central Asia, and Middle East and North Africa) are “Red free”, while one (Sub-Saharan Africa) has 28 Red countries and 16 Orange ones (out of its total of 49 countries).</p>
<p><b>2. Zero hunger</b> – available data: 188 countries; missing data: 5 countries                  The goal is dominated by Red and Orange areas – that gather together more than 90 percent of the countries (174). Six regions have no Green area, while only one (Eastern Europe and Central Asia) has three Green countries. 43 countries in Sub-Saharan Africa (out of 49) and 20 countries in East and South Asia (out of 22) are Red.</p>
<p><b>3. Good health &amp; well-being</b> – available data: 186 countries; missing data: 7 countries                  The goal is dominated by Red and Orange areas – that count together for more than 80 percent of the countries (157). Five regions have no Green area, while OECD has three Green countries and Eastern Europe and Central Asia has one Green country. 48 countries in Sub-Saharan Africa (out of 49) and 19 countries in East and South Asia (out of 22) are Red.</p>
<p><b>4. Quality education</b> – available data: 182 countries; missing data: 11 countries                  The goal is dominated by Orange and Red areas (130 countries); the remaining 52 countries are Green (5) or Yellow (47). Four regions have no Green area, while two of them (OECD &amp; Eastern Europe and Central Asia) have two Green countries and one (Oceania) has one Green country. Yellow and Orange dominate in OECD (28 countries out of 35), East and South Asia (18 countries out of 22), Eastern Europe and Central Asia (22 countries out of 28), and Latin America and the Caribbean (26 countries out of 31). In Sub-Saharan Africa 36 countries (out of 49) are Red and 11 are Orange.</p>
<p><b>5. Gender equality</b> – available data: 183 countries; missing data: 10 countries                  The dominant color here is Orange (84 countries), followed by Red (56 countries) and Yellow (43 countries); there is no Green country. Yellow and Orange dominate in four regions (29 countries out of 35 in OECD, 16 countries out of 22 in East and South Asia, 24 countries out of 28 in Eastern Europe and Central Asia, and 27 countries out of 31 in Latin America and the Caribbean), while Orange and Red dominate in the other three regions (all the 16 countries in Middle East and North Africa, 43 countries out of 49 in Sub-Saharan Africa and 8 countries out of 12 in Oceania).</p>
<p><b>6. Clean water &amp; sanitation</b> – available data: 159 countries; missing data: 34 countries                  The goal ranks the third in terms of missing data. Only two countries – one in East and South Asia and the other one in Eastern Europe and Central Asia – are Green. Yellow is the most prominent color in three regions (24 countries out of 35 in OECD, 10 countries out of 28 in Eastern Europe and Central Asia and 18 countries out of 31 in Latin America and the Caribbean), Orange colors almost a half of one region (10 countries out of 22 in East and South Asia), while Red is the most prominent color in the remained three regions (7 countries out of 16 in Middle East and North Africa, 35 countries out of 49 in Sub-Saharan Africa, and 3 countries out of 12 in Oceania).</p>
<p><b>7. Affordable &amp; clean energy</b> – available data: 191 countries; missing data: 2 countries                  The goal ranks the first (alongside the ninth goal) in terms of data availability, and it ranks the second in terms of Green areas – they “cover” 26 countries, belonging to five out of the seven regions (with Middle East and North Africa and Oceania being the exceptions). The best represented Green area is the Latin America and the Caribbean region (with 10 countries out of 31). Yellow is the most prominent color in three regions (20 countries out of 28 in Eastern Europe and Central Asia, 14 countries out of 31 in Latin America and the Caribbean, and 13 countries out of 16 in Middle East and North Africa), Orange defines 13 countries out of 35 in the OECD countries, while Red is the most prominent color in the remaining three regions (10 countries out of 22 in East and South Asia, 44 countries out of 49 in Sub-Saharan Africa, and 5 countries out of 12 in Oceania).</p>
<p><b>8. Decent work &amp; economic growth</b> – available data: 178 countries; missing data: 15 countries                  Orange and Red areas cover more than three quarters of the countries (136 in total). Two regions (Sub-Saharan Africa and Oceania) have no Green country, one region (East and South Asia region) has three Green countries, two regions (OECD and Middle East and North Africa) have two Green countries, while Latin America and the Caribbean has just one Green country. Yellow is the most prominent color in OECD (20 countries out of 35) and it is at parity with Orange in Oceania (3 countries out of 12). Orange is the most prominent color in East and South Asia (13 countries out of 22), Eastern Europe and Central Asia (12 countries out of 28) and Latin America and the Caribbean (17 countries out of 31), while Red defines 32 countries (out of 49) in Sub-Saharan Africa.</p>

<p><b>9. Industry, innovation &amp; infrastructure</b> – available data: 191 countries; missing data: 2 countries                  The goal ranks the first (alongside the seventh goal) in terms of data availability, and, unfortunately, it ranks also the first in terms of Red areas – 126 countries (belonging to all the seven regions). Only one country – in the East and South Asia region is Green, while Yellow defines another nine countries (7 countries belonging to OECD region, one from East and South Asia and one from Eastern Europe and Central Asia). Orange is the most prominent color in Eastern Europe and Central Asia (16 countries out of 28) and Middle East and North Africa (9 countries out of 16). Red dominates in OECD (16 countries out of 35), East and South Asia (17 countries out of 22), Latin America and the Caribbean (19 countries out of 31), Sub-Saharan Africa (47 countries out of 49), and Oceania (9 countries out of 12).</p>
<p><b>10. Reduced inequalities</b> – available data: 135 countries; missing data: 58 countries                  It is the goal with the most “missing data”. Only three countries are Green (two in OECD and one in Eastern Europe and Central Asia), while Red dominates (80 countries); Yellow and Orange are at parity (26 countries). Yellow is the most prominent color in OECD (14 countries out of 35) and Red is the defining color of five regions (East and South Asia – 9 countries out of 22; Eastern Europe and Central Asia – 10 countries out of 28; Latin America and the Caribbean – 17 countries out of 31; Middle East and North Africa – 4 countries out of 16; and Sub-Saharan Africa – 31 countries out of 49).</p>
<p><b>11. Sustainable cities &amp; communities</b> – available data: 179 countries; missing data: 14 countries                  Only one country (belonging to the East and South Asia) is Green, while Orange defines more than a half of countries (94). Yellow is the most prominent color in Oceania (7 countries out of 12), Yellow (17 countries) and Orange (18 countries) are almost equal sharing OECD countries, Orange is the most prominent color in: East and South Asia (12 countries out of 22), Eastern Europe and Central Asia (16 countries out of 28), Latin America and the Caribbean (13 countries out of 31), and Middle East and North Africa (14 countries out of 16), and Red defines 26 countries (out of 49) in Oceania.</p>
<p><b>12. Responsible consumption and production</b> – available data: 175 countries; missing data: 18 countries                  The goal is dominated by Orange (114 countries), followed by Red (48 countries) and Yellow (13 countries); no Green area is present. OECD countries score the highest percentage of Red areas (24 countries out of 35), and no Yellow zones either. Yellow is present in only 13 countries belonging to four regions (Eastern Europe and Central Asia, Latin America and the Caribbean, Middle East and North Africa, and Sub-Saharan Africa); all the other regions except from OECD are defined by Orange (East and South Asia – 19 countries; Eastern Europe and Central Asia – 17 countries; Latin America and the Caribbean – 19 countries; Middle East and North Africa – 7 countries; Sub-Saharan Africa – 37 countries; and Oceania – 4 countries).</p>
<p><b>13. Climate action</b> – available data: 186 countries; missing data: 7 countries                  The goal is dominated by Yellow (66 countries) and red (58 countries). 32 of the OECD countries are Red, while 3 are Orange (out of 35); no country in this region is Green or Yellow. At the other end of the spectrum, 6 countries in Oceania (out of 12) are Green and 2 of them are Yellow. The other five regions are in between: 30 countries in Sub-Saharan Africa (out of 49) and 14 countries in Latin America and the Caribbean (out of 31) are Yellow, 7 countries in East and South Asia (out of 22) are Orange, while 7 countries in Middle East and North Africa (out of 16) are Red (to mention only the colors with the highest number of records for each group).</p>
<p><b>14. Life below water</b> – available data: 148 countries; missing data: 45 countries                  It is the goal ranked the second in terms of “missing data”, and it is dominated by Red (104 countries). Oceania is the only region with a full distribution of colors (1 Green, 1 Yellow, 5 Orange, and 4 Red); all the other regions, except from OECD countries, are only defined by Orange and especially Red (15 countries out of 22 in East and South Asia; 12 countries out of 28 in Eastern Europe and Central Asia; 18 countries out of 31 in Latin America and the Caribbean; 10 countries out of 16 in Middle East and North Africa; and 26 countries out of 49 in Sub-Saharan Africa), while the OECD region counts for one Yellow country, 9 Orange and 19 Red countries respectively (out of 35 countries).</p>
<p><b>15. Life on land</b> – available data: 188 countries; missing data: 5 countries                  The goal is dominated by Orange (118 countries), followed by Red (40 countries), Yellow (26 countries) and Green (4 countries). The 4 Green countries belong to Sub-Saharan Africa (3 countries) and Eastern Europe and Central Asia (one country). Orange prevail in: OECD (21 countries out of 35); East and South Asia (15 countries out of 22); Eastern Europe and Central Asia (20 countries out of 28); Latin America and the Caribbean (20 countries out of 31); Middle East and North Africa (11 countries out of 16); and Sub-Saharan Africa (28 countries out of 49). Yellow and Red complete the picture with different, less important contributions.</p>
<p><b>16. Peace, justice &amp; strong institutions</b> – available data: 176 countries; missing data: 17 countries                  The goal is dominated by Red (115 countries). Only two countries are Green (one belonging to OECD and the other one to Eastern Europe and Central Asia). Yellow and Orange count for more than three quarters in OECD (27 countries out of 35), while 7 countries here are Red. Red is prevalent in all the remaining 6 regions – 15 countries (out of 22) in East and South Asia; 13 countries (out of 28) in Eastern Europe and Central Asia; 25 countries (out of 31) in Latin America and the Caribbean; 8 countries (out of 16) in Middle East and North Africa; 45 countries (out of 49) in Sub-Saharan Africa; and 2 countries (out of 12) in Oceania.</p>

**17. Partnerships for the goals** – available data: 162 countries; missing data: 31 countries

The goal is dominated by Orange (65 countries) and Yellow (58 countries), followed by Red (33 countries). Out of the 6 Green countries, 3 are in Sub-Saharan Africa and the other three are in Latin America and the Caribbean, Middle East and North Africa and Oceania. In OECD 21 countries are Red, and 12 are Orange (out of 35). A half of the East and South Asia region (11 countries out of 22) is Orange. In Eastern Europe and Central Asia (28 countries in total), Yellow and Orange share the same number of countries (10), as well as in Latin America and the Caribbean (31 countries in total, out of which 11 are Yellow and another 11 are Orange). The majority of countries (11 out of 16) are Yellow in In Middle East and North Africa, while they are Yellow (19) and Orange (17) in Sub-Saharan Africa (49 countries in total).

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## EXCLUSIVE REBATES AND THE EQUALLY EFFICIENT COMPETITOR TEST - OBSERVATIONS BASED ON INTEL CASE

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### ABSTRACT

*The General Court's judgment confirms that although several years have passed since competition law was modernized, not always a more economic approach is used in relation to Art. 102 TFEU. In Intel case (case T-286/09), General Court rejected Commission's economic analysis, finding it inappropriate in the case of fidelity rebates granted by the dominant undertakings. The purpose of this article is to determine whether, in fact, Commission's approach based on AEC test (As Efficient Competitor test), was not justified, or if perhaps General Court made a mistake, recognizing rebates granted by Intel as a breach per se, not requiring any verification of their economic consequences. Conducted analysis leads to a conclusion that, first of all, one may not qualify exclusive rebates as a breach of Art. 102 TFEU per se. Second of all, the judgment in Intel case does not prove resignation from a more economic approach when it comes to applying competition law to cases of abusing the dominant position by entrepreneurs, but it is rather an exception from the rule.*

**Keywords:** *competition law, abuse of dominant position, exclusionary practices, fidelity rebates*

### 1. INTRODUCTION

In the Intel case judgment General Court examined a complaint on the Commission's decision of 2009 (Commission Decision COMP/C-3/37.990 - Intel, OJ 2009, C 227/13), imposing on Intel (an American producer of microprocessors) a financial penalty in the amount of EUR 1.06 billion for the abuse of dominant position on the market of X86 processors. In its verdict, General Court confirmed the abuse of dominant position by Intel achieved by granting fidelity rebates, and at the same time recognized them as practice breaching competition law per se. Therefore, General Court ruled that breaching Art. 102 TFEU by using fidelity rebates does not require economic analysis of Intel's behaviors. Moreover, General Court considered unfounded Commission's application of AEC test in the proceedings (Case T-286/09 Intel v Commission). In General Court's opinion, in case of fidelity rebates there is no need to prove a causal link between the contested practice and its effects on the market (Case T-286/09, p. 104). This is all the more surprising, because this test is considered a key tool for the assessment of pricing practices of dominant entities and their potential qualification as abusing dominant position within the meaning of Art. 102 TFEU (D. Kostecka-Jurczyk. (2013). Test równie efektywnego konkurenta a test hipotetycznie dość efektywnego konkurenta w ocenie nożyc kosztowo-cenowych na rynku telekomunikacyjnym, iKAR 8(2), p. 65-75). The verdict has rightly been waived by the Court of Justice of the EU (CJEU) and sent for reconsideration, because in the course of the proceedings no attempt was made to establish whether rebates granted by Intel could have actually caused restriction of competition. Court of Justice of the EU ruled, that General Court was obliged to verify any doubts as regards market effects of the rebates granted by Intel, which, unfortunately, was omitted in the General Court Process (Case T-286/09).

### 2. INTEL'S PRACTICES

In the initial proceedings against the General Court's verdict, a vital issue was to examine whether the rebates in question could have restricted competition. Yet, General Court did not provide an answer to this question. Before the argumentation of General Court is presented and assessed, it is essential to explain how the Commission analyzed Intel's practices and how it

argued its decision. According to the European Commission (hereinafter: Commission), from October 2002 until December 2007 Intel was using its dominant position in a manner breaching competition law on the world market of X86 processors by realizing the strategy of excluding from the market one of its most important competitors - Advanced Micro Devices (AMD). According to the Commission, Intel was on the dominant position due to the fact that its share in the market amounted to 70% and, moreover, there were large barriers of entry and expansion (i.e. due to high costs of research and development investments, as well as legal protection of economic activities on the market of advanced technologies). Using the dominant position in a manner contradictory to competition law took place in several ways as regards clients (computer producers) and retailers selling microelectronic devices in the EU (Media-Saturn Holding). Intel was using three kinds of practices:

1. Rebates, which accounted for the practices excluding or almost excluding (depending on purchasing 80-95% of CPUx86's produced by Intel). Intel gave conditional rebates to four leading computer producers (Dell, Lenovo, HP and NEC). The condition was - these producers were supposed to purchase all or almost all X86 processors from Intel.
2. Naked restrictions - paying by PC producers for not purchasing from other microchip producers than Intel.
3. Payments to MSH, the amount of which depended on the sales of MSH computers equipped with CPU X86 processors produced by Intel, as well as payments to Acer, HP and Lenovo, on the condition that they delay the introduction to the market of laptops equipped with CPUx86 produced by AMD.

The above practices (rebates and payments) used by Intel towards four computer producers as well as Media-Saturn, were of fidelity character and due to this fact they could have led to restriction of competition on the market of computers equipped with Intel X86 processor. Intel's behaviors jeopardized its innovative capabilities and restricted consumers range of choice, thus breaching Art. 102 TFEU.

### **3. REBATES AND ART. 102 TFEU**

Rebates granted by a dominant undertaking do not constitute breach of Art. 102 TFEU. They are a form of price competition and encourage clients to build long-term connection networks with the supplier. Yet, a rebate system which, by providing benefits, binds distributors of the dominant undertaking and discourages them from supplying at a competitor of the dominant undertaking - constitutes a breach of Art. 102 TFEU. Such rebates are fidelity rebates and have foreclosing effects. Therefore, in the meaning of Art. 102 TFEU, granting rebates must be based on economic factors. Granting rebates breaches Art. 102 TFEU only when they have anti-competitive character, i.e.:

- if they restrict purchasers' freedom as regards the sources of their delivery,
- if they block competitors' access to the market,
- if undertakers apply various conditions to equal transactions with different trading partners or reinforce their dominant position by distorting competition.

The system of rebates must, therefore, be nondiscriminatory. The above has been explained in the C-163/99 case: Portugal vs Commission (regarding fees for landing at Portuguese airports). Portugal established a system of rebates in fees for landing, depending on the number of landings. In fact, only two airlines (both from Portugal) qualified for the highest rebate. In this case, CJEU ruled, that rebates not constituting abuse cannot have discriminatory character. General Court highlighted, that the system of rebates where only the largest clients were privileged, was justified and understandable, but could have been discriminatory if the threshold for granting a rebate could have only been reached by a couple of large undertakings,

and if it granted proportional profits. European Union's directives provide that the EU shall interfere if rebates substantiate the likelihood of anticompetitive exclusion of current or potential competitors, as effective as the dominant undertaking. In the Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, (OJ 2009 C45/7), the Commission listed the factors which it will take into consideration when analyzing potential anticompetitive effects of exclusion (Guidelines 2009, p. 38). Generally speaking, the higher the rebates as a percentage of the price, the higher and more individualized their threshold and the higher the risk of exclusion of current or potential competition. The likelihood of exclusion will be stronger for retroactive rebates rather than for incremental rebates. Both types are conditional rebates granted after crossing a certain purchase threshold in a set period of time. The first ones are more likely to cause anticompetitive exclusion, due to the fact that they may make it less attractive for clients to purchase a small amount of products from an alternative supplier. The Commission will interfere if the "effective price" (the price including rebate for a prior purchaser) for an appropriate amount of purchase shall be below LRAIC (Long run average incremental cost) – (Guidance 2009, p. 41-44.). Prices reduced to this level are unprofitable and breach the rules of market competition. The Commission declared that rebates granted by Intel could have resulted in the restriction of competition. Therefore, an analysis of particular circumstances of the case was not needed. Using the AEC test was also not required to confirm the abuse of the dominant position in the meaning of Art. 102 TFEU (Commission Decision COMP/C-3/37.990 - Intel, OJ 2009, C 227/13, p. 925, 1760). Despite this fact, the Commission ran a detailed analysis of the circumstances and the AEC test. As an effect, it proved that an equally effective competitor had to use unprofitable prices, therefore such rebates could have resulted in the exclusion of competition. The Commission's decision in the Intel case was based on two manners of argumentation:

- First of all, it related to the doctrine of breach per se without the need of indicating specific effects if there is a likelihood of a change in the market structure, as laid out in the judgment in Hoffmann-La Roche case (Case C 85/76) and Tomara case (Case T 155/06). The structural argument has a broad meaning here, due to the fact that a breach of market structure itself may cause harm to consumers (Case T-286/09 Intel v Commission, p. 105). Such approach is in line with the so called "more economic approach" to the application of Art. 102 TFEU. At the same time, the Commission highlighted, that the breach is possible in the case of fidelity rebates, but does not apply to volume discounts.
- Second of all, the Commission formulated the question of how to rule in cases where detailed economic analysis is required. It made the Commission apply the so called equally effective competitor test, which should indicated what price should be quoted by hypothetical equally effective competitor as Intel for CPU processors in order to compensate for rebates granted to PC producers on the same level as Intel. This test is independent of the fact if the competitor (in the case studied it was AMD) was actually present on the market.

#### **4. THE ROLE OF THE AEC TEST IN THE ASSESSMENT OF THE ABUSE OF DOMINANT POSITION**

The test of equally effective competitor is a tool used for legal characterization of exclusionary practices by a dominant undertaking. THE AEC test is regarded as an obligatory part of assessment of price-related abuses. In this sense, the AEC test is used as a tool to evaluate anticompetitive effects on the market with price-related abuses. According to the above test, dominant's behavior is contrary to Art. 102 TFEU if it may result in the exclusion of a competitor from the market, while the competitor is as effective as the vertically integrated dominant undertaking.



(Case C-280/08 P Deutsche Telekom AG v Commission, ECR 2010, I-9555; case C-52/09 Konkurrensverket v TeliaSonera Sverige AB, ECR 2011, I-527; case T-336/07 Telefónica and Telefónica de España v Commission). It is based on wholesale prices collected from competitors, which may constitute a form of their price discrimination by the dominant party. Usually, the test is applied in abuses sanctioned ex post - i.e. cost-price scissors, but it is also used ex ante while assessing other price practices (K. Kohutek. (2012). Exclusionary practices of dominant undertakings. *Prawidłowość i stosowalność reguł prawa konkurencji*, Wolters Kluwer business, p. 543). One of the essential issues is the fact that the test of equally effective competitor in the analysis of undertakings performed ex post provides a greater legal certainty, because a vertically integrated undertaking knows its own costs. Moreover, contrary to the test of hypothetically quite effective competitor, it promotes effectiveness. This means that only competitors running business on a lower market level, who are at least as effective as the vertically integrated company, shall qualify for protection, and that consumers will not have to bear high costs due to the presence of an ineffective operator on a lower market. So far, the AEC test was applied i.e. in Telefónica case, which examined whether establishing prices by Telefónica for services provided for an equally effective competitor shall limit its activities on a lower market (Case T-336/07 Telefónica and Telefónica de España v Commission, ECLI:EU:T:2012:172). In this case the Commission applied LRAIC (Long-Run Average Incremental Cost) on a lower market level. It was justified by the fact that the competitors' decisions on investment were based on total incremental cost of production and in the price-cost scissors analysis it was necessary to assess competitors' ability to compete in a longer period of time. Another justification was that in network industries constant costs are high, but variable costs are low. In order to maintain profitability, an undertaking must establish prices above variable costs. Prices below variable costs may have exclusionary character. The Commission took the assumption that a dominant undertaking should establish prices on the level allowing an equally effective competitor to apply such margin, which will allow it to run business in a longer period of time. This means profit margin should be greater than zero (L. Hou, Some aspects of price squeeze within the EU: a case law analysis, *European Competition Law Review* 2011, p. 255). In the Intel Case, while applying the AEC test, the Commission explained that consumers would suffer harm only when the excluded competitor was as effective as the dominant undertaking. Therefore, not every competitor should be protected in order to ensure that consumers shall not suffer injury. In this sense, the AEC test is a tool for an assessment whether the market structure was altered in a manner, which may unfavorably influence consumers' well being. In the case of exclusionary rebates, it is not only the price that is vital, but also the exclusivity - which is a separate type of competitive harm. In this context the potential of anticompetitive exclusions is very strong and may increase even if the prices of the dominant undertaking are above the costs. Literature regarding the effects of exclusionary rebates demonstrates that anticompetitive effects of exclusionary rebates do exist even if the rebate is above the costs (E. Elhauge. (2009). How Loyalty Discounts Can Perversely Discourage Discounting, *Journal of Competition Law & Economics* 5(2), p. 189). It is questionable whether they may have a negative impact on the market structure. Yet, it may be verified by applying the test of "all circumstances", as suggested by Advocate General Wahl in the opinion on the Intel case. The test of equally effective competitor is not a tool for establishing the boundary of dominants' legal behaviors, but for a preliminary assessment of price practices. For example, in the Telefónica case decision, the Commission, next to the analysis of profit margins and price establishment, verified other factors, important from the economic point of view. For instance, it investigated the strengthening of Telefónica's position on the relevant market. For, one may not assume the existence of anticompetitive effects without applying an economic market analysis. Meanwhile, in Intel case, General Court decided that fidelity rebates should be qualified as a breach per se, without a need for further

examination of potential possibility of closing the market for competitors. Such approach arouses a lot of doubts, the more so because in the complaint on the Commission's decision Intel questioned the correctness of the analysis run by the Commission. Intel's defense focused on several issues related to the economic circumstances on the relevant market and real market effects of Intel's behaviors. It highlighted, that over a long period of fierce competition with the main competitor - AMD - where prices were falling over the entire examined period, Intel reacted to the price competition, results continued to grow, Intel Chips were effective, consumers had great range of choice, PC producers enjoyed a freedom of choice and cooperated both with Intel and AMD, and there were no obstacles for AMD to expand its production. Taking into account Intel's argumentation, there is no doubt that in the General Court's course of conduct, the AEC test should have been applied and on this basis the Court should have confirmed or excluded abuse. General Court did not use this tool of analysis in its conduct, but limited itself to a statement that conditional rebates granted by the dominant party limit competition by themselves, and there is no need for any analysis of particular circumstances or for performing an AEC test (A. F. Özkan. (2015). The Intel judgment: the Commission threw the first stone but the EU Court will throw the last, *European Competition Journal* 11 (1), p. 74). General Court stated that the controversial rebates, already due to their character, may limit competition and - in this regard - echoed Commission's opinion, but did not prove the actual limitation.

## **5. ASSESSMENT OF REBATES BY THE GENERAL COURT**

General Court distinguished three categories of rebates: quantitative, fidelity (so called exclusivity rebates), and other (Case T-286/09 *Intel v Commission*, p. 75-78). At the same time it explained, that the first category of rebates is considered according to the law. In the case of the second category, the Court stated that exclusionary rebates granted by an undertaking having a dominant position, are by nature able to exclude competitors (Case T-286/09 *Intel v Commission*, p. 87). In this case, Intel was a business partner, with whom the cooperation was obligatory (there were no substitutes). Intel's position on the market allowed for the use of business tools, such as rebates for exclusivity, in order to further expand the company's market share. Due to this fact, General Court decided that there was no need to analyze the influence Intel's rebates had on competition. In the case of this type of rebates, anticompetitive effects are very much possible, and an analysis of actual effects of such rebates on competition is not necessary (Case T-286/09 *Intel v Commission*, p. 78, 103). Therefore, General Court rejected the application of AEC test for this type of rebates. The third category of rebates was qualified as including a system of other rebates. Such rebates are not used exclusively or quasi-exclusively, but may take a loyal character. For this category, General Court requires the application of a test including an analysis of all the circumstances, with taking into account the criteria and conditions of granting the rebates. Therefore, only in the case of rebates of the third category a detailed analysis of anticompetitive results is required. General Court ruled, that even in the case of rebates fitting in the third category, for which it is crucial to run an analysis of circumstances related to granting the rebates, there is no need to apply the AEC test (Case T-286/09 *Intel v Commission*, p. 104). Meanwhile, rebates granted to Dell, HP, NEC and Lenovo companies were classified as second category. Their aim was to exclude competition from the relevant market. Such rebates make it hard for the competitors to present their offer at an attractive price and limit their access to the market. Yet, one must examine all circumstances of granting these rebates in order to exclude a potential possibility of objective justification by the dominant (CJEU expressed such approach in the *Deutsche Telekom* case, p. 175; *TeliaSonera*, - Case C-52/09, p. 28; *Post Denmark* - Case C-23/14 p. 26), and to prove even potential anticompetitive effects, such as exclusion. General Court's judgment arouses controversies, because it confirms assumed abuses of dominant position without examining the

circumstances of the case. As Advocate General N. Wahl rightly points out, practically all rebates have anticompetitive effects. Only rebates based on large quantities of purchase may be neutral to the processes of competition. This does not mean, though, that one may resign from a detailed economic analysis in the course of anti-trust proceedings (opinion in case C-413/14 Intel Corp. v Commission, p. 61). General Court referred in this case to the ruling in Hoffmann-La Roche case (case C-85/76), the theses of which were translated to the Intel case, forgetting that in the Hoffmann-La Roche case these theses were proven based on a comprehensive analysis of the economic circumstances of granting rebates. For one may not claim breach of Art. 102 TFEU per se without conducting a detailed economic analysis including circumstances and effects of their granting.

## **6. NO BAN PER SE FOR EXCLUSIONARY REBATES**

General Court rejected the necessity of economic analysis of exclusionary rebates (fidelity rebates), indicating that "recognizing an exclusionary rebate as abuse does not depend on the assessment of circumstances of a given case, allowing to prove a potential effect of exclusion (Case T-286/09 Intel v Commission, p. 80). An analysis of particular circumstances of granting rebates requires a separate (individual) approach in each case, taking into account the volume of sales. Unambiguous qualification as a breach per se could be justified only by the market structure, but it would bring the risk of burdening a business partner having a dominant position with particular duties (Case T-286/09 Intel v Commission, p. 85, 25, 26). Moreover, Intel was the only (unavoidable) business partner, because there were no substitutional products. A competitor must not be burdened with the necessity to lower a price or to use an unprofitable rebate policy (Case T-286/09 Intel v Commission, p. 91). Furthermore, he must adjust to the other competitors on the market. CJEU repeatedly highlighted in its rulings, that Art. 102 TFEU excludes the possibility of limiting competition. CJEU also draws attention to the fact that, if an undertaking with a dominant position indeed applies practices, which could potentially limit competition, the fact that there are no actual effects on the market is not enough to exclude the application of Art. 102 TFEU. General Court related here to the CJEU judgment in British Airways case (Case T-219/99 British Airways v Commission, ECR 2003. s. II-5917, p. 297) and TeliaSonera (Case C-52/09), which proved that Art. 102 TFEU is not limited to the behavior of undertakings on the relevant market, but is also applicable to those cases, where limiting competition causes harm to consumers. General Court argued that AEC test is not methodologically appropriate, because it may only give hypothetical indications. Entering the market by a new undertaking may be impossible due to various barriers (financial, technological, etc.), and it is natural, but a deliberate obstruction of such entry does constitute breach of Art. 102 TFEU. The AEC test does not allow for an exclusion of such deliberate obstruction of entering the market. The assessment of AMD's (Intel's competitor) hindered access to the market was based on figures and led to the same arguments - the differentiation between a wholesaler and retailer is not sufficient because not all personal computer producers used Intel's CPU in their distribution channels. According to General Court, a broad analysis of all of the circumstances related to the breach, such as effects of various connections between the seller and the buyer, was redundant due to the abuse of the dominant position and limited competition. In the light of the evidence presented by Intel, such business practices had no influence on limiting competition, did not have exclusionary effects and one should consider them economically effective. The basis for such claims were conditions on the relevant market, market power of the competition, as well as the demand side of the market and the scale of the rebate system (the so called rebate coverage of the market). In practice, it is not sufficient to prove that the effect of rebates is the lack of actual closing the market (Kostecka-Jurczyk D. 2012. Nożyce kosztowo-cenowe jako nadużycie pozycji dominującej. Głosa do wyroku CJEU z 17.02.2011 w sprawie C-52/09 Konkurrensverket przeciwko TeliaSonera Sverige AB, iKAR

5(1), p. 100 ). In the course of the proceedings one must examine the existence of a potential strategy of exclusion of at least an equally effective competitor. (Wish R. 2009. Competition Law, sixth edn., Oxford University Press, p. 719). In the light of Post Denmark judgment (case C-23/14 Post Denmark II, ECLI:EU:C:2015:651, p. 61) - it should be analyzed based on the AEC test. Moreover, the Commission's regulations of 2009 confirm that in order to demonstrate a strategy of interrupting competition, internal documents of the company must be taken into account, as well as proves of particular activities. This may relate to exclusionary rebates, which, by nature, may prevent clients from purchasing from competition, but which - by themselves - are not enough to prove an existence of an exclusionary strategy. CJEU used similar arguments as regards applying the AEC test in the judgment on Post Denmark II case (Case C-23/14), where it tried to answer the question of what rules are applicable when determining whether a rebate system may have exclusionary effects on the market, contrary to Art. 102 TFEU. Bearing in mind that the rebate system in Post Denmark case was "standardized" in the years 2007-2008 (the same level of rebate was used for all clients, conditional and granted with a "retroactive power"), CJEU stated that in this case one may not unambiguously confirm that these rebates were of a typically quantitative character (were not granted at each individual order), or exclusive (because there was no obligation for the purchasers to fully or in any proportion supplied at Post Denmark). Due to this fact, CJEU decided that this rebate system fits in the category where all circumstances of the case should be examined, including the rules of granting rebates, the market power of the dominant, and competition conditions on the relevant market (Guidance 2009, p. 50). The test of all circumstances is a complete (exact) economic analysis of actual or potential effects for competition that this type of rebates may entail. Having assessed all the circumstances, the Court of Justice in Post Denmark II judgment stated that the rebate system in that case caused exclusions. In this judgment, the effects were, for the first time, included in the category of excluding competition (Case C-23/14 Post Denmark II, ECLI:EU:C:2015:651, p. 50). It relates to the effects on the market structure. The test including "all circumstances" allows to assess possible anticompetitive effects, which these types of rebates may cause, although it is hard to foresee them in each and every case. As regards the AEC test, CJEU stated that its application is not a mandatory condition for the confirmation of abuse. The AEC test allows to verify whether the assessed behavior may cause exclusion from the market of a competitor at least as effective as the dominant undertaking, but it is one of many tools used for checking possible abuses. (M. Marinova, Should the rejection of the „as efficient competitor” test in the Intel and Post Denmark II judgments lead to dismissal of the effect based approach? European Competition Journal, 2016, Vol 12 (2-3), p. 387-408). Intel implied, that the Commission uses the AEC test in each case, and thus endeavors to confirm its earlier hypotheses. Yet, the General Court questioned such approach. It pointed out that an economic assessment of Intel's practices was not a necessary condition to state the abuse of Intel's dominant position (Case T-286/09 Intel v Commission, p. 162). General Court pointed out particular facts confirming that Intel's behaviors could have resulted in exclusions. General Court also adopted CJEU's line of judgment presented in the Tomara case (Case C-549/10), which was also maintained in the Post Denmark case. The latter of these judgments shows that limiting competition was caused by certain behaviors of the consumers. As a consequence, in the Post-Denmark case, real effects pointed out by competition actually took place. Nevertheless, General Court limited itself to an analysis of the possibility of changing the situation on the market, not examining the actual effects of abuse. As a result, it stated that Art. 102 TFEU may be applied regardless of an actual abuse of dominant position on the market.

## 7. ACTUAL STATE OF DOMINATION ABUSE VIA LOYALTY REBATES

An undertaking abuses its dominant position if it uses a system of fidelity rebates that make the purchaser (regardless of the volume of his purchase) buy exclusively, or in a significant part, from a company having a dominant position. In this situation, the Commission is obliged to measure the market power and the market size, as well as conditions, period and level of rebates, and - if need be - the intention of excluding of at least as effective competitor. Ability to exclude analysis is vital also when providing answer to the question of whether the rebate system included in Art. 102 TFEU may be justified objectively. If the dominant undertaking is able to justify the application of fidelity rebates, especially if pointing out that its behavior is objectively necessary or that the potential effect of exclusion related to the rebates may be balanced if the consumers gain profit, then such rebates may be justified. This means that fidelity rebates may be justified if they do not entail harm for consumers. The fact that Intel did not enter into a discussion implies, that exclusionary rebates constitute abuse per se, without considering their positive effects. In literature one may also find the approach stating that treating exclusionary rebates as abuse has a strong economic justification. Therefore, criticizing General Court's judgment is not correct, because loyalty rebates have negative effects, which implies that it is not a question of form, but rather economic effects of such rebates (W. Wils. The Judgment of the EU General Court in Intel and the So-called „More Economic Approach” to Abuse of Dominance (2014) 37(4) World Competition: Law and Economics Review, 405, 408). General Court stated that the third category of rebates should be assessed taking into account "all circumstances", which means that the assessment of the criteria and rules of granting rebates focuses on the effects these rebates generate. Examining "all circumstances" means inspecting the legal and economic context of the breach. As a result, the test of "all circumstances" corresponds to the approach which relates to possible effects on the competition that this type of rebates may have. It is important to notice, that various practices create various risk of competitive harm. In some cases, dominant's behavior is prima facie contrary to competition law and should be banned without engaging further assessment of possible effects. There are instances, where dominant's behavior may cause smaller probability of harm and should be assessed in a legal and economic context. Therefore, it is not necessary to apply one test for rebates which may generate various levels of competitive harm. Applying a single standard for all practices, ignoring various problems related to it, may lead to incorrect conclusions. For legal certainty and justification, it is important that this test was applied for similar practices, creating the same risk of competitive harm. The possibility that the dominant is able to justify the use of fidelity rebates, especially by proving that his behavior is objectively justified or that a possible effect of exclusion may be balanced by profits (in terms of effectiveness), which may also be experienced by consumers. Effectiveness translates into consumers' well being. Unfortunately, so far this argument has not convinced General Court in any case. In practice, effects on competition (e.g. on market structure) are vital. If negative effects on market appear, harm for consumers may follow. Therefore, one must state, that in every case an antitrust body should examine the scope of rebates (market coverage), and their conditions. At the same time, it must be verified whether they are rebates of exclusionary character and used by a dominant. It is unclear, whether an antitrust body (for example the European Commission) must prove the exclusionary effects of rebates, or rather if it is the dominant undertaking that must prove the competitive effects and present the proofs. The phrase "in particular the effects of exclusion" may imply that the Commission must confirm them. The judgment does not specify clearly whether it relates to exclusionary effects based on particular circumstances (in particular circumstances) in a specific case, or only to abstract effects of exclusion. A clear direction regarding the behavior of the undertaking and the burden of the proof speaks for the fact, that the Commission must, at the very beginning of the proceedings, prove the exclusionary effects in a specific case.

In other words, in order to confirm abuse, one must prove that an undertaking has developed or implemented an appropriate strategy of exclusion, related to a rebate. Hoffmann-La Roche judgment may be basis for a conclusion that exclusionary rebates of a dominant undertaking should be judged as a breach per se, but the principle of legal certainty requires the examination of all circumstances related to every single case.

## 8. SUMMARY

The judgment of the General Court should be treated as an unjustified departure from the application of a more economic approach in the assessment of anticompetitive behaviors. One may not simply declare that Intel's behaviors breached competition law per se. In order to prove this point, one must examine all circumstances of granting rebates by Intel. Fidelity rebates granted by dominant undertakings are not banned per se and should be assessed in the context of particular circumstances in a particular case. CJEU's judgment points out the necessity of a more detailed examination of some ambiguities, and especially as regards presenting evidence by the parties to the proceedings. Currently, due to the implementation of a more economic approach in cases related to breaching the rules of competition, the core of the analysis is shifting again towards the market structure. This way, dogmatic doubts are limited. It means that the opinions of specialists in competition economics once again become increasingly relevant, and the AEC test has a vital role here as well. On the other hand, an analysis of the context of a case (all circumstances) aims at confirming, unequivocally, that an undertaking abused its dominant position.

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## DIGITAL ECONOMY AND E-GOVERNMENT IN CROATIA

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### ABSTRACT

*The technological revolution has changed the world we live in. Digital economy, including e-commerce, and e-government are important achievements of the rapid technological advancement. Given that the digital economy and e-government promote competitiveness, innovation and growth, the results achieved through their development are among the main indicators of social and economic growth. The three main constituents of the digital economy and e-government are the government, businesses and consumers, i.e. citizens. The aim of this paper is to determine the level of development of digital economy and e-government in Croatia in terms of the use of online business and government services by citizens. In particular, the research seeks to determine the proportion of Croatian citizens who ordered goods or services over the Internet, carried out financial activities, accessed e-government services or interacted with public authorities in this way. In order to gain a more objective insight, the available data relating to the Republic of Croatia are compared with those from the European Union Member States. According to the presented data, in the last ten years, Croatian citizens have increasingly been using online services, which indicates that visible progress has been made in the digitalisation of the economy and informatisation of public administration. Nevertheless, Croatia still falls significantly behind the European Union average in this respect and the gap is even more evident when Croatia is compared to the countries that are at the forefront of the information society. In the digital age, failing to keep pace with modern technology advancement has severe consequences. Thus, comprehensive reforms are required to change the situation in Croatia as soon as possible.*

**Keywords:** *digital economy, e-commerce, e-government, citizens, Croatia*

### 1. INTRODUCTION

The ICT revolution has led to dramatic changes in all spheres of human life. The technologies we use have changed the way we communicate, search for and acquire information, learn and educate, work and spend free time. There is no doubt that the application of various technological achievements has improved our lives significantly, but it has also brought about numerous challenges and threats. This is why contemporary social trends cannot be understood without comprehensive consideration and understanding of the implications of technological development. Information and communication technologies are ubiquitous, and their role is expected to grow in the future. However, it is difficult to predict how they will develop, and almost impossible to know how this process will affect society (Tansey, Darnton, Wateridge, 2003). It is obvious that in today's world, failure to keep pace with technological advancement leads to staying on the margins of social and economic life.

Since economic growth and technological progress are inextricably linked, companies that do not keep abreast of the latest ICT developments will be marginalised and will not be able to survive. Varian (2016) lists five channels through which digital technologies can impact economic activity: data collection and analysis, personalisation and customisation, experimentation and continuous development, contractual innovation, and coordination and communication. Thus, digital technologies have the potential to reduce costs, increase efficiency, and boost innovation in an enterprise, ultimately increasing its revenue and profit. The accelerated transformation of the economic environment in recent decades is largely a result of extensive and intensive digitalisation. It has led to the emergence of new forms of business operation and the establishment of a different relationship with consumers. The digital economy is characterised by flexibility, collaboration and fast interactions, as well as the ability to reorganise company resources faster and create new values and business models that meet the needs of increasingly demanding customers (Zakić, 2014). The government plays a significant role in the development of the digital economy (Wyld, 2010; Marius, Pompiliu, 2012). It must provide the appropriate infrastructure as well as a legal framework for the activities of organisations and individuals in the digital economy. In addition, at a time when effectiveness and efficiency are crucially dependent on the use of information and communication technologies, government institutions are forced to implement them in their operations and thereby improve the quality of services provided to citizens and businesses. All efforts and activities undertaken by authorities with this aim are commonly referred to as e-government (Dukić, Dukić, Bertović, 2017). Given the importance of the digital economy and e-government for the development of society, the main aim of this paper is to determine the extent to which these two concepts have taken hold in the Republic of Croatia, in the context of citizens' acceptance and participation. In order to gain a more objective insight into the development of digital economy and e-government, the available data relating to the Republic of Croatia are compared with those from the European Union Member States.

## **2. DIGITAL ECONOMY AND E-COMMERCE**

According to Sharma (2005), a digital economy is a convergence of communications, computing and information. The transition toward a digital economy was enabled by combining networked computing technologies and new business, which has led to creation of entirely new markets, industries, businesses and work practices. Under such conditions, the focus is no longer on processing material input, but on creation, trading and distribution of knowledge, intellectual property and intangibles. In view of the above, Sharma concludes that the essential elements of the digital economy are the intensive use of information and communication technologies, codification of knowledge, transformation of information into commodities, and new ways of organizing work and production. Malecki and Miriset (2008) find that it is necessary to consider three processes to understand the circumstances in which the digital economy has developed: the computerisation of a society driven by the production of cheaper computers, the convergence of computers and telecommunications, and the diffusion of the Internet. These processes have led to the convergence and overlap of the computer, communications, software, media and entertainment industries, which now share common technical standards and channels. Digital technology has spread throughout the entire economy as support to both the manufacturing and service sectors. Even the primary sector today relies heavily on information and communication technologies. However, digital economy is not just a technological and economic issue. It is undoubtedly a part of a wider concept, which includes social and political aspects in addition to technological and economic ones. In the digital economy, no one is protected from competition because it is everywhere around us. Tapscott (2015) points out, when information becomes digital and networked, no business is safe. Old social norms, laws, regulations and customs in the digital environment cease to be valid.



Even the concept of work has been radically redefined since the requirements placed on employees are significantly different from those prevailing in the time when agriculture or the manufacturing were dominant activities. As a result of efforts to identify the specific characteristics of work in the digital economy, the concept of virtual work emerged. According to Valenduc and Vendramin (2016), virtual work represents all forms of work carried out at home, in public spaces or in non-traditional working environments using ICT-based tools. The digital economy is not simply about moving business transactions from face-to-face to online or an economy of the computers connected in complex networks (Ilie, Iacob, Panagoreț, 2017; Shukla, Bose, 2017). It represents the pervasive use of information and communication technologies in all aspects of the economy, including internal operations of business, government and non-profit organisations, transactions between organisations, and transactions between individuals and organisations (Atkinson, McKay, 2007). E-commerce is one of the main components of the digital economy and as such it is a key driver of its development (Gunawardana, Avatchanakorn, 2000; Dalal, Egan, Rosenstein, 2003). Kim, Hong and Rho (2013) simply define e-commerce as the buying and selling of products or services over electronic systems such as the Internet and other computer networks. E-commerce can also be viewed as the combining of innovative approaches, virtual applications and Internet business operations into a single enterprise solution (Tsai, Cheng, 2012). Over a relatively short period of time, e-commerce has grown from a modest mechanism for online retail to a platform for the media and new unique services that do not exist in the physical world (Laudon, Traver, 2017). Among other things, e-commerce has thoroughly changed the way companies offer their goods, giving consumers more choice, more information, and more opportunities to access the goods at more favourable prices. However, Shaw (2015) warns of the current gap between the technological capabilities and readiness of the users to accept innovations as well as the lack of trust between business organisations themselves, and between business organisations and consumers. Further development of e-commerce and the digital economy will strongly affect the entire society. These changes will not be purely positive. According to Sharma (2006), the negative consequences of that process may include widening of the digital divide, increased marginalisation of those who fail to keep pace with technological advancement, social isolation, erosion of personal privacy, threats to survival of local businesses, the disastrous influence on the community, the erosion of tax bases, disruption of the labour market, the growth of monopolistic practices, and threat to small and medium-sized enterprises.

### **3. E-GOVERNMENT**

E-government can be defined as the use of information and communication technologies in the public sector with the aim of improving its operations and delivery of services to customers (Kumar, Best, 2006; Abu-Shanab, Al-Azzam, 2012). This term also denotes the ability of government to provide information and services by electronic means quickly, accurately and with minimum costs (Odat, 2012). E-government also refers to strategies, organisational forms, processes, and information and communication technologies that are employed to improve access to government information and services not only for citizens and businesses, but also for government employees and other agencies (Kefallinos, Lambrou, Sykas, 2009). According to Cook et al. (2002), the definition of e-government includes the four dimensions that reflect the functions of the government: e-services (electronic delivery of information, programmes and services), e-management (use of information and communication technologies to improve public administration management), e-democracy (using electronic means of communication to increase citizen participation in the public decision-making process), and e-commerce (paying for public services over the Internet, including government orders).

The importance of e-government for the functioning of the society and the economy has brought various issues relating to it into focus not only of heads of public administration, but also the

scientific community and the business world. Henman (2010) emphasizes that e-government is subject to major and frequent changes, and is constantly evolving. The main reason for this is the rapid technological change. Accordingly, information and communication technologies are widely used in public administration bodies. Their use varies considerably in terms of the policy and institutional domain, the nature of activity, available tools and objectives that e-government seeks to achieve. Bhatnagar (2004) warns that e-government is not a panacea for all public administration problems, but it is a powerful enabling tool, which helps governments to achieve some of their development and administrative reform goals. Although e-government can be a catalyst for change, it is not a complete solution and therefore it must be part of reform process. According to Bhatnagar, the successful implementation of e-government depends on willingness to reform, availability of information and communication technologies infrastructure, and the institutional capacity to absorb and manage change.

Both users and government can benefit from e-government initiatives. Some of the advantages of introducing e-government are improved quality of services, ease of information retrieval, enhanced productivity, greater efficiency, cost and time savings, increased accountability and transparency, and less corruption (Weerakkody et al., 2015). On the other side, the implementation of e-government may entail certain risks. According to Zhang and Hsieh (2010), there is concern regarding the misuse of personal data by civil servants, identity theft, personal information leaks, privacy violations, hacking into government computer systems and the digital divide.

#### **4. RESEARCH AIM AND QUESTIONS**

Digital economy and e-government are important achievements of technological progress. In a world dominated by technologies, they have become major factors in social and economic development as well as drivers of competitiveness, innovation and growth. The results achieved through their implementation are among the key indicators of a country's level of development. It should not be forgotten that digital economy and e-government are inextricably intertwined (Mutula, 2010). Moreover, there is a strong positive reciprocal relationship between e-government development and the digital economy (Zhao, Wallis, Singh, 2015).

The government, businesses and consumers, i.e. citizens, represent the three main constituents of the digital economy and e-government. Their interactions in the digital environment are complex and still insufficiently explored. The development of digital economy and e-government can be viewed from each of these aspects. This paper focuses on individuals and their activities within the digital economy and e-government. Thus, the aim of the research is to determine the level of development of the digital economy and e-government in the Republic of Croatia on the basis of data referring to citizens. More specifically, the research seeks to answer the following questions:

- What percentage of Croatian citizens have ordered goods or services over the Internet?
- What percentage of Croatian citizens have carried out financial activities over the Internet?
- What percentage of Croatian citizens have used the Internet to interact with public authorities and access e-government services?
- What is the level of development of e-commerce and e-government in the Republic of Croatia compared to the European Union Member States?

#### **5. DATA AND DISCUSSION**

Eurostat data are used in the analysis. According to Eurostat (Eurostat, 2017), data on ICT usage in households and by individuals are collected annually by the National Statistical Institutes and submitted to Eurostat during the fourth quarter of the survey year. National Statistical Institutes use the Eurostat model questionnaire in the survey. The population of households consists of households with at least one member in the age group 16 to 74 years,

while the population of individuals comprises of persons aged between 16 and 74. Around 150 000 households and 200 000 individuals are surveyed. Data are mainly collected through face-to-face or telephone interviews. Since the model questionnaire is adapted each year, not all variables have a long time series coverage. Eurostat notes that the ICT usage surveys are based on a sample, so the results are subject of statistical errors associated with random sampling.

*Table 1: Internet purchases by individuals in the Republic of Croatia and at the level of the European Union, 2007-2017 (Eurostat, 2018a)*

Year	Percentage of individuals who ordered goods or services over the Internet in the last 3 months		Percentage of individuals who never ordered goods or services over the Internet	
	Croatia	European Union	Croatia	European Union
2007	5	23	34	29
2008	5	24	37	30
2009	6	28	41	28
2010	9	31	40	28
2011	11	33	42	27
2012	16	35	38	27
2013	19	38	32	25
2014	22	41	40	25
2015	26	43	37	24
2016	25	45	36	24
2017	21	48	36	23

Data on Internet purchases by individuals (Table 1) show that participation in e-commerce in the Republic of Croatia is significantly lower than in the European Union Member States. In 2007, i.e. during the three months prior to the survey, 5% of Croatian citizens bought or ordered goods or services over the Internet at least once, in comparison to 23% recorded at the European Union level. Ten years later, the proportion of individuals in Croatia who bought or ordered goods or services over the Internet in the previous three months stood at 21%, while almost one half of all individuals aged 16 to 74 at the European Union level ordered or bought goods or services over the Internet at least once in the same period. Although in the period from 2007 to 2017, the proportion of Croatian citizens who ordered or bought goods or services over the Internet in the three months prior to the survey increased by more than four times, this did not narrow the gap between Croatia and the European Union average. This is particularly evident when data relating to the Republic of Croatia are compared with those collected by the survey of citizens living in more developed European Union countries. The source listed for Table 1 reveals that in 2017 the highest proportion of individuals who ordered or bought goods or services over the Internet was recorded in the United Kingdom, where it stood at 78%. Denmark and Luxembourg recorded 69%, the Netherlands 68%, Sweden 67%, and Germany 66% of such individuals. Compared to Croatia, the proportion of individuals who had ordered or bought goods or services at least once during the three months prior to the survey was lower only in Romania and Bulgaria. The data on the share of individuals who had never ordered or bought goods or services over the Internet is an additional indicator of the gap in e-commerce between Croatia and the European Union average.

While at the European Union level there is a downward trend in the proportion of individuals who had never ordered goods or services over the Internet, this share in Croatia had been stagnant for years. In 2017 more than a third of all Croatian citizens aged between 16 and 74 reported that they had never ordered or bought goods or services over the Internet. In the same year, the lowest shares of individuals who had never ordered or bought goods or services over the Internet were recorded in the United Kingdom, the Netherlands and Denmark, where they stood at 10%. The highest proportions were recorded in Romania, Cyprus, Bulgaria, Hungary, Italy, Portugal and Croatia.

*Table 2: Financial activities over the Internet by individuals in the Republic of Croatia and at the level of the European Union in 2017 (Eurostat, 2018b)*

	Croatia	European Union
Percentage of individuals who bought or sold shares, bonds, funds or other assets over the Internet	2	4
Percentage of individuals who bought or renewed existing insurance policies over the Internet	2	12
Percentage of individuals who took a loan or arranged credit from any financial institutions over the Internet	2	3
Percentage of individuals who carried out at least one of the financial activities over the Internet	4	15

Based on the data shown in Table 2, it may be concluded that the proportion of Croatian citizens who carried out financial activities over the Internet in 2017 was considerably lower than the European Union average. While in Croatia only 2% of individuals bought or sold shares, bonds, funds or other assets online, bought or renewed the existing insurance policies, and took a loan or arranged credit from banks or other financial providers, this proportion in the European Union stood at 4%, 12% and 3%, respectively. An even greater disparity was observed with regard to the share of individuals who carried out at least one of the above mentioned financial activities over the Internet. Croatia recorded only 4%, while at the European Union level this percentage was 15%. The difference between recorded proportions in Croatia and more developed countries of the European Union is even greater. According to the source listed for Table 2, 43% of Swedes, 41% of Brits, 38% of Dutchmen, 34% of Finns and 32% of Estonians aged between 16 and 74 carried out at least one financial activity over the Internet in 2017. These five countries recorded the highest proportions of individuals who carried out financial activities over the Internet. Croatia, Greece, Cyprus, Hungary and Poland recorded the same percentages in this category. Romania and Bulgaria ranked at the bottom with less than 4% of individuals who accessed the Internet to carry out financial activities. Data on individuals using the Internet to interact with public authorities and access e-government services also indicate that the Republic of Croatia is lagging behind the European Union average (Table 3). Although in the period from 2008 to 2017, the proportion of Croatian citizens who used the Internet to interact with public authorities over the past 12 months doubled, it was still significantly smaller than in the European Union. More specifically, in 2017, approximately one third of Croatian citizens used the Internet to interact with public authorities, while at the level of the European Union this proportion stood at almost 50%. The highest uptake of e-government services in 2017 was reported by Denmark, where, according to the source listed for Table 3, as much as 89% of individuals used the Internet to access government services over the 12 months prior to the survey. Sweden, Finland, the Netherlands and Estonia recorded 84%, 83%, 79% and 75%, respectively. Only Romania, Bulgaria, Poland and Italy recorded smaller proportions of individuals who used the Internet to interact with public authorities compared to Croatia.

*Table 3. Individuals using the Internet to interact with public authorities and access e-government services in the Republic of Croatia and in the European Union, 2008-2017 (Eurostat, 2018c)*

Year	Percentage of individuals who used the Internet to interact with public authorities		Percentage of individuals who used the Internet to obtain information from public authorities websites		Percentage of individuals who used the Internet to download official forms		Percentage of individuals who used the Internet to submit completed forms to public authorities	
	Croatia	European Union	Croatia	European Union	Croatia	European Union	Croatia	European Union
2008	16	35	12	33	9	23	5	17
2009	17	37	14	35	12	24	8	18
2010	19	41	14	37	13	26	7	21
2011	17	41	12	35	11	25	6	20
2012	26	44	20	39	16	27	9	22
2013	25	41	17	37	18	25	10	21
2014	32	47	25	41	20	29	13	26
2015	35	46	32	40	25	28	15	26
2016	36	48	34	42	25	29	17	28
2017	32	49	29	41	20	30	15	30

There is also a gap between Croatia and the European Union average in terms of the use of the Internet to obtain information from public authorities, download official forms and submit completed forms. In 2017, on the European Union average, 41% of individuals in the 12 months prior to the survey used the Internet to obtain information from a public authority website, compared to Croatia where this proportion was 29%. In the same year, 20% of individuals in Croatia used the Internet to download official forms, and only 15% used it to send filled forms, while at the European Union level this percentage stood at 30% for both types of interactions. Denmark, Finland, Sweden and the Netherlands recorded the highest proportions of individuals using the Internet to obtain information from public authorities websites, download official forms and submit completed forms to public authorities, while Croatia was ranked at the bottom with Romania, Bulgaria, Italy, Poland and the Czech Republic.

## 6. CONCLUSION

In the digital era, the development of an ICT-based economy as well as the development and implementation of effective e-government are preconditions for socio-economic growth. Countries that fail to keep pace with technological advancement face a risk of persistent lagging behind. To prevent this from happening, appropriate steps should be taken. The Republic of Croatia has made visible progress in the digitalisation of the economy and informatisation of public administration. However, as shown in this paper, the results achieved are only partially satisfactory. According to the presented data, the use of various online services by Croatian citizens has been increasing in the last ten years. However, this did not narrow the gap between Croatia and the European Union average. The percentage of Croatian citizens who ordered or bought goods or services over the Internet and the percentage of those who used e-government services are still among the smallest in the European Union.

The gap is even more evident when Croatia is compared to the countries leading the way in the development of the information society. This situation needs to be changed as soon as possible. Examples of some countries, such as Finland and recently Estonia, show that negative trends can be reversed, but this requires radical reforms to be implemented. If public authorities continue to ignore the need to intensify the digitalisation of society and the economy, Croatia will remain stuck at the bottom of the European Union, and the consequences will be catastrophic. There are numerous factors that influence the development of digital economy and e-government. Their full implementation is not achievable without the synergy of the government, businesses and citizens. This paper considers the digital economy and e-government in the Republic of Croatia from the perspective of citizens. In the information society, the citizens are expected to actively participate in e-commerce and use digital channels to interact with public authorities. However, they are not doing that for various reasons. First of all, the development of digital economy and e-government requires adequate technological infrastructure and equipment. Slow Internet connection, poor signal and network coverage, and lack of adequate equipment make it difficult or completely impossible to use digital services. A major problem may also be the lack of skills needed to work in an online environment. This primarily relates to the elderly population and individuals with lower levels of education. In addition, governments and businesses must ensure that their services are accessible online and user-friendly, and that they meet high security standards, which is often not the case. These are just some of the barriers hindering e-commerce and e-government adoption by individuals. Understanding and removing these barriers is vital for successful digitalisation of the economy and society, so they need to be addressed accordingly.

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## **REFORMING THE BUSINESS ENVIRONMENT TO COPE WITH OVER-INDEBTEDNESS: THE CASE OF THE EU**

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### **ABSTRACT**

*The problem of business over-indebtedness is growing; this is reflected in the rising value of unsettled liabilities and, consequently, in the rising number of business insolvencies. The role of legal business environment in treating this problem has proven to be crucial. Within the legal framework, the greatest attention in research has been given to the efficiency of the judicial system and the surrounding and supporting institutions dealing with contract enforcement and insolvency regime. In line with such research background, the World Bank (WB) project aimed at measurement of legal framework efficiency was launched in 2004. The goal of this paper is to evaluate the reformative efforts on the sample of EU national economies based on WB indicators of legal framework efficiency and WB data on actual implemented reforms regarding enforcing contracts and resolving insolvency. Methodology applied is dynamic panel-data estimation, which, besides the data on the existence of legal framework reforms, also includes additional variables that have an impact on judicial efficiency: level of GDP, government expenditures, and level of corruption. The results indicate that reformative efforts taken by the governments in this period have not had the desired effect on the indicators measuring the efficiency of the enforcing contracts and resolving insolvency procedures. Government efforts in the future should be devoted to better design of the reforms, since the resources for the reforms had not been allocated efficiently.*

**Keywords:** *Business Environment Reforms, Enforcing Contracts, Resolving Insolvency, Business Over-Indebtedness*

### **1. INTRODUCTION**

A sound business sector is a prerequisite of a well-functioning society. This means that every government's priority should be to design and implement policies that facilitate smooth business operation. Regulation is an essential part of the legal business environment and it should support easy resolution of business disputes and problems. Swift and inexpensive contract enforcement procedures as well as early signal system to detect potential insolvencies coupled with easy and quick resolution processes are in the core of such government arrangements. The paper is structured in the following way: the first section provides a review of literature dealing with the importance of business regulation and expected positive outcomes in the performance of national economies. Special attention is devoted to the government support in the field of business exit and settlement of disputable obligations where judicial system has the crucial role. Thereafter, the argumentation is developed that leads to the formulation of hypothesis. The selected variables for model testing are founded in the previous research and explained in line with the hypothesis.

The next section provides an overview of data collection procedures and dynamic panel methodology applied in this research. In the fourth section, the results of the research are presented and discussed, limitations explained, and recommendations for further research provided. The conclusions and policy implications are drawn in the final part of the paper.

## 2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The importance of business environment institutional improvement for macroeconomic performance has been proven in many studies (e.g. Djankov et al., 2006, Messaoud and El Ghak Teheni, 2014, Aguiar et al., 2017, Haidar, 2012). In this paper, the focus is on a segment of the business environment, i.e. institutional improvements that are considered most important when trying to cope with business over-indebtedness, specifically enforcing contracts and insolvency frameworks. Previous research show many significant links in this area. When dealing with insolvencies and contracts, a well-functioning judicial system has many beneficial effects on firms, such as easier access to long-term financing, lower cost of capital and fewer financial restrictions (Jappelli et al., 2005, Bae and Goyal, 2009, Laeven and Majnoni, 2005). It is also significantly related to higher business survival rates (Stam et al., 2008), higher business entry rates, higher self-employment rates (Garcia-Posada and Mora-Sanguinetti, 2014), quicker implementation of new technologies, enhancement of exports (Cooley et al., 2004, Nunn, 2007, Berkowitz et al., 2006) and a positive effect on FDI (Ahlquist and Prakash, 2010). It is important to mention another effect of efficient institutional framework for enforcing contracts and resolving insolvencies: its mitigating role in downsizing the informal economic activity (Domac and Bejaković, 2002, Bejaković, 2004, Dabla-Norris et al., 2008). In order to quantitatively assess the volume of governmental reformative actions in terms of insolvency and enforcing contracts, the data on the number of such reforms in the EU countries from 2005 to 2016 are presented in the following table:

*Table 1: Number of reforms by EU country 2005 – 2016  
 (WB, 2006 – 2017)*

Country	RI*	EC**	Σ	Country	RI	EC	Σ
Portugal	3	6	9	Hungary	2	2	4
Lithuania	5	3	8	Slovenia	4	0	4
Poland	6	2	8	Austria	1	2	3
Romania	5	3	8	Denmark	2	1	3
Italy	4	3	7	Germany	3	0	3
Spain	5	2	7	United Kingdom	2	1	3
Slovakia	2	4	6	Belgium	1	1	2
Bulgaria	3	2	5	Cyprus	1	1	2
Croatia	2	3	5	Finland	1	1	2
Czech Republic	2	3	5	Ireland	0	2	2
Estonia	2	3	5	Luxembourg	0	0	0
Greece	2	3	5	Malta	0	0	0
Latvia	4	1	5	Netherlands	0	0	0
France	3	1	4	Sweden	0	0	0
EU					65	50	115

*\*RI – resolving insolvency reforms; \*\*EC – enforcing contracts reforms*

The total number of reforms that were implemented by 24 of 28 Member States can be assessed as a significant policy effort by vast majority of the EU countries.

This also implies that governments do accept previously presented research implications, and do intend to redesign the business environment in order to enable its better functionality. There has been a slightly larger number (57%) of insolvency framework reforms than the reforms directed towards strengthening the enforcing contracts procedures (43%). The cumulative qualitative outcomes of reforms are represented in the following table. The numbers express the total percentage change in the indicators that measure the efficiency of resolving insolvency and enforcing contracts. The percentage changes in the indicators in the year following the reform were added (see Appendix 1 and Appendix 2 for reference). Three indicators (time, cost and recovery rate) are taken into account for resolving insolvency and two (time and cost of the procedures) for enforcing contracts.

*Table 2: Cumulative effect of reforms by EU country 2005 – 2016 (%)  
 (WB, 2006 – 2017)*

Country	RI (1)	EC (2)	Total (1+2)
Czech Republic	67	0	67
Poland	76	-12	64
Romania	56	2	58
Spain	-19	66	47
Slovenia	44		44
Lithuania	11	18	29
Slovakia	14	9	23
Italy	4	18	22
Germany	14		14
Finland	0	7	7
Cyprus	2	0	2
United Kingdom	2	0	2
Belgium	1	0	1
Ireland		0	0
Portugal	0	-5	-5
Greece	2	-11	-9
Hungary	-1	-15	-16
Croatia	1	-18	-17
Austria	0	-21	-21
Denmark	31	-76	-45
Estonia	-2	-45	-47
Bulgaria	-5	-47	-52
Latvia	-129	0	-129
France	0	-171	-171
EU average	7	-14	-6

The descriptive analysis shows a very inconsistent pattern of the effects of reforms across EU countries. Contrary to the expectations, the overall effect of all reforms is negative. Outcomes are better for resolving insolvency; however, only slightly considering the long period in question. The negative trend in enforcing contracts is especially troublesome. About half of the sample has improved the indicators following the reforms, but the other half has worsened the values of indicators.

It is noteworthy that Portugal, the country with the largest number of reforms, has worsened its outcomes. Appendix 1 and Appendix 2 provide a detailed presentation of data related to all 115 reforms: when and where each of the reforms took place and percentage change of resolving insolvency and enforcing contracts it induced in the year following the reform. All of the above strongly supports the need to test the hypothesis whether the implementation or non-implementation of the reform has significantly altered efficiency indicators of resolving insolvency and enforcing contracts. Since there is an undisputable link between overall economic performance and institutions' quality, GDP per capita is included to test the power of the level of economic development on the outcomes of reforms, i.e. whether more developed Member States also have more efficient outcomes of the reforms. Another measure of a country's intent to improve institutions in question is the level of government expenditures, i.e. whether the Member States that spend more resources also have more efficient outcomes of the reforms. Bearing in mind the above-mentioned importance of the quality of institutions for informal economy, the last variable included to be tested in this research is the level of corruption, i.e. whether countries with a lower level of corruption also have more efficient outcomes of the reforms. The main hypothesis can thus be formulated as follows: Countries that implemented reforms, that are more developed, that have greater government spending and a lower level of corruption, are expected to have significantly better frameworks for enforcing contracts and resolving insolvency.

### **3 DATA AND METHODOLOGY**

The main source of data analyzed in this research is WB Doing Business database. WB started this project in 2004 and some of the indicators have changed in the period covered in this paper. The dependent variables are two enforcing contracts indicators (time needed to enforce unsettled liabilities measured in days, and cost of the enforcement procedure measured as percentage of the value in dispute), and three resolving insolvency efficiency indicators (time required to recover debt measured in years, cost required to recover debt measured as percentage of debtor's estate value, and recovery rate for creditors measured as percentage of their claims recovered through reorganization, liquidation or foreclosure proceedings). The first explanatory variable is the presence of the reform in a certain point of time: whether or not (dummy) a country had a reform in place that dealt with resolving insolvency or enforcing contracts. The assessment of the presence of the reform was done by WB and is taken from the Doing Business database. The Eurostat database (European Commission, 2018) was used as a source for data on GDP per capita, and World Development Indicators (WB, 2018) as a source of government expenditures expressed as percentage of GDP. Data on corruption were taken from Transparency International (2018) (and expressed as the value of the Corruption Perceptions Index (CPI). The CPI methodology changed within the analyzed period and the data were normalized in order to accommodate the change. The time frame covered is 2005 to 2016, for which period data on all selected variables were available. The final sample excludes three EU countries (Cyprus, Luxembourg, and Malta), because these countries were included in the Doing Business project at a later point in time. Due to their relative size, their exclusion should have no significant effect on the conclusions drawn from this research. Dynamic panel-data estimation is performed by using the two-step system Generalized Method of Moments (GMM). GDP per capita and government expenditure variables are both expressed in natural logarithm. Statistical procedures are performed in Stata statistical software package.

### **4. RESULTS, DISCUSSION AND FUTURE RESEARCH**

The results of five dynamic panel data estimations are presented in this section – one for each of the dependent variables – three for the indicators that measure the efficiency of resolving

insolvency, and two for the indicators that measure the efficiency of enforcing contracts. The next table summarizes the results of all the conducted procedures:

*Table 3: Dynamic panel data estimation for resolving insolvency and enforcing contracts indicators (Authors' calculations)*

Independent variables	Dependent variables				
	RI cost	RI time	RI recovery	EC cost	EC time
Reforms - dummy	-0.157 [0.171] (0.360)	-0.034 [0.035] (0.334)	-1.164 [0.727] (0.109)	-0.029 [0.472] (0.952)	18.437 [16.803] (0.273)
Lgdp	0.056 [0.147] (0.705)	<b>-0.250***</b> [ <b>0.066</b> ] ( <b>0.000</b> )	<b>6.654***</b> [ <b>2.315</b> ] ( <b>0.004</b> )	0.495 [0.678] (0.465)	12.044 [10.033] (0.230)
Lgexp	<b>-1.076*</b> [ <b>0.579</b> ] ( <b>0.063</b> )	0.144 [0.181] (0.426)	-2.581 [4.017] (0.520)	-1.560 [1.895] (0.410)	-27.255 [31.836] (0.392)
CPI	-0.005 [0.007] (0.487)	-0.001 [0.002] (0.393)	0.068 [0.051] (0.183)	-0.002 [0.016] (0.914)	0.117 [0.308] (0.705)
Constant	3.703 [2.888] (0.200)	2.531*** [0.499] (0.000)	-45.409** [17.759] (0.011)	3.013 [7.954] (0.705)	-28.080 [125.181] (0.823)
Wald test – chi-square (p-value)	4662.30 (0.000)	5025.54 (0.000)	2365.67 (0.000)	950.48 (0.000)	1204.61 (0.000)

Robust standard errors in brackets, p-values in parentheses

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1,

The hypothesis was derived from background literature and previous research results, and as such, it was expected to find further evidence of the beneficial role of reforms and other measures of institutional action in increasing the quality and efficiency of business environment. Still, the results that are to be discussed are by no means a surprise. The descriptive analysis from previous sections already indicated troublesome notions about the reforms that most governments conduct on a large scale and fulfillment of the goals they were designed for. These results strongly confirm the non-existence of any link between the reforms and the expected and intended outcomes of reforms. Namely, the reforms' dummy variable is insignificant in case of all measured indicators of resolving insolvency and efficiency of enforcing contracts. When specifically discussing the enforcing contracts framework, the results of all of the analyzed explanatory variables are insignificant. This provides strong evidence that the field of enforcing contracts research should be extended to some completely new phenomena or brand new ways of measuring the existing variables of interest. This is particularly important since contract enforcement is crucial for every single business entity in the national economy, not only for those in distress (that are the primary object of resolving insolvency procedures).

Dealing with business over-indebtedness would most certainly benefit more from streamlined contract enforcement, and this would not only positively affect the existing business, but also enhance new entries. The results for resolving insolvency also confirm that reforms must be redesigned in order to make a difference. One can observe that, in this case, level of development and level of government expenditure are significant, GDP per capita is significant for two indicators (RI time and RI recovery), and government expenditure for the third (RI cost). More developed economies (as measured by GDP pc) have higher recovery rates. They also spent less time resolving insolvencies. Governments' interest in businesses in distress is reflected in these results as well as in larger number of RI reforms (65 vs. 50). The companies facing insolvency render greater public and policy makers' attention (recent high-profile Croatian cases: Agrokor and Uljanik); it is therefore not surprising that resolving insolvency framework changes can be labeled as more successful ones, yet not due to reforms, as detected and measured by the WB. Considering all of the above-mentioned facts, the main hypothesis is rejected. General implications for further research can be given: firstly, an in-depth analysis of institutional arrangements for dealing with contract enforcement and insolvency procedures should be carried out and result in new research subject areas compared to the ones elaborated so far, and secondly, the measurement of the institutional efficiency including methodology of data collection should be reconsidered. At the policy level, the decision-makers should devote much more attention to the design phase of the reformative efforts, thus ensuring that reforms intended for improving the business environment would render the results they had been designed for.

## 5. CONCLUDING REMARKS

The study presented in this paper and its results confirm previous general conclusions of descriptive analyses that were part of the papers within the same research project in the past four years (Škalamera-Alilović, Dimitrić, 2016, Dimitrić, Škalamera-Alilović, 2016, Škalamera-Alilović, Dimitrić, 2015) conducted by the same authors. Unfortunately, we witness the era of inefficient governments, unable to support smooth functioning of the business, and reformative efforts remain nominal, whereas the content of public services to business continues to decline in quality (not quantity). The problem of over-indebtedness has been getting worse and current measures are inadequate for fostering better development results in the European Union. Comprehensive reformatting of institutions that are the essential part of the business environment are more than necessary if we want to see competitive EU business taking pivotal part in increasingly unstable, global-level economic activity.

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**APPENDIX**

*Resolving insolvency reforms and outcomes in the EU countries 2005-2016 (Authors' calculations)*

Reform year	Country	Cost change	Time change	Recovery change	Average
2011	Austria	0%	0%	-1%	0%
2010	Belgium	0%	0%	2%	1%
2005	Bulgaria	-13%	0%	-2%	-5%
2008	Bulgaria	0%	0%	-1%	0%
2011	Bulgaria	0%	0%	1%	0%
2007	Croatia	0%	0%	4%	1%
2013	Croatia	0%	0%	1%	0%
2016	Cyprus	3%	0%	2%	2%
2008	Czech Republic	0%	0%	-2%	-1%
2010	Czech Republic	-13%	51%	167%	68%
2007	Denmark	0%	63%	23%	29%
2011	Denmark	0%	9%	-2%	2%
2009	Estonia	0%	0%	0%	0%
2010	Estonia	0%	0%	-5%	-2%
2008	Finland	0%	0%	-1%	0%
2006	France	0%	0%	1%	0%
2009	France	0%	0%	0%	0%
2011	France	0%	0%	1%	0%
2008	Germany	0%	0%	-2%	-1%
2009	Germany	0%	0%	0%	0%
2012	Germany	0%	0%	45%	15%
2008	Greece	0%	0%	-1%	0%
2012	Greece	0%	0%	6%	2%
2007	Hungary	0%	0%	-3%	-1%
2010	Hungary	0%	0%	-1%	0%
2006	Italy	0%	0%	-1%	0%
2007	Italy	0%	-50%	56%	2%
2011	Italy	0%	0%	5%	2%
2013	Italy	0%	0%	-1%	0%
2006	Latvia	-225%	-173%	-58%	-152%
2008	Latvia	0%	0%	-16%	-5%
2010	Latvia	0%	0%	10%	3%
2011	Latvia	0%	0%	76%	25%
2005	Lithuania	13%	0%	2%	5%
2009	Lithuania	0%	12%	3%	5%
2010	Lithuania	0%	0%	0%	0%
2011	Lithuania	0%	0%	3%	1%
2012	Lithuania	0%	0%	0%	0%

2005	Poland	-22%	0%	-6%	-9%
2008	Poland	9%	0%	7%	5%
2009	Poland	0%	0%	0%	0%
2011	Poland	25%	0%	1%	9%
2012	Poland	0%	0%	73%	24%
2017	Poland	0%	0%	4%	1%
2007	Portugal	0%	0%	-1%	0%
2008	Portugal	0%	0%	-6%	-2%
2012	Portugal	0%	0%	5%	2%
2005	Romania	-13%	0%	154%	47%
2006	Romania	0%	0%	14%	5%
2010	Romania	0%	0%	-10%	-3%
2011	Romania	0%	0%	11%	4%
2016	Romania	5%	0%	5%	3%
2006	Slovak Republic	0%	17%	25%	14%
2012	Slovak Republic	0%	0%	-1%	0%
2011	Slovenia	0%	0%	0%	0%
2012	Slovenia	0%	0%	-3%	-1%
2014	Slovenia	0%	0%	0%	0%
2015	Slovenia	0%	60%	76%	45%
2005	Spain	-81%	0%	-7%	-29%
2010	Spain	27%	0%	4%	10%
2012	Spain	0%	0%	1%	0%
2014	Spain	0%	0%	-1%	0%
2015	Spain	0%	0%	0%	0%
2005	United Kingdom	0%	0%	-1%	0%
2010	United Kingdom	0%	0%	5%	2%

*% - percentage change of indicators in the year following the reform*

*Enforcing contracts reforms and outcomes in the EU countries 2005-2016  
 (Authors' calculations)*

Reform year	Country	Cost change	Time change	Average
2005	Austria	0%	0%	0%
2008	Austria	-42%	0%	-21%
2008	Belgium	0%	0%	0%
2007	Bulgaria	-59%	-28%	-43%
2008	Bulgaria	-7%	0%	-4%
2006	Croatia	0%	-35%	-18%
2013	Croatia	0%	0%	0%
2016	Croatia	0%	0%	0%
2016	Cyprus	0%	0%	0%
2013	Czech Republic	0%	0%	0%
2014	Czech Republic	0%	0%	0%

2015	Czech Republic	0%	0%	0%
2006	Denmark	-23%	-129%	-76%
2005	Estonia	0%	0%	0%
2006	Estonia	-8%	-83%	-46%
2013	Estonia	2%	0%	1%
2005	Finland	10%	5%	7%
2006	France	-1%	-341%	-171%
2014	Greece	0%	-22%	-11%
2015	Greece	0%	0%	0%
2017	Greece	0%	0%	0%
2017	Hungary	0%	-53%	-27%
2018	Hungary	-41%	64%	12%
2014	Ireland	0%	0%	0%
2015	Ireland	0%	0%	0%
2006	Italy	0%	13%	6%
2013	Italy	23%	2%	12%
2016	Italy	0%	0%	0%
2016	Latvia	0%	0%	0%
2005	Lithuania	35%	0%	18%
2014	Lithuania	0%	0%	0%
2015	Lithuania	0%	0%	0%
2007	Poland	0%	15%	8%
2012	Poland	-58%	17%	-20%
2005	Portugal	0%	0%	0%
2007	Portugal	-22%	-17%	-19%
2008	Portugal	20%	0%	10%
2009	Portugal	8%	5%	7%
2014	Portugal	-6%	0%	-3%
2015	Portugal	0%	0%	0%
2008	Romania	0%	5%	2%
2013	Romania	0%	0%	0%
2016	Romania	0%	0%	0%
2005	Slovak Republic	0%	0%	0%
2006	Slovak Republic	-5%	0%	-2%
2012	Slovak Republic	0%	4%	2%
2018	Slovak Republic	47%	-29%	9%
2017	Spain	7%	0%	4%
2018	Spain	66%	59%	62%
2010	United Kingdom	0%	0%	0%

*% - percentage change of indicators in the year following the reform*

## EXAMINING THE COASTAL AREAS IN TERMS OF “GENIUS LOCI” AND URBAN IDENTITY– ISTANBUL AND LISBON

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### ABSTRACT

*The social, economic, political and technological developments experienced in the historical process appear as the main factors that shape the relationship of human with the environment. Cities are the places where these developments lead to their formation and continue to take place afterwards. And it is possible to say the cities are kind of “stage” which are perceived and formed by the semantic world of human. At this point, it is important to examine the physical and social dimensions of urban space, for understanding the relationship between the dynamics that reveal the city and analyzing the effects of the elements that shape the identity of cities. Understanding the factors that reveal the identity of the city and the interaction process between these factors becomes important in order to examine the contributions of «memory» and the sense of belonging phenomena which are important factors in defining the «space» as «place» which is very necessary in defining the concept of «spirit of the place» (genius loci). In order to carry out such research on urban space, analyzing public spaces has contributed to the inclusion. Due to the diversity of both physical and social dynamics, coastal areas have been identified as the most suitable base for this study under the title of public spaces. The two coastal cities of Istanbul and Lisbon were selected as study areas.*

**Keywords:** *Collective memory, culture, genius loci, public space, urban coast, urban identity, waterfronts*

### 1. INTRODUCTION

Purpose of this study is investigating whether the urban or rural character of coastal areas and/or their defined functions and uses can respond to the needs identified in urban life design and also is the examination the effects of public spaces on the socio-cultural structure of the city and therefore on the spirit of the place (genius loci), in the frame of formation of the lifestyle of urban users. The study is based on trying to answer these two questions:

- How effective are urban waterfronts as public spaces in the emergence and maintenance of urban identity?
- In the process of socio-cultural interaction of the city, which functions and characters to identify these areas is more meaningful and useful?

It is important to start from some presuppositions for answering these questions. Hereinbelow there are some assumptions which are the study picks up on:

- It is important that social and physical space exhibit a parallel structure in the emergence of urban identity,
- Cultural structure and urban identity need a physical environment that can adapt to its own character in order to reveal itself or to survive.
- In the process in question regarding the identity of cities which have a common living space, public spaces are seen as the most important places

- It is stated that the coastal areas, which can function in various forms as public spaces within the urban space, are one of the most suitable scenes for this interaction process,
- The ability to respond to the city's character in the most efficient and healthful way with the user,
- However, it is important to design coastal areas where everyone in the city has equal access rights, that this space can be defined as a "place, and that it is really important to speak about the identity of that place.

Following these assumptions, hereinbelow is the general content of the study:

Public spaces; where the equal access and utilization of urban users is legally defined. In this sense, it is possible to say that public spaces are one of the most important physical spaces in order to sustain the city life in a collective way. This opportunity, which is provided by the public spaces for the inhabitants and visitors of the city, draws attention to the importance of revealing the urban identity of these areas.

As a type of public space, waterfronts and coastal areas begin to become very important scenes in order to examine the traces of socio-cultural interaction in urban life. Due to these reasons, in this study, Istanbul and Lisbon, which are two coastal cities, have been examined in order to compare the level of relations with the water element and their historical and current situation comparatively.

## **2. CULTURE, URBAN IDENTITY, MEMORY AND COASTAL AREAS**

In order to examine the coastal character of a city and to determine whether it has been going on since its formation, it is necessary to emphasize the identity and other elements that make up this identity. In this part of the study, some main concepts such as «culture», «memory», «sense of belonging», «space», «place» and «spirit of the place» which provide the formation and sustainability of the coastal characteristics of a city have been taken into consideration

### **2.1. Culture, Cultural Memory and Formation of Urban Identity**

«Culture» is a concept which exists by means of humanbeing. Because, social and/or physical environments which have already existed or not been designed yet are interpreted in semantic world of human, and consequently, make a two-way interaction. Finally, culture appears as an «outcome» of this interaction process. The fact that culture, which is a binding structure, emerges from a social and spatial interaction means that it can sustain itself as long as this interaction continues. It is also necessary to mention the phenomenon of «memory» in the sense that the culture, which is the product of a symbolic meaning world formed by common experiences, expectations and action spaces, can continue to exist. Because memory is gaining importance in the process of repeating a work, movement or habit. With regard to the memory phenomenon, it will not be sufficient to explain only the «recall» action. Memory can, moreover, be defined as an element of the relationship established between human and space. The process of interpersonal interaction, which takes place in a physical and/or social space, leads to the fact that the individual, who discovers his/her common characteristics with the others, is organized into groups which are growing in a certain way and conceives the social structure. At this point, «cultural memory» emerges in the process of establishing the relationship with the past, the formation of «tradition» and the transfer of meaning defined by imagination elements. Considering that cultural memory as a phenomenon which is based on tradition and communication but not determined by these concepts, is a part of the relation with human and space "as a reality that shapes 'I' or 'we' with its own opportunities and limits (Gulbetekin, 2017), it is possible to say that cultural memory takes an important role in the formation of an identity which belongs to urban space. «Identity» can be defined as a tool that gains importance in the process of defining creature or being and existence and as an

midproduct. This is because; is an factor that separates a being, such as a person or a place, from the environment where it exists in. So much so that, identity can often be perceived as a whole in the person, in the space and/or in «we». However, in addition to this sense of totality, identity can also define an insulating area that is characterized by differences arising from diversity and variation. This distinguishing element shows the difference between us and the other; at the same time, it combines all the properties that are owned and not, as elements of a whole. It is possible to say that the distribution what seems like a segregation, in fact, indicates a kind of diversification process. This diversity can be perceived physically as well as a phenomenon that shows its existence in the social space. When considered in this way, it is possible to read the dynamics of the concepts of urban and urbanity based on physical, cultural, psychological, social, economic and political differences. However as a result of this interaction to find a physical space for itself to be sustained, it is possible to mention the sustainability of the tradition and the identity that emerged. At this point, the concept of «the spirit of the place» which is closely related to the phenomenon of «space» should also be mentioned. The concept of «the spirit of the place», which is expressed by Palasmaa (1996) as a way of experiencing the world by means of features such as texture, color, sound and odor, emerges as a trace of the place in question, and as a result which the images created by it in our memory. The experience and the cultural elements that occur in the physical space, go through the bringing-together process of the memory and create a sense of belonging to the place in individuals. After this process, the «place» is perceived, defined and remembered as a «place». In addition, the continuation of this phenomenon, which is defined by this expression, which dates back to the ancient Roman period, is of great importance in terms of coastal cities and coastal identity. The sustainability of this phenomenon in question has a great importance in terms of coastal cities and coastal identity belonged to this kind of cities.

## **2.2. Coastal City and Culture in Coastal Cities**

Coast can be defined as the areas formed by the points where the land intersect with water masses. It is possible to say that these areas, which have high diversity and different soil typology, make important contributions to the identity of their places. Coasts can also get classified according to their physiological structures, typology of water bodies, formation processes, chemical structure and contents. Settlements are based on the needs of the people and their relationship with the environment during the historical process. It is seen that the first settlements established in the history were located on the shore of the nearest natural water source. This is because water is a multifunctional and facilitating element in the elimination of these requirements. As the history of humanity progresses, the developments in the knowledge and technical accumulation have affected the production forms; this has led to the emergence of various types of settlement typologies. For example; As the agricultural production was machined, the space requirement changed. The process of industrialization has contributed to the transport of rural life to urban space. The cities formed are also known or named by the characteristics of their physical and social environment. The coastal city, just like the first settlements, is located on the edge of a natural water element; however, it can be defined as multilayered settlements that reveal a great accumulation difference in terms of information technologies and spatial dynamics. Because the phenomenon of culture is a structure that exists and maintains itself together with humanbeings, wherever humans are present, culture is a result of the interaction of human with the environment. When the place where human beings exist or create is a part of the urban area, the processes of perception, interpretation and use of environment change accordingly, and a city culture begins to form with the concepts of existence/living and urbanity in the city. The cultural structure developed by the inhabitants of the settlement located by the water mass reveals a clear difference than the one in the other type of the settlements which are located inlands. This difference refers to «coastal culture».

In order to explain how the coastal culture is formed, it is necessary to reveal the dynamics of the relationship between the shore and human. In this context, the role of the coast in the formation of the first human settlements should be emphasized. The natural water resource is both a component of landscape and an advantage which facilitates the transportation, as well as being a natural resource. These are the factors that lead to the establishment of the first settlements on the shore of the water mass and thus strengthen the interaction of human with the shore. In the development of urban space, it is possible to say that waterfronts are basic elements which are shaping the spatial organization by acting like transfer areas and slots which provides a passage between spaces, and also by taking a role as an urban focal area. The coastal cities that emerged in the historical process in which this interaction has diversified and developed, are seen as the places where the water element contributes to the urban life with many more functions. In the following sections of the study, the structure of the coastal culture in the cities of Istanbul and Lisbon, which were selected as two examples of the coastal cities, were examined.

### **3. TWO COASTAL CITIES: ISTANBUL and LISBON**

In the urban space, which exhibits a multi-layered structure in socio-economic and cultural terms, some of the examples discussed in order to examine how the interaction between the layers and the layers come together are the part of this study. In this section, two coastal cities, Istanbul and Lisbon, have been examined in order to investigate how coastal culture emerged and maintained in urban areas.

#### **3.1. Istanbul as a Coastal City**

Istanbul takes place in Marmara Region which is in the northwest of Turkey. By its population (pop: 15,029,231 persons; year: 2011), it is the biggest city and also an economic and cultural centre of the country. It is surrounded by the Sea of Marmara and Black Sea. It has also Bosphorus, the river which slips the city through and Golden Horn which carries the connection with water to the inner parts of the city center where the historical downtown was established. By the location, it has a geo-political importance, too. It includes lands in both the continents of Asia and Europe. In this point, Bosphorus, the only waterway passage through the Black Sea to the Mediterranean Sea, gains prominence on domestic and international transportation. Its prominence on transportation helps it become a transfer point in trade since its foundation. The history of Istanbul dates back to 8500 years with the Neolithic settlement, which was unearthed by the excavations at Yenikapi Theodosius Harbor. In this process, a new era was opened for the city's cultural, artistic, geological change and urban archeology. The emergence of the city as an ancient Greek city-state, dates back to when Byzas the King decided to emigrate from Megara. The city called «Byzantion» by the name of Byzas, is located in the Historical Peninsula, which is the historical and administrative city center of Istanbul. This region continues to maintain its administrative position in later periods. In 330, by Emperor Constantine, it had been declared as the new capital, upon the decision to move the capital of the Roman Empire to a safer place in 324. In 395, during the period of Theodicius, the Roman Empire was divided into two parts as eastern and western. Thus, Istanbul was the capital of the Eastern Roman State. In this period, the city which was under the sway of Byzantine Empire and was called «Constantinople» because of the name of Constantine the Emperor, was taken back from the Latins after the Latin invasion in 1204-1261 and continued to be a Byzantine city again for two centuries more. The conquest of the Ottoman Turks in 1453, began the process of Turkification and Islamization of the city. In this period, it continued to be called "Constantiniyye" which means «City of Constantine» in oriental languages. In 1920, after the opening of the Grand National Assembly of Turkey, which was one of the first steps of the new Turkish state to be established in Ankara, and the proclamation of the Republic in 1923, the

identity of being the capital, which has been going on for centuries, has come to an end. It is possible to encounter a multi-layered physical and cultural structure when the urban development process of Istanbul, which is shortly political and administrative history, is examined. This study deals with this development process by focusing specifically on the coastal areas of the city. Since its foundation, the city of Istanbul has been one of the leading coastal cities in the world. This strong interaction with the sea, both in terms of transportation and trade, as well as in technical and agricultural production, has brought it to the forefront as an important coastal city. In particular, the fishing villages built on the shores of the Bosphorus have evolved into larger settlements by developing over time and creating its own architectural texture with its own local patterns. Nowadays, it has become one of the most important focal points of the city. These coastal districts, which are considered as one of the areas with the highest rent in the city, recently, have been seen as an important area of study for the socio-economic and socio-cultural structures of the multi-layered structure of the inhabitants of the city. And spatial dynamics in both physical and social terms have been intended for being studied in these areas. In this respects, it is important to discuss about the applications and the qualifications in these terms. Transportation is one of these topics which are necessary to examine the physical structure of the city. Istanbul has very important potentials for waterway transportation. Both the north and south coasts of the sea, the Bosphorus passing through the city on the north-south axis, and the presence of the Golden Horn which extends the affects of Marmara coast to the inner part of the old city center refer that potential. Considering both the environmental and economic benefits of maritime transport and the contribution of tourism to the city economy; the use of these potentials in urban space organization and the designs and/or decisions in order to use them more efficiently gain importance. While investigating the formation process of the coastal culture of the city, it is necessary to understand the geographical location and other natural features as well as the relation of urban space with water. In this respect, it is important to consider the applications on the surface of water. In the period until the middle of the 19<sup>th</sup> century, sea access, which was maintained in an insecure and uncoordinated manner by boats, started to become inadequate due to the the summer resort culture which had been in the making recently and widespread use of the secondary houses within the context of changes in consumption habits and socio-economic structure of the inhabitants of the city. This seasonal secondary housing culture, which began to appear on the Galata side of the Golden Hornn and on the shores of the Bosphorus villages in particular, increased the demand for transportation between these coasts and accelerated the process of acquiring a corporate identity on the lines to be established on these routes. The history of water transport in the city experienced its first break in 1827 with the first steamer operated, which was bought from England. Maritime transportation services, which had been institutionalized during the period until the mid-1940s, were continued by three different companies responsible for the Bosphorus, Gelden Horn and Sea of Marmara routes. With the expropriation in 1945, these three institutions gathered under a single roof and became one company named «City Lines». The City Lines, which worked under the administration of Turkish Maritime Authority and Turkey Naval Operations, connected to the Istanbul Metropolitan Municipality in 2005, and was privatized in 2011. Nowadays, there are many lines and touristic destinations such as urban lines, Bosphorus lines, long and short Bosphorus Tours and the Princes'Islands lines, created by the City Lines with vehicles such as fast passenger ferries, boats, water buses and ferryboats that are used in urban and inter-city transportation. When referring to the city's relationship with water, it is insufficient to describe the functional structure based on the applications on the surface of the water, such as transport only. At this point, it is necessary to mention the piers that take an important role in urban cultural interaction and formation of coastal culture. Piers are important factors at the spatial development of the shores of Istanbul.



Considering the spatial development process of the city of where waterfronts witnesses the private usage by secondary houses and mansions named «yali», it is possible to mention that piers take a role as a public space which lets people meet each other and have an interaction in a socio-cultural way which make a significant contribution as a public space. In cities where Turkish-Islamic culture is effective, public spaces are not in the form of large openings in the city. Since the courtyards of religious buildings are often used as a gathering space, a different spatial organization was involved in such cities. However, in a socio-culturally multi-layered coastal city such as Istanbul, the role of coastal areas in public life differs and create a multifaceted effect.

### 3.1.1. *The Barbaros Square, Besiktas*

Looking at the spatial development process of Besiktas, where is located on the southwest coast of the Bosphorus, it is possible to understand the role of piers in spatial organization and socio-cultural interaction. In «Koyici» where the trade and residential-functional urban core of Besiktas, the building of pier<sup>(1)</sup> on the shore, the location of the other structures in relation to each other, the main axis which is in interaction with the religious structure and follows a direction to the pier, give some clues about the spatial organization in such a coastal city. Besiktas, where is one of the most important waterfront after the harbor of Karakoy, where the maritime activities are carried out with the Genoese and the Venetians, is one of the oldest settlements in Istanbul. It is possible to see many historical structures taking places in this settlement which includes the parts has emerged as fishing villages along the west coast of Bosphorus. These include palace and its other buildings, religious buildings, gardens and pier structures. In this coastal area where the boats are located, the structures for fishing activities, and the piers constructed by simple construction techniques with wooden frameworks have left their place to different functional, mixed-use buildings and pier structure.

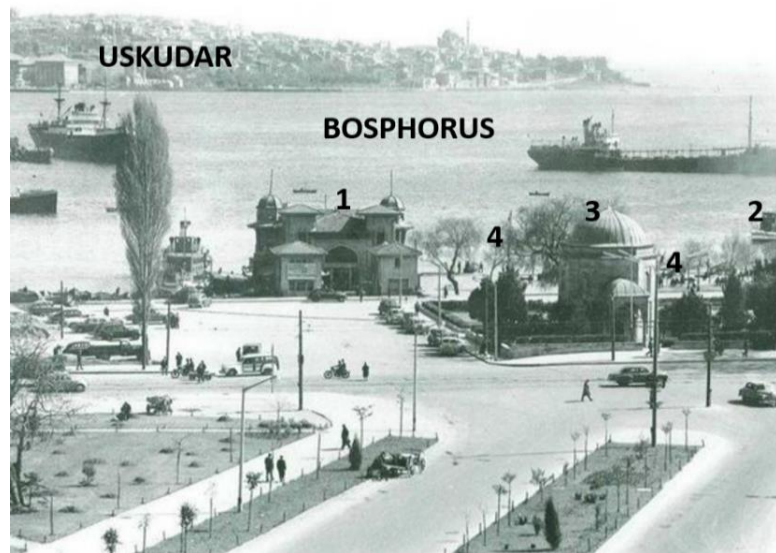


Figure 1: *The pier and its environment in Besiktas, after 1950's*  
(<https://tr.pinterest.com/pin/422564377515985160/?lp=true>)

Recently, while the port continues to exist, the natural relationship with water is interrupted by fill areas. As parallel to the coast, these fill areas are followed by a pedestrian path with urban furniture, refreshments facilities such as cafés, bars and restaurants. However, this pedestrian axis is not continuous since it is interrupted by the buildings in private ownership such as hotels, restaurants, private ports and the buildings that make up the historical pattern of architecture.



Figure 2: Barbaros Square in Besiktas,  
(<https://www.milligazete.com.tr/haber/1460774/besiktas-barbaros-meydaninda-yilbasi-kutlamasi-yapilmayacak>)

On the south side of the pier, there is a resting area and a square dedicated to recreational activities. The square<sup>(4)</sup> where have the statue<sup>(2)</sup> and tomb<sup>(3)</sup> of Barbaros Hayrettin Pasha, who served in the navy as admiral in chief during the reign of Sultan Suleiman the Magnificent, is located between the Naval Museum<sup>(5)</sup> and the pier. Due to these reasons Barbaros Square is very important in terms of maintaining the identity of coastal city.

### 3.2. Lisbon as a Coastal City

Lisbon where is surrounded by Caldas da Rainha in the north, by the Atlantic Ocean in the west and by the Tejo River and Santarém in the east and south, is the capital and the biggest city of Portugal. The Lisbon metropolitan area has a total surface area of 38.63 mi<sup>2</sup> and a population of two million 760 thousand 723 people. In the city center of Lisbon, the 11<sup>th</sup> most crowded city in the European Union, the population is 564 thousand 657 people. The city, which was named as «Ulysippo» or «Olisippo» by the Phoenicians, which dates back to 1200's BC, which has two oldest monuments which are the Lisbon Cathedral (Sé de Lisboa) and the Castle of San John (Castelo do São João), is used as commercial port since its foundation. Just like Istanbul, the city surrounded by seas and rivers; such as the Atlantic Ocean in the west, the River Tagus (Rio do Tejo) in the south and the east and the sea where this river was poured through the Palha Sea (Mar da Palha), the city had the opportunity to interact strongly with water. Lisbon, which has been continuing to have this strong relationship with water since its foundation and still maintains mass its identity as a coastal city, has gained a great importance especially in the Roman period and has started to grow. In the 8<sup>th</sup> century AD, the city had been dominated by the Moorish, a North African civilization, for 450 years. Today, in Alfama, where is the historical city center, there can be found the presence of architectural texture with traces of Islamic culture. Portugal also had colonies in the countries of Africa and South America, especially after the Geographical Explorations that started in the 15th century. It is also possible to talk about a socio-cultural effect which can be seen as an extension of this political-cultural influence in the history of the city which emerged as a result of migrations from the cities such as Brazil, Angola and Cape Verde (Green Cape Islands).

#### 3.2.1. Commerce Square or Square of Palace (Praça do Comércio, Terreiro do Paço<sup>(1)</sup>), Baixa

One of the important events taking place in the social memory of the city is the Great Lisbon Earthquake in 1755. After the earthquake which 60,000-100,000 people died, the palace on the shore of the city was destroyed by the earthquake caused by the tsunami. Praça do Comércio

bir (Commercial Square), where the palace was located and of which have a statue<sup>(3)</sup> of Jose I the King in the middle, and surrounded by historical buildings<sup>(2)</sup> used as socia-cultural centers such as museums, exhibition and conference halls, in the north, east and west sides, is one of the city's main squares. This square, one of the main focus of maritime transportation, can be mentioned that maintains the function of this part of the city as a commercial port in the history by the help of interaction between waterfront and River Tagus. This square is not a square for only transportation purposes. At the same time, it is a memory space serving for social/collective memory and is both a touristic and a recreative urban focus.



Figure 3: Praça do Comércio (Terreiro do Paço) – 1939,  
(<https://theportandthecity.wordpress.com/2016/11/21/evolution-of-the-waterfront-and-the-port-of-lisbon-from-1887-to-1974/fotografia-aerea-da-praca-do-comercio-e-da-baixa-durante-o-funeral-de-dom-manuel-ii-rei-de-portugal/>)

In other respects, the center of Baixa, which is located in the north of the palace, was completely destroyed after the earthquake. The area rebuilt in the Baixa-Pombalina style, which is known by the name of the marquis of that period and has a gridal road network, continues to exist as a historical and touristic city center, today. In addition, the Rua Augusta<sup>(4)</sup> road, which passes through Baixa on the north-south axis starting from the Praça do Comércio, and is a pedestrian way, is an important factor that carries the connection of the city with the shore to the inner parts. This feature of the city, which has preserved its identity as a coastal city from past to present, has not always progressed on the same line. Looking at the recent history of the coastal areas in the city, there has been a decrease in port activities due to industrialization in the 1920's and unplanned coastal settlements dating back to the 1940's and the technological and logistical developments in the transportation and Oil Shock in the 1970's. Moreover, the loss of trade traffic from the colonial countries that declared their independence, the EU harmonization process, and the political and economic instability after the Carnation Revolution (Revolução dos Cravos) in 1974 have been seen as factors that have played a negative role in the formation of urban coastal areas (Sousa and Mesquita, 2000). The 1990's were the periods when the abandoned industrial areas on the shore in Lisbon were transformed into waste places and shanty areas. In later periods, these areas were included in a large-scale urban renewal and gentrification process.

### 3.2.2. *Urban Renewal in Oriente Waterfront*

As the coastal areas in the eastern part of the city which named «Oriente» became idle after the decentralization of the industry, a large urban transformation process was initiated in this region. Within the scope of the project, it is aimed to implement the plans to redefine the city's identity and to recall the urban heritage. This project has two sub-projects. One of them is the part of the preparation process of the Expo Fair held in Lisbon in 1998 when is the 500<sup>th</sup> Anniversary of the Geographical Discoveries. The theme of the plan which aims to revive the urban life and develop a new life style by creating an alternative city center, «The Oceans, a Heritage for the Future», has enabled the redefinition of the coastal urban identity of the city through the cases coast and water. In the east of the city, the area was designed as a permanent area and covers 14 kilometers from the northeast of the city on the east-west axis of the Tagus River passing through the south of the city and into the Atlantic Ocean in the west.



*Figure 3: Urban Renewal in Oriente, Lisbon*

*(Website of Expo 98 AIVP, <http://www.aivp.org/en/2015/04/26/lisbon-a-new-relationship-with-the-river/>)*

The region, which consists of industrial areas based on maritime and shipbuilding, before the renewal, is transformed into a new and living city center for fair activities, service sector and both recreation and housing functions. And it is possible to mention that is an important and succesful project, which includes oceanarium, naval center, the tower on the shore of Palha Sea and the second bridge which are called by the name of Vasco da Gama, the Portuguese sailor, explorer and the first European to reach India by sea, carries out the city's strong relationship with the water to the urban space.

#### 4. CONSLUSION

Considering that the physical and social environments of each city emerged within the scope of the possibilities and the constraints of the it and the adoption of its own internal dynamics, some results obtained from the study are as follows:

- Culture and memory which need people and spaces as physically and socially to ensure its own sustainability, are phenomenons that direct individuals to the sense of belonging to each other.
- The coastal areas have an effective role since the establishment of settlements.
- Urban coastal areas, although they have been with the different types of property (public, private) in the historical process, they now have a very important place in the public city life.
- Coastal areas offer a multi-layered environment, both physically and socially, which is an important condition for cultural interaction.
- It is possible to say that the coastal areas in the cities assume a main role on which the bridge between the past and the future of the city is located.
- Although that Istanbul and Lisbon are seperated in terms of the methods to sustain the identities of coastal city, they both are very important coastal cities since their foundations. And this fact must keep on being protected and sustainable by the urban design and renewal projects.
- Lisbon have had a succesful examples for renewal in coastal area which is very effective to sustain the identity of coastal city by protecting the relation with water and the history of city.

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## INTELLECTUAL PROPERTY LAW AND COMPETITION LAW

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### **ABSTRACT**

*The intellectual property law is created to protect inventions of human mind, to give incentives for investment and innovation, to guarantee returns on invested capital, and also to identify goods reputation and quality. The main functions of competition are promoting economic efficiency, strengthening competition and ensuring the efficient allocation of economic resources. Does this mean that there is a collision between intellectual property law and competition law? Or are they equal and necessary elements of a modern, dynamic legal and economic system? The main aim of the paper is to show and discuss the arguments for and against the protection of intellectual property from the point of view of the contemporary economics.*

**Keywords:** *intellectual property, intellectual property law, competition law*

### **1. INTRODUCTION**

In last decades the theory of economics significantly contributed to the shape of judicial thinking and political decisions worldwide. Economic approach to law influenced the development of modern regulatory systems, especially the competition law and the intellectual property law. In the XIX century economics determined the shape of competition law, where the main elements of neoclassical theory provided the background to the legislative reaction against trusts, combines, and other collusion that influenced the existence and proper functioning of free market. Later on economics principles also influenced the creation of the intellectual property law. The role of innovations in development was strengthened by granting time-limited or unlimited monopoly power over inventions and artistic works to their creators. Posner noticed this expansion of economics on “the central institution of the legal system, including the common law doctrines of negligence, contract, and property; the theory and practice of punishment, civil, criminal and administrative procedure, the theory legislation and rulemaking and judicial administration” [Posner, 1975, p.759]. At first sight granting monopoly by intellectual property law is contrary to the idea of free markets represented by competition law. Is there an inherent conflict between these regulations? The paper tries to show both divergence and convergence between these two regulations.

### **2. INTELLECTUAL PROPERTY AND ITS ECONOMIC FUNCTIONS**

Intellectual property (IP) law deals with the rules for securing and enforcing legal rights to inventions and artistic works. Just as the property law protects ownership of tangible property, so intellectual property rights protect the exclusive ownership and control of intangible goods. At the beginning the protection of intellectual property was created as reward for particular inventor and mainly focused of individual rights. Later on this explanation was changing and spreading, and the role of promoting innovations was more and more strongly emphasized. Nowadays there is a balance between individual rights of right-owners and general interests of society. Modern intellectual property law is created and exercised to give an incentive for inventors to develop creative works that benefit society, by ensuring their profit from their works without fear of misappropriation by others. Main functions of modern IP law are:

- enhancing innovation through the various kind of investment,
- rewarding innovators for their creative efforts,

- protecting holders of rights from unfair competition by giving them exclusive rights over their creations,
- allowing to control the use of owners creation without fear of loss,
- promoting more competitive environment through development of new product or economic processes,
- promoting creativity and dissemination and application of its result,
- encouraging fair trade which contribute to economic and social development,
- promoting disclosure of information [Gallini, 2002] by allowing usage of information included in patent application and claims by others conducting research (not for commercial manufacturing or sale),
- operating as barriers to entry by third parties,
- spreading economic welfare.

The legal exclusivity granted by intellectual property law reduces transaction costs, fosters dissemination of knowledge and stimulates investment in valuable ideas. Intellectual property is perceived as the foundation of modern information economy [Gallini and Scotchmer, 2001], and as engine for economic growth in advanced economies [Gilbert, 1995].

### **3. COMPETITION LAW AND ITS ECONOMIC FUNCTIONS**

Competition law is created to ensure and promote fair competition between businesses. This law creates and supervise the market conditions by fighting with monopolies and unfair business practices. It promotes and maintains market competition within the territorial boundaries of a country and therefore ensures the best outcome for consumers. It based on the neoclassical believes that free trade benefits the economy, businesses, and consumers alike, and therefore it forbids several types of restraint of trade and monopolization. It focuses on four main areas: agreements among competitors, contractual arrangements between sellers and buyers, the pursuit or maintenance of monopoly power, and mergers [Hilderbrand, 2016]. Competition law is known in American terminology as antitrust laws. Economic functions of competition law are:

- promotion of allocative efficiency by regulating anti-competitive practices,
- minimizing the negative consequences of monopolies,
- protecting small market participants,
- ensuring continued innovations and therefore economic growth and welfare.

There is considerable dispute about the function of competition law. In the European Union countries competition was perceived by many as protecting competitors, especially small and medium enterprises. But in the last decade it is seen that enforcement agency sees it as protecting consumer welfare. Also in the US enforcement agencies intend to protect consumer. Most economies would prefer to protect total welfare [Salop, 2010].

### **4. MUTUAL DEPENDENCIES**

In fact, in most situations, the exercise of intellectual property rights is not likely to interfere with competition law. Intellectual property right protects rights of individuals while the competition law protects markets by enhancing competition. It means that it protects competition, not competitors. Additionally competition law focuses on short-run results (short-run welfare losses created by monopoly) while intellectual property law deals mainly with long run (its influence on innovation and economic welfare has to be considered in long periods). It is worth to add that, according to some opinions, antitrust law was neither invented by technicians of commercial law nor by economists themselves.



It was desired by politicians and by scholars as a pillar of democratic system, who saw it as an answer to a problem for democracy [Amato, 1997]. In economic literature there are some opposing views on the relationship between the competition law and the intellectual property law. Some scholars argue that there is a tension or conflict between them. They explain that competition law is created to eliminate monopolies and encourage competition while the intellectual property law gives the owner the limited monopoly which is considered as an anti-competitive trade practice. The perception of such conflict is even bolstered by the historical emphasis of intellectual property rights which was based on policy of reward to the creator. This protection was the price paid by society members to the investor for allowing to make his/her work public. This payment allowed other people to have an access to invention which otherwise had remained secret [Hollyoak and Torremans, 2011]. With time, the necessity to promote creativity and innovation through the creation of material incentives became more and more important. Intellectual property became less focused on fulfilling needs of individuals and more and more society-oriented. During that time some scholars perceived intellectual property law as a form of competition policy [Gosh, 2004, p. 795–802]. It was a misunderstanding. Later on scholars has gradually increased support for the theory that protection of intellectual property in not contrary to the free market [Torremans, 2011]. Nowadays scientists emphasize the common aims of both regulatory systems and try to treat them as complementary instruments to promote and enhance innovations and therefore welfare. Intellectual property law and competition law are consistent in terms of basic principles. In general, the main goal of both systems is to promote economic efficiency and consumer welfare. Therefore both regulatory systems have to promote and create economic and legal environment which stimulate innovative activity both by enhancing competition on the market and promising returns on invested capital [Katz and Shelansky, 2005]. Intellectual property law and competition law are also complementary on institutional and political level [Ganslandt, 2007 p.6], but only in countries with high level of income. Ganslandt indicates strong and positive relationship between income, antitrust policy and IP protection at the aggregated level in these countries. The problems appear in countries with lower-average income per capita which have usually slightly more effective competition policy then intellectual property protection. Intellectual property law and competition law are complementary means of promoting innovations, technical progress and economic growth to the benefit of consumers and of the whole economy. They focus on reaching these same aims but by using different instruments: the exclusive legal right to the exploitation of an innovation for a limited period of time (in case of the intellectual property law) and removing of impediments to the efficient functioning of market (competition policy). To obtain the balance between them intellectual property should be regarded as comparable to any other property and the possession of intellectual property does not necessarily confer market power upon its owner [Vats, 2011].

## 5. CONSLUSIONS

In modern societies the intellectual property law and the competition law have got complementary goals which focus on economic welfare of consumer and whole society. Intellectual property law promotes innovations which in turn promotes competition in the market. Although both regulatory systems share same goals their methods for achieving them differ completely and sometimes have potential to conflict. Further research on this relationship should involve the deeper insight into the different approach on intellectual property law and competition law in the European Union and the United States law.

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## INTEREST IN IPO NON-FINANCIAL FACTORS ON THE PART OF INVESTMENT PROFESSIONALS

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### **ABSTRACT**

*Purpose of the article is taken from the side of the global trend in the IPO and is directed at increasing attention to its non-financial factors. However, there is no advanced analysis how far these factors are influencing key investor decisions. Non-financial factors have a significant and irreplaceable role in the deepening of force against the competition. At present, these factors gain much more importance across all industrial sectors than they did in the past. Companies that develop their skills in non-financial areas are more attractive and competitive for investors than companies that do not sufficiently develop this area or are not willing to use this type of reporting. Perfect analysis of non-financial factors and their correct implementation can be appropriate step to the next successful phase of building company's financial future. The survey was conducted through a structured interview and questionnaires of 50 institutional investors, including portfolio managers, stock analysts and directors and 50 companies in Poland during the period of October 2016 - August 2017. Scientific aim of this article was therefore aimed at identifying non-financial factors and demonstrating their impact on the success of the IPO. The aim of the research was to provide information on the most common factors that influence investor decision-making. The research provided information on the most common factors that influence investor decision making when buying shares and determinate which criteria the investors give more weight. The first part of the article was determined by non-financial factors, which were selected by the investors themselves as the most important. The second part presented what kind of factors the investors give more weight in their decisions and why and is compared with the companies' opinions. The key non-financial factors determinate successful operation and will make flexible, efficient and effective management. The company should establish the most appropriate management methods based on its corporate culture, size and business complexity with respect to non-financial key factors that influence investor decision-making.*

**Keywords:** *decision making, Initial Public Offering, investors, non-financial factors*

### **1. INTRODUCTION**

The goal of this article is to assess non-financial factors in the company management mechanisms at a time when they transform from a non-public sphere into a public sphere through IPO from companies and investors point of view. Investors are increasingly focusing on a combination of financial and non-financial factors in their decision-making. In non-financial factors usually dominate factors of credibility in management, especially their experience. This article focuses on factors that influence investor decision-making and their characteristics which, according to the author, are closely related to and are fully supported by factors that are superior to them. IPO requires a disciplined focus on the most influential key indicators. Creating systems through which employees across the company can reliably grasp IPO issues and understand its characteristics is an essential criterion for a successful IPO (Martin, 2010). Corporate Governance does not have a global form or standard. The form of Corporate Governance is shaped by many different influences and is country-specific. Therefore, for the purposes of this article, the Polish market was defined as a reference point in order to eliminate the impact of these differences on the final outcome of the research.

The research is based on the identification of the potential impact of changes in these company mechanisms and the result is compared with the investors side and with the side of selected companies, which had realized IPO.

## 2. IMPORTANCE COMPARISON OF THE NON-FINANCIAL FACTORS FROM THE INVESTORS POINT OF VIEW

There were specified four key non-financial key factors linked to the decision of stock market entering, to which were assigned the key characteristics that contribute their 100% fulfilment. Both sides, the company and the investors' side expressed their points of views:

- 50 Polish experts (institutional investors, portfolio managers, stock analysts) gave weight to individual characteristics as the percentage share representing the degree of importance, which determines the fulfilment of the proposed 4 non-financial factors.
- 50 Polish companies that entered the public market gave their percentage of weight to individual characteristics according to their experience.

### 2.1. Corporate Governance

Corporate Governance issues become increasingly important to the investors. The concept of Corporate Governance includes the relationship between management, board, shareholders and other entities, as well as the way in which the objectives of the company are achieved, the structuring of their strategy and the extent to which its activities are supervised (Stout, Lynn, 2012). Examining the impact of non-financial factors related to IPO and their influence on Corporate Governance is particularly important in terms of the relationship between the company and the shareholders. With a growing range of global investments, companies need to focus on building long-term relationships with shareholders, and these relationships should be based on mutual trust and regular communication. During IPO preparation, it is necessary for the company to firmly establish a framework of non-financial factors that can influence primary issues and encourage investor interest. When this framework is implemented and Corporate Governance practices are focused on factors such as Brand strength and market position, Trust in management, Quality of the strategy and Setting up IPO thinking, the company increases its value and credibility relations with investors and the general public.

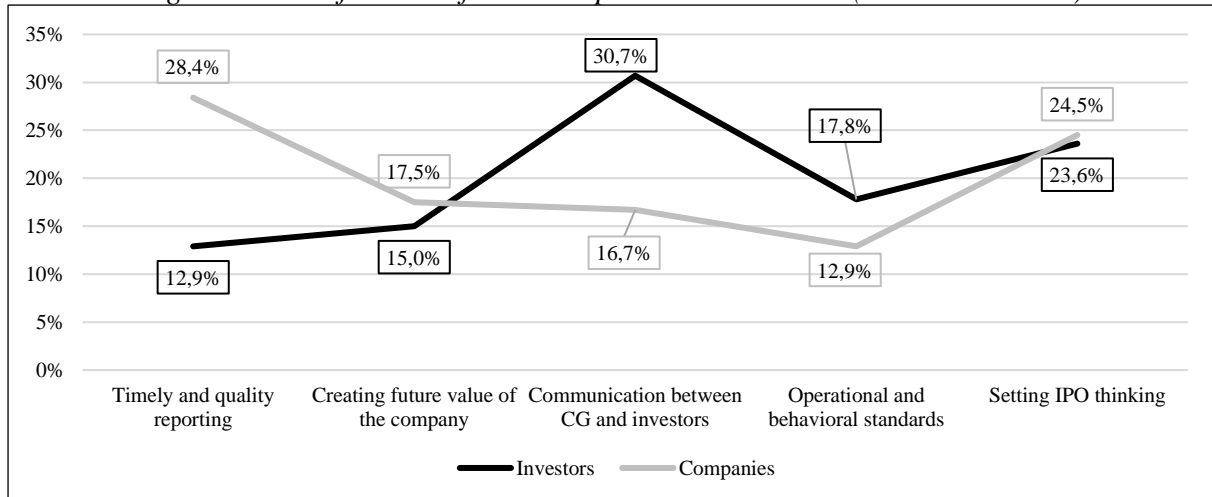
Table 1 and Figure 1 indicate the non-financial key factor Corporate Governance, which has been assigned by the characteristics that contribute its 100% fulfilment.

*Table 1: Non-financial factor Corporate Governance (own elaboration)*

<b>Corporate Governance</b>	<b>Investors</b>	<b>Companies</b>
High quality reporting	12,90%	28,40%
Creating the future value of the company	15,00%	17,50%
Communication between CG and investors	30,70%	16,70%
Operating and behavioural standards	17,80%	12,90%
Setting up IPO thinking	23,60%	24,50%

*Figure following on the next page*

Figure 1: Non-financial factor Corporate Governance (own elaboration)



Companies - the highest weight according to the Corporate Governance has timely and high-quality reporting (28.4%), because only the one who has the right information at the right time can be a step ahead of its competitors, and fulfilling this factor gives companies a solid base for their further decisions. Following, setting up IPO thinking (24.5%) means, that the company perceives as an important part of the good functioning of Corporate Governance. Creating the future value of the company (17.5%), in which the company believes across all departments thank to the IPO realisation. Communications between Corporate Governance and shareholders (16.7%) are among the inseparable elements of the IPO's influence on the board of directors. Regular contact with shareholders is beneficial for future relationship development. There is the tendency of the company to go its own way. For the time being, most companies have met their obligations to shareholders only to the extent that they are set by provisions and regulations. Operating and behavioural standards (12.9%) are the cornerstone for a smooth functioning of the company, leading to an understanding of the common intention. Investors - Communication between Corporate Governance and shareholders has the greatest weight (30.7%), as shareholders hope to protect their investments and transfer their interests to the company. Without properly set standards and communications, investors would not be willing to implement their investments. The second most important factor for investors is Setting up IPO thinking (23.6%), where investors have an important level of responsibility context when they require flexibility and the ability to react quickly to change. Operating and behavioural standards (17.8%) represent the necessity of ethics in the goals of the board of directors and the precision of the business plan. Creating the future value of a company (15%) is a logically shared goal for both, investors and companies. High-quality and timely reporting (12.9%), where investors in its importance differed from companies by scoring 15.5%. This difference is the result of different interpretations of the concept of quality and timely reporting. Investors have agreed that the necessary information about the company are able to gain on their own axes thanks to their fundamental analyses.

## 2.2. Brand strength and market position

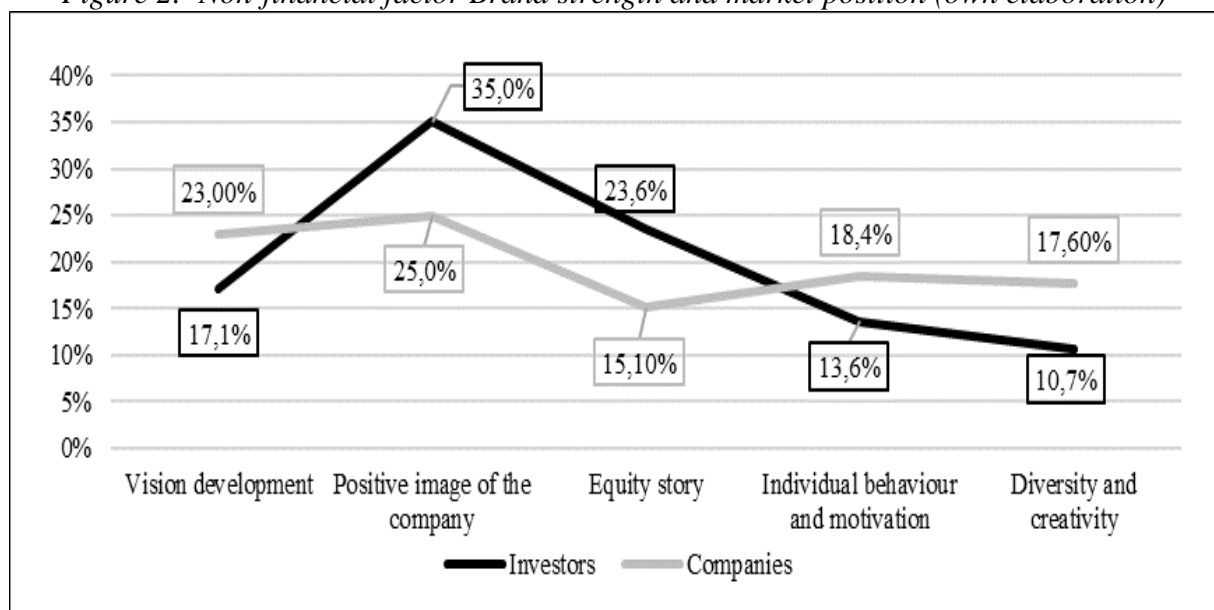
It follows from Kotler's definition that the view of the brand value is twofold. On the part of the consumer, it is primarily about brand awareness stored in memory associated with the association. The owner of the brand then sees its value above all in a better differentiation from competition, higher customer fidelity, less vulnerability to crises and competition, higher margins, and the ability to extend the brand to other products. This is about brand awareness, loyalty to the brand, emotional association and financial value. Awareness is a core component of brand value and it is important to realize that high brand value reflects high brand awareness

(David A.Aaker, 2003). Table 2 and Figure 2 indicate the non-financial key factor Brand strength and market position, which has been assigned by the characteristics that contribute its 100% fulfilment.

*Table 2: Non-financial factor Brand strength and market position (own elaboration)*

<b>Brand strength and market position</b>	<b>Investors</b>	<b>Companies</b>
Vision development	17,10%	23,00%
Positive image of the company	35,00%	25,00%
Equity story	23,60%	15,10%
Individual behaviour and motivation	13,60%	18,40%
Diversity and creativity	10,70%	17,60%

*Figure 2: Non-financial factor Brand strength and market position (own elaboration)*



According to the Brand strength and market position, Positive image of the company is the most important for investors (35%), in this criterion they agree with the companies (25%). Companies strive to be always a step ahead from the competitors, trying to get the best position on the market and working on it even when it is not at the top. It works on continuity in honest communication with the public. From the point of view of investors, it is important for companies to have a stable position on the market, that image building is not a one-time affair, and many of them take into account the image of the company as a whole and how it progresses over time in creating its image. The least important is for investors Diversity and creativity (10.7%), for companies also (17.6%). Both parties agreed that the clear and consistent fulfilment of the set tasks and their strict control are more important. Both sides also agree, that during IPO realisation, there is not much room for creativity.

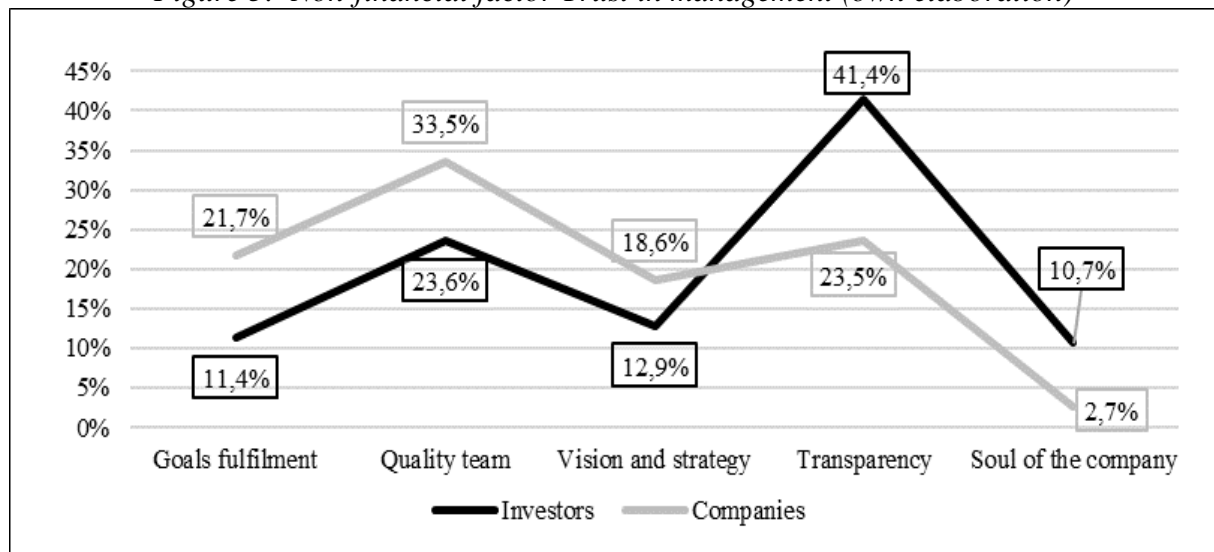
### 2.3. Trust in management

Trustable management of companies knows how to get the necessary resources including capital and allocate them where they are best used. Trustable management at the same time acts ethically, is open to new ideas, is transparent, focused on a longer period, and is also able to take a cautious risk (Elliott, Percy, Pervan, 2015). Table 3 and Figure 3 indicate the non-financial key factor Trust in management, which has been assigned by the characteristics that contribute its 100% fulfilment.

Table: 3 Non-financial factor Trust in management (own elaboration)

Trust in management	Investors	Companies
Goals fulfilment	11,40%	21,70%
Quality team	23,60%	33,50%
Vision and strategy	12,90%	18,60%
Transparency	41,40%	23,50%
Soul of the company	10,40%	2,70%

Figure 3: Non-financial factor Trust in management (own elaboration)



By Trust in management, give companies the most importance to the Quality team (33.5%). Companies see the management confidence as a pragmatic, concrete asset that needs to be created and deepened through a quality team that they can rely on in the most challenging situations. Investors have attached the greatest importance to Transparency (41.4%), which is crucial for investors to consider their risks and the benefits of their investments. They require companies to have timely, consistent and accurate information about, for example, financial performance, liabilities, control etc.

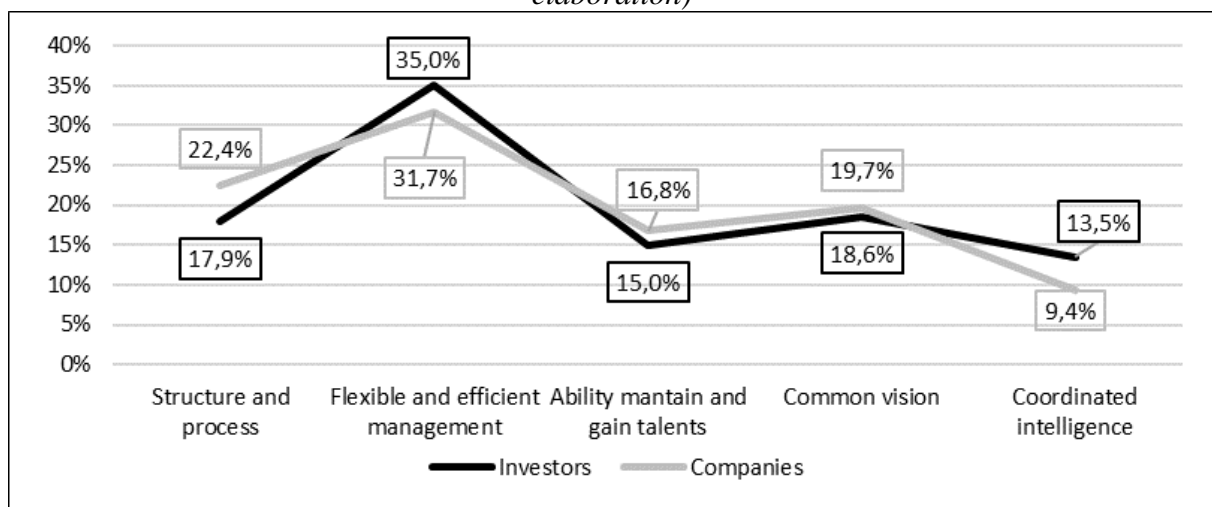
#### 2.4. Quality of the strategy and its implementation

The strategy tells how company will strive to achieve the goals set. Its mission is to show the direction that a company must take to achieve top performance in all areas. The company must be prepared to respond to unexpected successes and unexpected failures. This will prevent a strategic surprise. The company must be able to respond to changing needs and market requirements with existing sources. The strategy must be constantly subjected to periodic scrutiny. This research concerns its functionality in the framework of existing paradigms and their review. The challenge of the strategy is therefore to constantly increase the value of the company. Therefore, the best employees available to company must be involved in the strategy. These knowledge need to create extremely good working conditions to build their loyalty to the company (Kaplan & Norton, 1992). Table 4 and Figure 4 indicate the non-financial key factor Quality of the strategy and its implementation, which has been assigned by the characteristics that contribute its 100% fulfilment.

Table 4 Non-financial factor Quality of the strategy and its implementation (own elaboration)

Quality of the strategy and its implementation	Investors	Companies
Structure and process	17,90%	22,40%
Flexible and efficient management	35,00%	31,70%
Ability to maintain and gain talents	15,00%	16,80%
Common vision	18,60%	19,70%
Coordinated intelligence	13,50%	9,40%

Figure 4 Non-financial factor Quality of the strategy and its implementation (own elaboration)



Regarding to Quality of the strategy and its application, was the consensus between investors and companies the most consistent. For both sides is the most important Flexible and efficient management. Companies 31.7%, investors 35%. An important element of this factor is, from the point of view of both sides, investors and companies, the necessity of creating a platform for maximum profitability of corporate knowledge, whose main objective is to obtain the necessary information in time and in the appropriate format. Ensuring flexible ad-hoc reporting and analysis, enabling effective use of events, trends, patterns, types of behaviour, and their detailed analysis are the basic features that flexible and efficient management should include by companies and investors.

### 3. DISCUSSION

It is clear from the conducted survey already, that companies and investors perceive non-financial factors within the IPO differently. It reflects the fact of defending their own interests, historical ties to the company and their state of knowledge. However, the positive finding of this research is that the goal of both parties is to create instruments that support effective management, effective supervision, respect for shareholders' rights, and transparent company communication with the market within purposed non-financial factors. This setting can help companies strengthen corporate governance and their role in entering the stock market. The perception of the importance of non-financial factors can provide a balance between the interests of all stakeholders in the public market that are involved in the functioning of companies.



#### 4. CONCLUSION

The main goal of this article was to identify the most important non-financial factors related to IPO from the side of investors and companies and to make comparison of their viewing angles. Another goal of this article was to identify the opinion differences between investors and companies. The key non-financial factors specified in this article determinate successful operation and will make flexible, efficient and effective management. The company should establish the most appropriate management methods based on its corporate culture, size and business complexity with respect to non-financial key factors that influence investor decision-making mentioned in this article. Company must be clear about these non-financial factors, if it wants to engage its potential investors and their interest. A comprehensive overview of the non-financial factors that are the most important during IPO for the company is presented as well as a comparison of the importance of non-financial factors for the investors themselves.

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# THE ROLE OF CONSULAR CORPS IN THE DEVELOPMENT OF INTERNATIONAL COOPERATION OF POLISH CITIES AND REGIONS

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## ABSTRACT

*Integration processes in Europe contribute to the growing significance of local governments as substate entities of international relations. International cooperation is no longer a domain of countries. It is becoming an increasingly important factor in the social and economic development of local government units. Consular corps may be one of the instruments of this cooperation. Its activity stimulates international integration of cities and regions. Issues concerning diplomacy are reflected in rich interdisciplinary source literature; however, the issues of paradiplomacy are a relatively new research problem. For this paper, literature research has been conducted, the model of local government diplomacy has been modified, incorporating posts of consular corps. Next, the functioning of consular corps in Poland was analysed in the territorial, objective and subjective scope. Two hundred and seventeen consular posts from 66 countries have been located in Poland. The vast majority of them (over 90%) functioned as honorary consulates. Most consular posts were opened by countries that border Poland – mostly Ukraine and Germany. A coincidence of directions of consular cooperation and directions of partnership of Polish cities and regions has been observed. It has been noted that the number of posts in individual provinces varies. Provinces that are active on the international stage, e.g. Małopolska with its capital in Cracow and Pomerania with its seat in Gdańsk, are in the most beneficial situation in terms of the number of consular posts. An analysis of selected case studies has shown that the activity of consular corps has contributed to the development of international cooperation of cities and communes, with particular consideration of business, culture, tourism and sport. Honorary consulates took numerous initiatives for local communities. Seeing benefits from cooperation with foreign delegations, representatives of local administration and regional state administration took actions to establish stable positive relations with their "local consular corps".*

**Keywords:** *regions, development, international cooperation, diplomacy, consul*

## 1. INTRODUCTION

The development of consular relations between countries is inseparably connected with the development of international diplomacy. The intensification of international cooperation and interdependence makes the consular dimension of diplomacy more significant (Melissen, 2001, p. 1). In academic literature consular issues were in the shadow of diplomatic issues for a long time. The situation changed along with a renaissance of the institution of honorary consul (Staszewski, 1997, p. 225). Mainly lawyers and political scientists – and less frequently economists – are interested in the activities of consular corps. Usually the significance of consular corps for the sending state is examined, this time an attempt has been made to analyse the activities of consular corps from the perspective of the receiving state, with particular consideration of a local and regional dimension.

## **2. THE ORIGIN AND PURPOSE OF CONSULAR RELATIONS**

The consular institution is one of the oldest institutions of international relations. It was established in order to provide foreigners with legal protection because of the development of international trade (Staszewski, 1997, p. 227). In ancient Greece the consul of a foreign country was a local citizen who was called proxenos (Baderman, 2001, p. 131). The proxenos's competencies included acting before authorities on behalf of foreigners, providing a harmonious development of trade relations between the interested countries, providing legal assistance (e.g. by taking care of an inheritance in case of death, by selling cargo) and representing foreigners in legal proceedings. Proxenois received remuneration for their work from the country they represented. The consul's legal status, authorisation and competencies have undergone various changes. There have been many attempts to codify consular law. An important turning point came by the end of the 20th century when contemporary consular law was born. It is based on multilateral international agreements, in particular on the Vienna Convention on Consular Relations of 1963 (VCCR), on the Havana Convention on Consular Officers of 1928 as well as on bilateral consular conventions and international common law. In addition to bilateral and multilateral agreements, acts of domestic law are considered to be sources of consular law (Zdebski, 2014, p. 61). According to the VCCR consular relations between countries are established by mutual agreement. An agreement for establishing diplomatic relations between two countries means, unless otherwise decided, an agreement for establishing consular relations. It is important that the breaking of diplomatic relations does not result ipso facto in the breaking of consular relations. A consular office may be established in the receiving state only with the state's approval. The seat, the category and the consular district of the consular office are determined by the sending state and must be approved by the receiving state. The consul represents, above all, the interests of the sending state, but some of his or her functions may concern both states (fig. 1). The Convention (VCCR) distinguished four categories of directors of consular offices (general consul, consul, vice-consul, consular agent) and introduced two categories of consular officials: professional consular officials and honorary consular officers.

*Figure following on the next page*

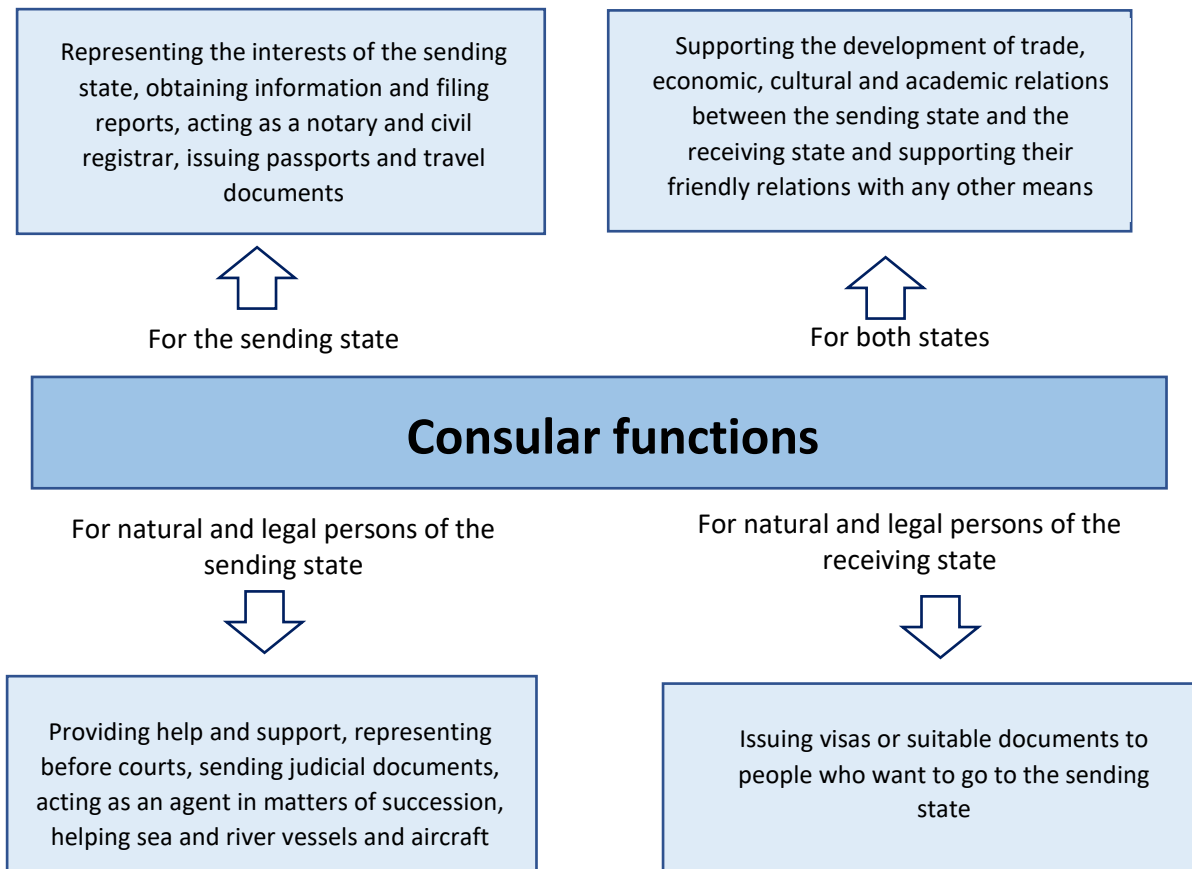


Figure 1: Functions of consuls (own work based on the VCCR, 1963)

Several decades ago, honorary consular officials began to perform an increasingly bigger function in the development of consular relations. An extensive network of consular offices gave the sending state considerable economic and political benefits. Many countries which could not afford to maintain a vast and costly network of consular offices managed by professional consular officials willingly took the opportunity to establish consular offices run by honorary officials. Such offices did not need considerable financial outlays and were often a source of income. Being familiar with local customs and conditions of activities, the honorary consul could provide the state that appointed him or her with bigger services than the professional consul (Staszewski, 1997, p. 225).

### 3. THE POLISH SYSTEM OF INTERNATIONAL COOPERATION

The system of international cooperation in Poland contains two complimentary components: state and local administration. In this system the key role is played by the government (Council of Ministers), which is a superior agent of foreign policy. The President, as a representative of the country in foreign relations, cooperates in this field with the Prime Minister and the Minister of Foreign Affairs who acts as a coordinator. The bodies of state administration supervise the bodies of local administration for consistency of provincial priorities of international cooperation with state priorities of international cooperation (Studzieniecki, 2015, p. 342). The entire picture of the international cooperation of local administration is sometimes called local government diplomacy (Skorupska, 2015, p. 13). In a broad sense local government diplomacy means foreign contacts of local authorities. These contacts concern mainly "cross-border cooperation between local government units that are part of regions of different countries" (Skorupska, 2015, p. 13). In international literature local government diplomacy is sometimes called paradiplomacy (Schiavon, 2010, p. 2), diplomacy of cities (Lebievieda, Alimov, 2004)

or diplomacy of local authorities (Sizo, Musch, 2008, p. 7). Besides the concept of "paradiplomacy", a number of different terms that label a region's performance in the international arena can be found such as "constituent diplomacy", "regional diplomacy", "sub-state diplomacy", "microdiplomacy", "multilayered diplomacy", "catalytic diplomacy", "protodiplomacy", "post-diplomacy" (Jackson, 2018, p. 3). By the end of the 20th century in Europe there was a dynamic growth of international contacts of representatives of local and regional authorities (Gumenyuk, Kuznetsova, Osmolovskaya, 2018, p. 67). International cooperation of cities and regions became part of European integration and one of the fastest developing forms of local government cooperation. Through this cooperation, the functioning and positioning of the country (Nemcikova, Krogmann, Dubcova, 2016, pp. 832-838; Borzyszkowski, 2015, p. 56) on the international stage went beyond the competencies of the central government. The development of cooperation, which took into account the participation of state and local bodies (Spodarczyk, Szlagowska-Rudzka, 2015, p. 437) became part of a Europe-wide trend of improving EU activities that support regional and neighbourly initiatives. Local government units became "non-state participants of international relations". In Poland local government diplomacy became part of public diplomacy, which was institutionally reflected in the establishment of the Department for Local Government and Civil Affairs of Polish Foreign Policy in the Department of Public and Cultural Diplomacy at the Ministry of Foreign Affairs (Skorupska, 2015, p. 13). After socioeconomic transformation (Awedyk, Niezgodna, 2015, p. 137) the Polish system of local government contains three levels: provincial self-government, district self-government and commune self-government. In all 16 provincial self-governments, organisational units for international cooperation operate actively. Each of the self-governments has the right to conduct its own "foreign policy", provided that it is consistent with the foreign policy of the state. District self-governments, in the context of statutory competencies and the pragmatics of their activities (they are mainly responsible for infrastructure, education and health in their area) participate in international cooperation in a much more modest manner in comparison to the regional level. In contrast, the international activities of commune self-governments are very intensive in Poland. In Poland the commune is a basic local government unit and has considerable competencies in international cooperation (Wanagos, Smalec, Małachowski, 2017, p. 700). The most active cities have more than 30 partnership agreements and are members of a similar number of international organisations. In capital cities of provinces and districts and in other cities, special departments, sections or offices are responsible for international cooperation. Due to their significance, these units are often located in the president's office. In smaller cities such a unit is rather rarely established. Usually persons who work in departments of culture, promotion or European funds and are responsible for foreign contacts are appointed (Skorupska, 2015, p. 66). The basic tools of local government diplomacy (fig. 2) are: being a member of international organisations, foreign partnership, maintaining foreign posts and participating in international projects (Studzieniecki, 2015, p. 348). In the context of an increasingly active cooperation between regional authorities and consular posts (in particular honorary posts) located in their area, regional consular corps can be considered a tool of local government diplomacy (Stringer, 2011, p. 35; Cooper, Heine, Thakur, 2013, p. 19; Dymnicka, Parteka, 2010, p. 194). The opening of foreign consular posts in Poland goes completely beyond the competencies of local authorities. But they can, in cooperation with state administration, take actions to open such posts and when the posts start functioning, local authorities can use them for their own purposes.

*Figure following on the next page*

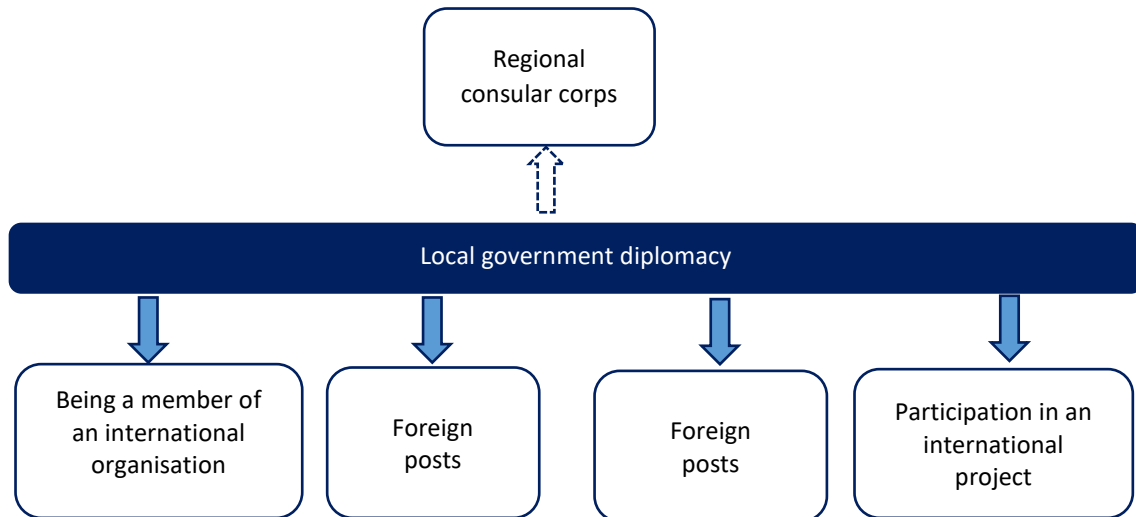


Figure 2: Tools of local government diplomacy (own work)

Consular corps usually operates at regional level. It includes professional and honorary managers of consular posts. It is managed by a dean of consular corps. It should also be emphasised that consular corps may also function in a city. It is illustrated in fig. 3. Assuming that in a given country countries A, B, C, D and E have their posts, regional consular corps includes posts A, B, D and E, while local (municipal) consular corps includes only posts that are located in this city, i.e. A, B and C. Municipal authorities are a partner of local corps, while regional authorities (local administration) and the governor who is a local representative of state government are partners of regional corps. In Polish practice, it may mean that occasional meetings of consular corps may be organised both by the marshal of a province and the provincial governor. At all levels the international cooperation of local government units is monitored and controlled by ministers in charge of foreign affairs and internal affairs.

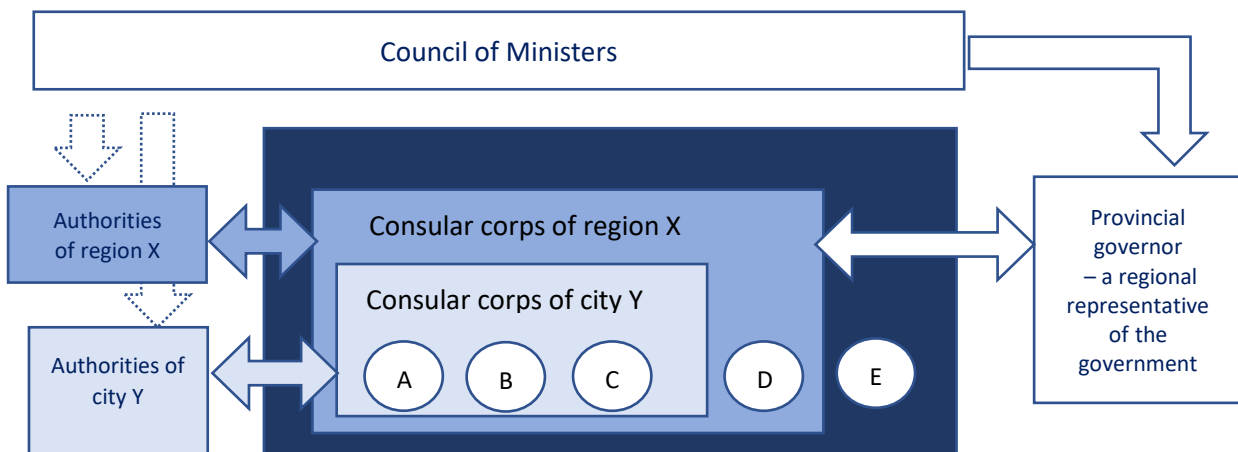


Figure 3: Local and regional consular corps in the Polish system of international cooperation (own work)

#### 4. THE ORGANISATION OF CONSULAR CORPS IN POLAND

In Poland there are 222 consular posts, including 201 honorary consulates. These posts represent 66 countries, including 39 (59%) European countries. They are followed by Asia (11 posts), Africa (6 posts), North America (5 posts), South America (5 posts). A list of countries with the highest number of posts is shown in fig. 4.

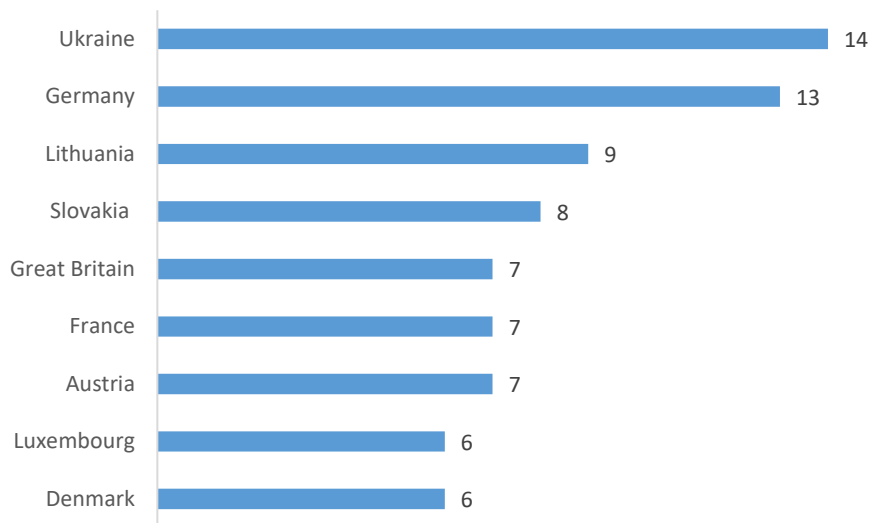


Figure 4: List of 10 countries with the highest number of consulates in Poland (own work based on the MFA, 2018)

It is noteworthy that the first two positions are taken by Ukraine and Germany, which border Poland, but Finland is third with 10 posts. The small Luxembourg (which has a population of around half a million people) has as many as 6 honorary consulates in Poland. But Luxembourg is very active on the international stage. Its interests are represented worldwide by 153 honorary consulates (MFA, 2018). Poland, which has a population of 38 million people, has 250 honorary consulates (Sejm, 2018). Foreign consular posts are located in all Polish provinces, but their number varies greatly (fig. 5).

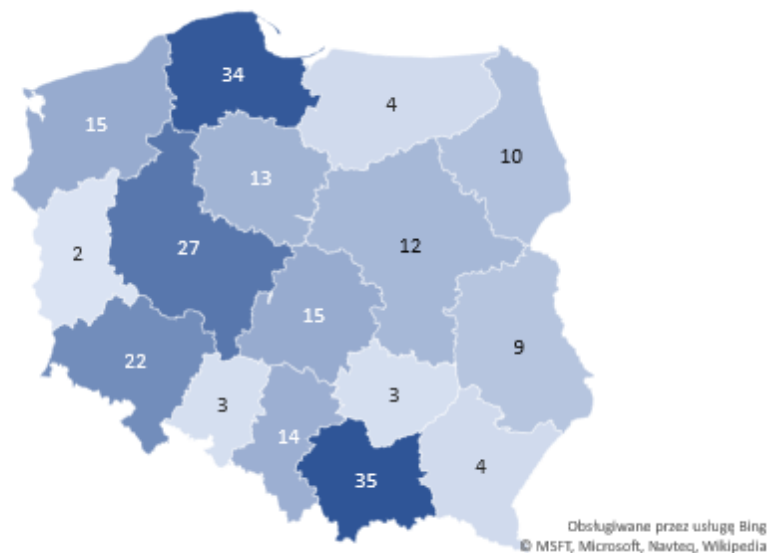


Figure 5: Number of consular posts in Polish provinces (own work based on the MFA, 2018)

In 6 provinces, posts are located in one city. In each case it is the capital city of a province. In other provinces consular posts are located in 2, 3 or 4 cities. In Poland there are 30 cities which have consular posts. When analysing the number of posts in individual provinces one can note that the highest number of posts is in provinces that have large and wealthy capital cities (fig. 6).

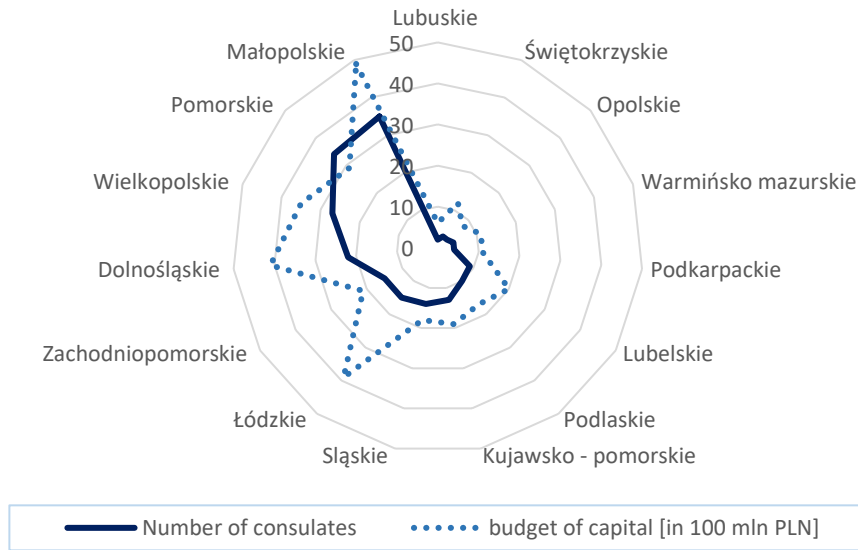


Figure 6: Number of consular posts in provinces and incomes of capital cities of provinces in Poland (own work based on the MFA, 2018, GUS, 2018)

Gdynia has the highest number of consulates (11) out of cities that are not capital cities of provinces. However, it must be pointed out that it is a big port city located by the sea and it is the biggest Polish city that is not the capital of a province.

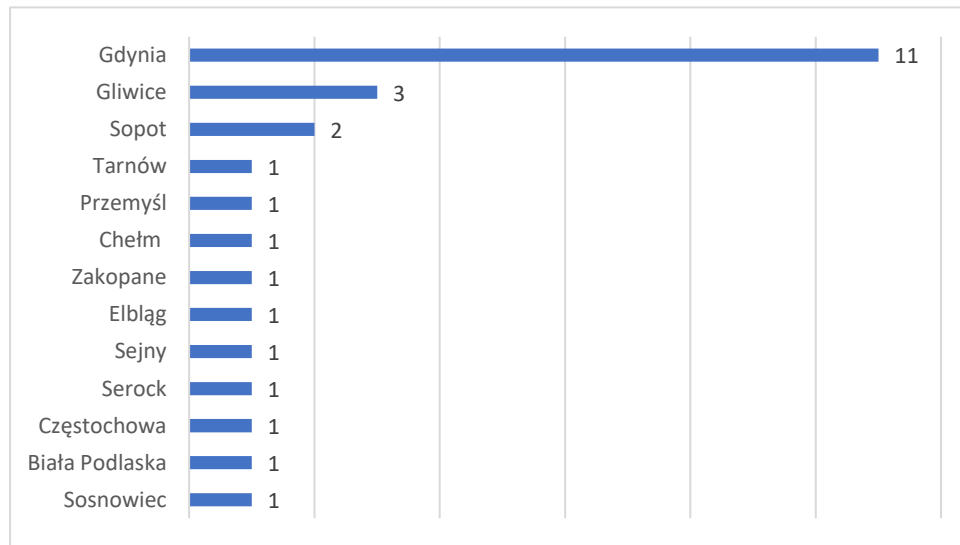


Figure 7: Number of consulates in cities that are not capitals of provinces in Poland (own work based on the MFA, 2018)

Consulates in cities that are not capitals of provinces often represent countries which border a given province. For example, the Consulate of Slovakia is located in Zakopane which directly borders Slovakia. Non-sovereign territories also have their posts in Poland (e.g. Kurdistan). Managers of such posts are customarily called consuls, but officially they do not have this status.

## 5. ACTIVITIES OF LOCAL REGIONAL DIPLOMATIC CORPS IN POLAND

Local consular corps operates mainly in big capital cities of provinces. These cities include Cracow, Wrocław, Poznań, Gdańsk and Łódź.



The consular corps of Cracow is the most active in Poland. Cracow has the biggest number of consulates. The Cracow corps is managed by a dean. In 2018 this function is performed by the General Consul of Hungary. According to the President of Cracow „thanks to the activities and involvement of consulates, the cultural life of Cracow has been considerably enriched. The French Season in Cracow, international celebrations of the Day of German Unity and Austrian Days are full of events on the highest artistic level" (Kraków, 2018). Małopolska's local authorities cooperate with the Consular Corps of Małopolska (Małopolska, 2018). Members of the consular corps of Cracow and the honorary consul of Slovakia (he resides in Zakopane) as well as the honorary consul of Ukraine from Tarnów are members of regional consular corps. According to provincial authorities, consular corps performs an important function in cooperation between friendly local governments. The consular corps of Poznań is involved in the promotion of Poznań and the region as a tourist destination (Poznań, 2018), while the consular corps of Podlasie introduces the local community to cooking heritage. The consular corps of Wrocław launched a website on which it informs about activities of 22 consulates located in the province (Wrocławski Korpus Konsularny, 2018). When analysing events that are promoted by respective posts of the Consular Corps of Wrocław one can note that the majority are cultural or educational events. The fewest information concerns economic events. It does not mean, of course, that foreign consuls are not engaged in economic issues. They often work for the development of investments in Poland, which is proven by the activities of the Consulate of Slovenia in Zielona Góra (Consulate of Slovenia, 2018).

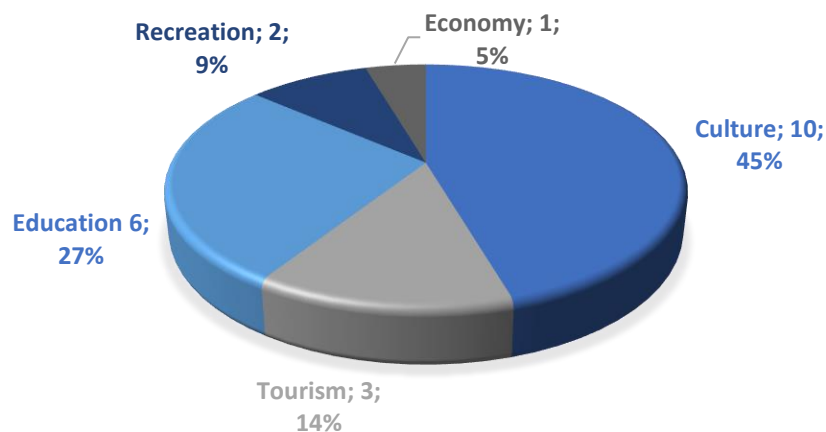


Figure 8: Events promoted by the Consular Corps of Wrocław (own work based on the Consular Corps of Wrocław, 2018)

## 6. CONCLUSIONS

Consular relations are gaining a regional dimension. Consular corps is becoming an increasingly important tool of local government diplomacy. There are more and more honorary consuls and their significance is growing. The vast majority of honorary consuls in Poland are Polish citizens. They are often wealthy people, who are often businessmen. Thus their activity gives benefits to both countries, so they are sometimes called "the servants of two masters" (Wozniński, Zaradnik, 2004). Consular posts are located in big and rich cities. Consulates located in border towns are an exception. Consular corps contributes to the growing prestige of cities and regions and their position on the international stage. It is difficult to count economic benefits for cities and regions that result from the consular posts located in their area. Case studies have clearly shown that such posts bring both social and economic benefits for the local community.

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## EUROPEAN CO-OPERATION IN SCIENCE: EVIDENCE FROM THE EUROPEAN CO-AUTHORSHIP PATTERNS

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### ABSTRACT

*This paper analyses patterns of science co-operation by 28 EU member countries, Switzerland and Norway in the period 1993-2017. The analysis is based on 15.645 million publication records from the Web of Science. Development of European co-authorship rates is examined in two sub-periods 1993-2006 and 2007-2017. The choice of the two sub-periods refers to a substantial increase in funding between the Sixth and Seventh Framework Programmes, and the establishment of the European Research Council in 2007. The analysis found that shares of co-publications by scientists from at least two EU28+2 countries in total scientific output increased from 27.09% in the period 1993-2006 to 34.87% in the period 2006-2017. The significant increase in the European co-publication rates at least partly reflected the massive increase in funding for the Seventh Framework Programme, compared to the Sixth Framework Programme. A total of 21 explanatory variables were computed to explain variability in co-authorship patterns in 1993-2006 and 2007-2017. The explanatory variables fell into three groups: (1) Size of country and its research system relative to the EU28; (2) Engagement of a country in international knowledge flows; and (3) Research intensity. Correlation coefficients for the explanatory variables and European co-publications rates were computed. Six explanatory variables with the highest correlation coefficients were selected for factor analysis. Factors scores obtained in the analysis were used as explanatory variables in the ordinary least squares regression model. The factor and regression analyses found that co-publication patterns reflected some quantitative and qualitative attributes of national research systems. The high values of adjusted R squared (over 0.7) indicate that size of national economy and research system, openness towards international flows and knowledge, and intensity of public support to R&D were the key factors for explaining levels of the European co-publication rates over the past 25 years.*

**Keywords:** *Co-authorship patterns, European co-operation in science, Research systems*

### 1. INTRODUCTION: CONCEPTUALISATION

International collaboration in science has many benefits. Benefits are realised both for the science *per se* and agents of collaboration. On the micro level, collaboration by two or more partners helps to solve problems related to the complexity of contemporary research. International collaboration, in many cases, involves the international mobility of researchers. Individual participants may combine their expertise and benefit from insights provided by their partners. On the macro level, a division of labour among partners increases the overall productivity of research. The catching-up countries can access foreign research infrastructure and human resources and, in that way, enhance their own science and technology capacity. Commercial research outputs foster technology transfer and knowledge diffusion between countries.

Finally, international collaboration helps to cross borders of academic disciplines, overcome cultural barriers, and accumulate and transfer tacit knowledge between countries and institutions. The international collaborations network has expanded rapidly in the past three decades. New countries continuously enter major science fields. Low-income countries were the main beneficiaries of the rise of international science collaboration. In 2014, 85.8% of scientific articles were based on international scientific collaboration in low-income countries (compared to 80.1% in 2008). In high-income countries, the share of papers with international co-authors rose only from 26.0% to 33.8% in the same period (UNESCO, 2015, p. 36). Contemporary international co-operation in science encompasses virtually all countries of the World. Increase in international collaboration results from technology advance, globalisation of trade in goods, capital and knowledge, but also the increase in the science and technology capacity of many countries over the past 30 years (Wagner et al., 2015, p. 7). This paper focuses on intra-European co-operation in science, for two main reasons. The first reason relates to shared general institutional framework. European Economic Area (EEA) citizens enjoy freedom of travel. A relatively small geographical area and well-developed transport networks promote researcher and student mobility within the EEA area. The second reason relates to the set of science-specific European policies, regulations and instruments. Intra-European collaboration in science started with the operation of large collaborative research facilities in astronomy and particle physics. The collaboration was further boosted by the emergence of European science organisations such as CERN and the European Space Agency. Studying the evolution of the European co-publication rates over time implies subdividing the longer time period into two or more shorter ones. The choice of sub-periods is not easy, because none of the abovementioned factors worked in isolation. There was a more than threefold increase in funding between the Sixth Framework Programme (2002-2006; €16.3b) and the Seventh Framework Programme (2007-2013; €53.2b, Table 1). Total national funding for science and technology is much higher than funding by the Framework Programmes in the EU member countries. The Framework Programmes, however, specifically aim at fostering international (and specifically intra-European) co-operation in science and technology. We consider the introduction of the FP7 as a major event in the European co-operation in science and technology. Furthermore, the decision to set up the European Research Council (ERC) in 2007 was an important milestone for fostering collaborative science in Europe (Nedeva, 2013). We analyse the development of European science collaboration in two distinct periods: 1993 – 2006 and 2007 – 2017. The collaboration patterns are studied for the EU28 countries, plus Switzerland and Norway (henceforth EU28+2).

*Table 1: Funding by the European Framework Programmes (FP) in 1994-2020*

ID	period	budget (billions of €)
FP4	1994–1998	13.2
FP5	1998–2002	15,0
FP6	2002–2006	16.3
FP7	2007–2013	53.2
FP8	2014–2020	77.0

*Source: European Commission (1994-2013).*

*Notes: The FP7 budget includes €2.7b for Euroatom.*

## **2. CO-AUTHORSHIP PATTERNS IN EUROPEAN COUNTRIES**

The Web of Science Core Collection (WOS) records 15.645 million publications by scientists from the EU28+2 countries in period 1993-2017. There was a significant increase in the share of papers co-authored by scientists from at least two European countries in the total number of

papers indexed in the WOS database over the abovementioned period (Table 2)<sup>1</sup>. Some general patterns emerge:

- In both periods, the big countries (Germany, France, Italy and the UK) and medium-sized countries (Spain and Poland) had lower co-authorship rates than small countries. Big countries have access to an extensive and well-diversified research system and research infrastructures, therefore, they may have lower incentives to co-operate on complex problems with other countries. The small countries, on the other hand, possess lower human and financial resources, and have more incentives to co-operate with partners abroad. Potential higher costs of cross-country co-operation may be outweighed by higher levels of scientific productivity.
- Countries with more open economies, and research, technology and education systems are more likely to engage in cross-country co-operation than countries with lower levels of international exchange in goods, students and knowledge products. Denmark, Finland and Norway, for example, account for much more intensive international patent co-operation, and have a much higher proportion of international students than Ireland, Slovakia or Croatia.
- Rich countries with well-diversified research systems and a high intensity of research support are more likely to co-operate with partners abroad than the same-size medium-rich countries of the EU28+2. High intensity of research support allows for more diversified research activities and generates higher capacity for international scientific collaboration. Finland, Denmark and Norway, for example, report higher European co-publication rates than Slovakia and Croatia. Belgium reports much higher European co-publication rates than Greece and Portugal, etc. The highest increases in the European co-publication rates were reported for small and research-intensive EU28+2 countries (Austria, Ireland, Switzerland, the BENELUX countries, and all Scandinavian countries).

### 3. HYPOTHESES

The abovementioned European co-publication patterns lead to three hypotheses:

- H1: The size of a country's economy and public research system are negatively correlated with its international co-publication rates.
- H2: High shares of international students among total domestic students and high numbers of domestic inventions patented abroad are positively correlated with international co-publication rates.
- H3: The intensity of support to the public research system is positively correlated with international co-publication rates.

*Table following on the next page*

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<sup>1</sup> The co-authored papers involved at least one author from other EU28+2 country. They also may have involved partners from outside EU28+2. The WOS database does not enable aggregate and export of total number of co-authors by country.

Table 2: Shares of domestic publications and European co-publications

country/period	shares of European co-publications		change 2007-2017 / 1993-2006	shares of domestic publications		change 2007-2017 / 1993-2006
	1993-2006	2007-2017		1993-2006	2007-2017	
<b>Austria</b>	0.2812	0.4423	1.5730	0.6136	0.4414	0.7193
<b>Belgium</b>	0.3110	0.4523	1.4541	0.5820	0.4131	0.7097
<b>Bulgaria</b>	0.3184	0.3516	1.1042	0.5834	0.5536	0.9489
<b>Croatia</b>	0.1947	0.2390	1.2271	0.7283	0.6867	0.9430
<b>Cyprus</b>	0.3968	0.4506	1.1358	0.4566	0.3998	0.8755
<b>Czech Rep.</b>	0.2737	0.2925	1.0690	0.6318	0.6194	0.9804
<b>Denmark</b>	0.2936	0.4046	1.3781	0.5781	0.4433	0.7668
<b>Estonia</b>	0.3413	0.4272	1.2519	0.5815	0.4985	0.8574
<b>Finland</b>	0.2325	0.3732	1.6049	0.6553	0.4852	0.7405
<b>France</b>	0.1952	0.3008	1.5404	0.6736	0.5090	0.7556
<b>Germany</b>	0.1791	0.2921	1.6308	0.6906	0.5480	0.7935
<b>Greece</b>	0.2162	0.3080	1.4247	0.6989	0.5914	0.8462
<b>Hungary</b>	0.2903	0.3776	1.3006	0.5781	0.5076	0.8780
<b>Ireland</b>	0.2272	0.3101	1.3650	0.6775	0.5538	0.8173
<b>Italy</b>	0.1899	0.2790	1.4692	0.7065	0.6016	0.8515
<b>Latvia</b>	0.3221	0.2446	0.7594	0.5838	0.6939	1.1886
<b>Lithuania</b>	0.2898	0.2425	0.8368	0.6268	0.6878	1.0973
<b>Luxembourg</b>	0.5348	0.6511	1.2174	0.4194	0.2713	0.6468
<b>Malta</b>	0.2978	0.4485	1.5060	0.6494	0.5033	0.7750
<b>Netherlands</b>	0.2389	0.3785	1.5847	0.6503	0.4771	0.7336
<b>Norway</b>	0.2704	0.3923	1.4510	0.6189	0.4646	0.7507
<b>Poland</b>	0.2254	0.2148	0.9531	0.6610	0.7025	1.0628
<b>Portugal</b>	0.2955	0.3239	1.0961	0.6134	0.5489	0.8947
<b>Romania</b>	0.2588	0.1957	0.7562	0.6624	0.7426	1.1211
<b>Slovakia</b>	0.3032	0.3420	1.1279	0.6199	0.6001	0.9681
<b>Slovenia</b>	0.2347	0.3339	1.4226	0.6872	0.5702	0.8297
<b>Spain</b>	0.1829	0.2568	1.4042	0.7211	0.6147	0.8524
<b>Sweden</b>	0.2493	0.3945	1.5825	0.6152	0.4417	0.7181
<b>Switzerland</b>	0.3236	0.4728	1.4610	0.5440	0.3705	0.6812
<b>UK</b>	0.1583	0.2689	1.6986	0.7282	0.5534	0.7599
<b>EU28+2</b>	<b>0.2709</b>	<b>0.3487</b>	<b>1.2873</b>	<b>0.6136</b>	<b>0.4414</b>	<b>0.7193</b>

Source: Web of Science and authors' computations. Note: simple average for the EU28+2.

Total co-publications = domestic publications + European co-publications + other international co-publications.

#### 4. DATA SOURCES AND RESEARCH METHODS

The European co-publication patterns were analysed via factor and regression analyses. The dependent variables were country shares of European co-publications in total publications recorded in the WOS database. A total of 21 explanatory variables were computed variables to explain variability in co-authorship patterns in 1993-2006 and 2007-2017. Correlation coefficients for the explanatory variables and co-authorship rates were computed. Six explanatory variables with the highest correlation coefficients were selected for further analysis. The sample size and potential collinearity issues did not allow for high number of explanatory variables in regression analysis. We therefore used six explanatory variables as inputs for the factor analysis. Factors scores obtained in the analysis were used as explanatory variables in the ordinary least squares (OLS) regression model.

#### 4.1. Variables

The dependent variables were computed from country data from the WOS database.

The explanatory variables reflected the abovementioned patterns of co-authorship. They fell into three groups:

- Group 1: Size of a country and its research system, relative to the EU28. The variables included: shares of country's GDP in EU28; shares of total and public expenditure on R&D in EU28; shares of total and public sector researcher numbers in the EU28.
- Group 2: Engagement of a country in international knowledge flows. The variables included: shares of exports in GDP; shares of R&D financed from abroad; exports and imports of R&D services as a percentage of GDP; the percentage of foreign students in the total domestic students figure; and the number of patent applications per million population.
- Group 3: Research intensity. Variables quantified share of total and public expenditure on R&D in GDP; and the number of total and public sector researchers per million population,

Data for the explanatory variables were taken from the Eurostat and OECD databases. A complete list of the 21 explanatory variables and the respective data sources is provided in Appendix 1.

#### 4.2. Factor analysis

Performing factor analysis on a small sample requires meeting some specific criteria. When data are well conditioned, an exploratory factor analysis (EFA) can yield reliable results for samples well below 50 (de Winter et al., 2009, p.147)<sup>2</sup>. The minimum sample size is a function of communalities, factor loadings, factor numbers, and variable numbers. When communalities are high, sample factor solutions correspond closely to population solutions even when N is small (MacCallum et al., 2001, p. 615). Indicators of the sampling adequacy must be above certain thresholds. Applying the Kaiser-Meyer-Olkin Measure of sampling adequacy, statistics were above threshold (Table 4). The factor analysis was conducted on a sample of 30 European countries. We followed the MacCallum et al. (2001) and de Winter et al. (2009) recommendations on factor and variable numbers. Communalities should be higher than 0.6 and numbers of factors low. All communalities obtained in the analysis were above 0.9 (Table 3). Six independent variables with the highest correlations with dependent variables were selected for the factor analysis:

1. Economy size, national GDP as a percentage of EU28;
2. National public expenditure (government and higher education) on R&D (GHERD) as a percentage of EU28 GHERD;
3. National researchers in government and higher education sectors in full-time equivalent (FTE) as a percentage of EU28;
4. Share of foreign students in total domestic students;
5. Domestic ownership of foreign inventions per million population;
6. National R&D expenditure by government and higher education sectors as a percentage of GDP.

Three factors were detected (Table 4):

- Factor 1 Size of national economy and research sector (variables 1, 2 and 3)
- Factor 2 International knowledge exchange (variables 4 and 5)
- Factor 3 Intensity of public expenditure on R&D (variable 6)

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<sup>2</sup> Some minimum sample sizes are considered when extending findings from a subsample to total population. Sample of 30 European countries is a total population in this analysis. Considerations on external validity are not applicable in this case.



All three factors had high factor loadings (Table 4). Three factors explained 94.71% of total variance in period 1993-2006 and 96.12% in period 2007-2017.

Table 3: Communalities

	1993-2006		2007-2017	
	Initial	Extraction	Initial	Extraction
1. Economy size as percent of EU28	1.000	0.985	1.000	0.993
2. Govt. and HEI researchers in FTE, as % EU28	1.000	0.960	1.000	0.996
3. Govt. and HEI R&D as % of E28	1.000	0.938	1.000	0.976
2. Dom. ownership of foreign inventions per mil. pop.	1.000	0.904	1.000	0.917
4. Foreign students, share in total domestic students	1.000	0.908	1.000	0.913
6. Govt. and HEI R&D as % of national GDP	1.000	0.988	1.000	0.972

Source: author computations.

Table 4: Factor Analysis

	1993-2006			2007-2017		
	F1	F3	F3	F1	F3	F3
<i>Percent of variance explained</i>	51.67	28.92	14.13	51.35	30.27	14.50
1. Economy size as percent of EU28	<b>0.979</b>	0.022	0.158	<b>0.990</b>	0.000	0.115
2. Govt. and HEI researchers in FTE, as % EU28	<b>0.965</b>	-0.035	0.069	<b>0.985</b>	-0.058	0.048
3. Govt. and HEI R&D as % of E28	<b>0.952</b>	0.048	0.229	<b>0.961</b>	0.016	0.219
2. Dom. ownership of foreign invent. per mil. pop.	-0.139	<b>0.935</b>	0.118	0.092	<b>0.953</b>	-0.038
4. Foreign students, share in total domestic students	0.166	<b>0.924</b>	-0.148	-0.127	<b>0.941</b>	0.110
6. Govt. and HEI R&D as % of national GDP	0.244	-0.021	<b>0.963</b>	0.194	0.052	<b>0.978</b>

Source: author computations. Notes: Kaiser-Meyer-Olkin Measure of Sampling Adequacy 0.615 for 1993-2006 and 0.638 for 2007-2017.

### 4.3. Regression analysis

Factors scores for Factors 1, 2 and 3 were used as independent variables in the OLS regression model (Table 5). The adjusted R squared was 0.783 for period 1993-2006 and 0.701 for period 2007-2017.

Table 5: Linear regression with the factor scores

	1993-2006					2007-2017				
	B	Std. Err	Beta	t	sig	B	Std. Err	Beta	t	sig
constant	0.271	0.007		40.366	0.000	0.349	0.010		34.265	0.000
Factor 1	-0.039	0.007	-0.517	-5.653	0.000	-0.028	0.010	-0.294	-2.739	0.011
Factor 2	0.048	0.007	0.641	7.011	0.000	0.073	0.010	0.754	7.027	0.000
Factor 3	-0.024	0.007	-0.325	-3.553	0.001	0.021	0.010	0.216	2.011	0.055
	R2 = 0.885; Adjusted R2 = 0.783					R2 = 0.837; Adjusted R2 = 0.701				

Source: author computations.

The strength of effect of each individual independent variable to the dependent variable is measured via the standardised beta coefficient (Beta). Factor 2 International knowledge exchange (variables 4 and 5) accounted both for the highest Beta coefficients and significance levels in both periods. The Beta coefficient had positive sign: the more intensive exchange of international students and patenting abroad, the highest rate of European co-publications. The finding confirms Hypothesis 2. Factor 1 Size of national economy and research sector (variables 1, 2 and 3) accounted for the second highest Beta coefficients and significance levels in both periods.

The Beta coefficient had negative sign in both periods: the bigger the economy and national research system, the lower the incentives for European co- publications. The finding confirms Hypothesis 1. Factor 3 Intensity of public expenditure on R&D (variable 6) accounted for the lowest Beta coefficients in both periods. The Beta coefficient had negative sign in period 1996-2006 (significant on the 0.001 level), and positive sign in period 2007-2017 (on 0.1 level). The finding confirms Hypothesis 3 only for period 2007-2017. Hypothesis 3 is rejected for period 1993-2006. The negative sign for the Beta coefficient implies that countries with low intensity of support for public R&D had higher European co- publication rates in the period 1993-2006. The finding may seem counterintuitive, but it reflects actual developments in co- publication rates between 1993-2006 and 2007-2017. Most new EU member countries had above-average European co-publication rates in period 1993-2006. The public R&D expenditure increased in most new members in 2007-2017. The European co-publication rates, however, stalled or decreased in the same period (Table 2). Shares of European co-publications, for example, grew by below-average rates in Bulgaria, Croatia, the Czech Republic, Portugal and Slovakia, and decreased in Poland, Romania, Latvia and Lithuania in the period 2007-2017 compared to the previous period. The decrease in shares of European co-publications corresponded with an increase in shares of domestic publications (Table 2). Change in relative shares of European co-publications and domestic publications referred to high increases in absolute numbers of domestic publications in Latvia, Lithuania, Poland and Romania.

## **5. DISCUSSION, CONCLUSIONS AND DIRECTIONS FOR FURTHER RESEARCH**

This paper used the WOS database to analyse patterns of European-co-publication rates in 1993-2017 in EU28 countries, Norway and Netherlands. The analysis (based on 15.645 million entries) found that shares of co-publications by scientists from at least two EU28+2 countries in total scientific output increased from 27.09% in the period 1993-2006 to 34.87% in the period 2006-2017. We assume that the significant increase in the European co-publication rates at least partly reflected the massive increase in funding for the Seventh Framework Programme compared to the Sixth Framework Programme. The factor and regression analyses found that the European co-publication patterns reflected some quantitative and qualitative attributes of the national research systems. The high values of adjusted R squared (over 0.7) indicated that the size of national economy and research system, openness towards international flows and knowledge, and intensity of public support for R&D were the key factors for explaining levels of the European co-publication rates over past 25 years. Openness towards international flows of knowledge and technology (approximated by exchange in international students and patents) was by far the most important determinant of the European co-publication rates. The Beta coefficients indicate that the importance of openness for European co-operation in science increased in the period 2007-2017 compared to the period 1993-2006. The analysis further confirmed that big countries with well-diversified research systems tend to generate lower co-publication rates than small countries. The finding points to the importance of capacities in science and technology, and economies of scale: international co-operation in science and technology clearly benefits small countries more than big ones. Value of the Beta coefficient for Factor 2 decreased in period 2007-2017 compared to the period 1993-2006. The finding indicates that 'size still matters', but less than before. As for the intensity of public support for R&D, the results of analysis were rather mixed. We found some support for the hypothesis that countries with more intensive support for public R&D tend to have higher European co-publication rates in 2006-2017. The relation, however, was negative for period 1993-2006. Further research is needed to explain this finding. We found that the intensity of European co-authorship stalled or even decreased in the late 2000s. This finding resonates with the Chessa et al. (2018) notion on scientific publications co-authorship network showing a negative trend in European cross-border links since 1999. Hoekman et al., (2010, p. 669) also noted that the

integration process proceeds at a faster pace within EU15 than within new member countries. Reasons for this trend are not clear. Future research can test a hypothesis that the slowdown/decrease in European co-authorship rates related to change in evaluation standards in some new member countries. Scientists are required to publish more papers to fit the evaluation criteria. Some scientists may find it easier to produce a higher number of lower quality domestic publications. The European Commission report, for example, shows that it was the new member countries with stagnating/falling co-authoring rates which also accounted for the lowest shares of papers included in the top 10% most cited publications (2013, p. 14). Further research may also look at the development of the European co-publication rates by major science fields. Some science fields may have accounted for higher increases in the European co-publication rates than other ones. If this was the case, overall European co-publication rates could have been impacted by changing weights of specific science fields in total science output.

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## APPENDIX

### List of independent variables and data sources

List of independent variables in the correlation and factor analysis:

variable	source
Shares of merchandise exports in GDP	UNCTAD (2018): International trade in goods and services; Merchandise: Total trade and share, annual, 1948-2017
Shares of merchandise imports in GDP	UNCTAD (2018): International trade in goods and services; Merchandise: Total trade and share, annual, 1948-2017
Balance of payments, R&D services credit as a percentage of GDP	OECD.stat (2018): Main Science and Technology Indicators: Technology balance of payments: Payments
Balance of payments, R&D services debit as a percentage of GDP	OECD.stat (2018): Main Science and Technology Indicators: Technology balance of payments: Receipts
Economy size, national GDP as a percentage of EU28	UNCTAD (2018): Gross domestic product: Total and per capita, current and constant (2010) prices, annual
Gross expenditure on R&D (GERD) as a percentage of EU28	Eurostat (2018): Intramural R&D expenditure (GERD) by sectors of performance
National R&D expenditure by government and higher education sectors as a percentage of GDP	Eurostat (2018): \ Intramural R&D expenditure (GERD) by sectors of performance
Share of foreign students in total domestic students	Eurostat (2018): Participation of foreign students in tertiary education (ISCED 1997) by field of education
Gross expenditure on R&D financed from abroad as a percentage of GDP	Eurostat (2018): Intramural R&D expenditure (GERD) by sectors of performance
National gross expenditure on R&D (GERD) as a percentage of EU28 GERD	Eurostat (2018): Intramural R&D expenditure (GERD) by sectors of performance
National public expenditure (government and higher education) on R&D (GHERD) as a percentage of E28 GHERD	Eurostat (2018): Intramural R&D expenditure (GERD) by sectors of performance
National total researchers in full-time equivalent (FTE) as a percentage of EU28	Eurostat (2018): Total R&D personnel by sectors of performance, occupation and sex
National researchers in government and higher education sectors in full-time equivalent (FTE) as percentage of EU28	Eurostat (2018): Total R&D personnel by sectors of performance, occupation and sex
National total researchers in full-time equivalent (FTE) per million population	Eurostat (2018): Total R&D personnel by sectors of performance, occupation and sex
National government and higher education researchers in full-time equivalent (FTE) per million population	Eurostat (2018): Total R&D personnel by sectors of performance, occupation and sex
Foreign ownership of domestic inventions per million population	OECD.stat (2018): International co-operation in patents
Domestic ownership of foreign inventions per million population	OECD.stat (2018): International co-operation in patents
Patents with foreign co-inventor per million population	OECD.stat (2018): International co-operation in patents
Foreign ownership of domestic inventions as a percentage of EU28	OECD.stat (2018): International co-operation in patents
Domestic ownership of foreign inventions as percentage of EU28	OECD.stat (2018): International co-operation in patents
Patents with foreign co-inventor as a percentage of EU28	OECD.stat (2018): International co-operation in patents

## USING THE FUZZY LOGIC DESCRIPTION FOR THE EX ANTE RISK ASSESSMENT IN THE PROJECT

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### ABSTRACT

*Each action undertaken by a human being is connected with a risk. It also refers to actions with unrepeatable character, such as projects. Projects as such are perceived as enterprises of unique character, referring to future solutions, the results of which may differ from accepted assumptions and goals in the project. The main problem in quantitative risk analysis is description of influence of uncertainty. The mathematical methods used for its description are generally based on the four attempts: deterministic with elements of statistical analysis, stochastic, using fuzzy logic and using interval computations. In risk analysis there are usually taken into account the following areas of risks: project milieu, client and contract, suppliers, maturity of the organization, project characteristics and project team. The following thesis was formulated in the article: identification and ex ante risk assessment contributes to its efficient implementation or abandonment of its implementation. The goal of the article is the ex ante assessment of the complete project risk at most based on six partial risks specified in the scope of project milieu (client, terms and conditions of the contract, suppliers, maturity of an organization, scope of the project, project team), using the fuzzy logic attempt.*

**Keywords:** *Fuzzy logic, Risk assessment, Project*

### 1. INTRODUCTION

Currently, the developmental expansion of contemporary organizations is carried out through implementation of projects (Kozień, 2017). It is assumed that implementation of projects refers to a beneficial change, defined by quantitative and qualitative characteristics of the project (Turner, 1993). However, the specified goals and assumed beneficial results of the project refer to future solutions and they are connected to a risk of attaining them. This is why the identification and risk assessment is important at every stage of implementation of the project; it means that the risk assessment in the project is a continuous process. Already at the initial stage of project preparation, the completed identification and *ex ante* risk assessment in the project decides on its implementation or abandonment. In practice, the *ex ante* risk assessment serves for specification of the level and kinds of allowable partial risks. Positive decision of access to project implementation, taken up on the basis of the performed *ex ante* risk assessment in the project, in the phase of project preparation requires monitoring of kinds of partial risks, identified in the initial phase. The main problem in quantitative risk estimation is description of influence of uncertainty. The mathematical methods used for its description are generally based on the four attempts: deterministic with elements of statistical analysis, stochastic, using fuzzy logic and using interval computations. Some elements of application of statistical analyses were discussed by the author in (Kozien, 2017).

The application of interval arithmetics as a method of measurement of uncertainty was applied by the authors in (Kozien, Kozien, 2017). Fuzzy logic are used in particular description of uncertainty in different areas of application, e.g. in different analyses of irregular data (Pietraszek, 2013; Pietraszek, Kolomycki, Szczotok, Dwornicka, 2016; Pietraszek, Sobczyk, Skrzypczak-Pietraszek, Kolomycki, 2016), control of systems (Filo, 2013), risk assessment (Shang, Hossen, 2013; Shapiro, Koissi, 2015). In the article the use of fuzzy logic was proposed to assess risks ex ante. The following thesis was formulated in the article: identification and ex ante risk assessment contributes to its efficient implementation or abandonment of its implementation. The goal of the article is the ex ante assessment of the complete project risk at most based on six partial risks specified in the scope of project milieu (client, terms and conditions of the contract, suppliers, maturity of an organization, scope of the project, project team), using the fuzzy logic attempt.

## **2. IDENTIFICATION OF KINDS OF RISKS IN THE PROJECT**

Research referring to risk is conducted in many scientific disciplines. In 1964 D.B.Hertz introduced a notion of risk in a context of analysis of uncertainty concerning capital investments (Hertz, 1979). From that moment onwards, risk analysis in the field of management has become a subject of scholarly analyses, with time forming a separate subject of risk management, the output of which is used in the scope of other areas, including project management. Now it is worth noting that already in 1921 F.Knight drew our attention to differentiation of two notions, namely uncertainty and risk. F.Knight in his fundamental work titled *Uncertainty and Profit*, separated the sensu stricto unmeasurable uncertainty from measurable uncertainty, namely risk (Knight, 2006; De Meyer, Loch, Pich, 2002). Risk, perceived as measurable uncertainty accompanies all actions undertaken in an organization, both standard, i.e. repeatable ones, as well as non-standard actions, implemented in a form of projects. Problem of ex ante risk assessment due to its uniqueness as well as specific characteristics – is a challenge to improvement professional methods serving for identification and ex ante risk assessment in the project. Application of methods of identification and ex ante risk assessment in a project may effectively reduce failure of its implementation. Coming to the explanation of a notion of risk, in a context of project management it is connected to a situation in which some events may occur which may impact on the results of undertaken actions in the scope of a project being implemented. Positive impact of events on performance of a project is noticed by D.M.Kirschbaum, who interprets a notion of the risk as all uncertainty, also such one which will positively change the course and effects of a project (Kirschbaum, 2000). However, B.Zurek defines risk as an uncertain phenomenon, regarding the future, the occurrence of which will have negative impact on project implementation (Zurek, 1999). This approach corresponds to a negative concept, which identifies risk solely with danger, loss or damage (Wilson, 2005). However, the appropriate approach to risk analysis in a project is explaining it in a context of both positive and negative impact on the effect of actions. The global Project Management Institute emphasizes the significance of risk identification in projects being prepared and implemented, defining risk as uncertainty as to the occurrence of an event or a condition, which, if they occur, will have a significantly positive or negative impact on a course of a project (A Guide to the Project Management, 2013). Risk may be also generally identified as combinations of probability of occurrence of an event and its effects (ISO IEC Guide 73:2002, 2002), which have, pursuant to a neutral concept, impact on project implementation. Neutral concept is based on an assumption that risk is a neither positive nor negative phenomenon (Jajuga, 2007), however, the occurrence of risk causes a fact that the obtained result of an action will be different than the anticipated one (Kaczmarek, 2002). However, the probability of occurrence of an event in various kinds of enterprises entails effects which may turn out to be a chance or a risk for success of a project (Risk Management Standard, 2003).

This is why identification and risk assessment in a project increases the chances for its success. Identification and risk assessment in a project is of practical character and refers to events which are known or which can be known, the probability of occurrence of which or effects or its occurrence can be assessed. In project management practice the attention is drawn to these uncertainties which cause risks in the scope of a goal, time, costs and quality of project implementation, i.e. the events which may contribute to failure to attain the goal of the project, its delay, increase of costs or negatively impact a project in any way. Shallowing of identification of uncertainty in a project to basic parameters of a project triangle (also referred to as golden triangle or iron triangle (Yu, Flett, Bowers, 2005)) was to prove the objective assessment, however, de facto, it did not constitute a multi-aspect risk assessment in a project (Shawn, Huges, Donald, Warren, 2004). Urgency of a problem of identification and risk assessment in a project predisposed the authors of the article to tackle the problem. The identification as such and price of risk in a project is a dynamic process and requires specifying a moment (moments) of conducting the specification. In a project a risk assessment may be performed:

- ex ante, which involves anticipation of probability and of effects of risk occurrence in a project. Ex ante risk assessment conducted at an initial stage of project preparation bears impact on a decision to take up implementation of a project,
- on-line, refers to ongoing monitoring or partial risks assessed in an initial phase of project implementation as well as identification of new ones, which occurred during its implementation,
- ex post, which concerns the final risk assessment connected with closing a project.

Ex ante moment was accepted for identification and assessment of risk in a project. Ex ante assessment of risk in a project gives a possibility of real management of partial risks in an initial phase of preparation, as well as during implementation of a project. Identification (Latin: identificare) means establishment, confirmation and involves defining of partial risks. Whereas assessment (Latin: aestimatio) means value or estimation, valuation of something, and is of valuating character referring to norms, accepted and effective standards, as well as benchmark systems of assessment. In reference to the approved research goal the methodology of identification was formed as well as methodology of ex ante assessment of risk level in a project, which includes the following stages:

1. Specification of a goal and subject of identification as well as *ex ante* risk assessment,
2. Identification of partial risks in a project,
3. Application of fuzzy logic method for identification and *ex ante* risk assessment in a project,
4. Complete ex ante assessment of the level of risk in a project.

First stage of the formed methodology of ex ante risk assessment in a project concerns the specification of the objective as well as the subject of identification and risk assessment. The purpose of the research is the ex ante assessment of risk level in a project using the fuzzy logic method. However, the subject of ex ante assessment of risk level are the differentiated projects.

Second stage – identification of partial risks in a project involves a selection of partial risks which will be taken into consideration in ex ante assessment of the total level of risk in a project.

Third stage – application of the fuzzy logic method for identification and ex ante risk assessment in a project means the specification of the total risk of the project on the basis of partial risks defined by appropriate membership functions.

Fourth stage – complete ex ante assessment of the risk level in a project is a result of the obtained partial risks identified in the project using the fuzzy logic method.

Identification of partial risks of the project in a phase of its preparation refers to elements of a milieu of the project, which affect the course and effects of a project. Project milieu is formed by institutions, processes, phenomena. Specification of partial risks at a stage of project preparation was limited to six partial risks creating the external proximal project milieu and the internal project milieu. The following elements were included into the external proximal project milieu: partial risk connected with a client, terms and conditions of a contract, suppliers. Whereas, the internal project milieu is identified by partial risks concerning maturity of an organization, scope of the project and a project team. The differentiated partial risks were also taken into consideration in the „risk list” method (Kozień, 2018).

### 3. BASIS OF FUZZY LOGIC

In many practical analyses, especially connected with assessments performed by people, the assignment of specific values to selected descriptive characteristics is not unambiguous (e.g. quoting the border value of growth for differentiation of a characteristic high/low, giving the value of temperature in a living room to differentiate the notions: warm/ cold, quoting the speed of a bike to differentiate between fast/ slow). It results from a subjectivity of individual assessments of particular persons. One could say that the borderline value of a parameter differentiating the assigned characteristics is “fuzzy”. Classical mathematical models require the unambiguous quotation of the value of this border. In 1965 L.A.Zadeh formed a theory of fuzzy sets, in which a membership of an element in a specific set is given with a specific probability, in differentiation from classical theory of sets, in which the element belongs to a given set or it does not belong to it (Zadeh, 1965). Further, the processes on fuzzy sets were defined, analogically to processes on classical sets. However, in case of fuzzy sets various formal definitions may be encountered (operators’ definitions):

- sum – maximum (Zadeh), algebraic sum, Hamacher’s sum, Einstein’s sum, drastic sum, limited sum.
- minimum (Zadeh), a simple Boolean intersection, Hamacher’s product, Einstein’s product, drastic product, limited product,
- complementation.

Based on a notion of fuzzy sets the notion of fuzzy logic was built next. Fuzzy logic makes it possible to incorporate in natural way information described in linguistic form (Shang, Hossen, 2013). “Fuzzy logic may be viewed as an attempt at formalization/mechanization of two remarkable human capabilities. First, the capability to converse, reason and make rational decisions in an environment of imprecision, uncertainty, incompleteness of information, conflicting information, partiality of truth and partiality of possibility – in short, in an environment of imperfect information. And second, the capability to perform a wide variety of physical and mental tasks without any measurements and any computations” (Zadeh, 2008). The fuzzy set theory seems to be the most useful method of taking into account the uncertainty in social analyses. Basics of theory of fuzzy sets can be found in many books, for example: D.J.Dubois and H.M.Prade (Dubois, Prade, 1980). L.A.Zadeh (Zadeh, 2012), H.J.Zimmermann (Zimmermann, 1996). Taking into account the practical application of theory of fuzzy sets and fuzzy logics for the analysis, based on the data coming from measurements (technology) or coming from replies persons to questionnaires, checklists (social sciences) one should draw the attention to the stages of analysis described below.



Stages of analyses using fuzzy logic:

1. Fuzzification

The issue of analyses is the application of the so-called linguistic variable. This notion means a variable the value of which is expressed descriptively in a natural language, e.g. short/medium/tall (height of an individual), low/medium/high (speed), low/high (temperature), low/high (risk). These values are assigned to quantitative measurements within the meaning of theory of fuzzy sets. It is performed by a selection of an appropriate kind of a membership function and its precise defining by approval of values of parameters defining these functions. Examples of membership function are the following: triangular, trapezoid, Gaussian, bell-shaped, s class, z class. Process of connecting of linguistic value with its corresponding membership is called fuzzification.

2. Defining rules

Building the basis of rules is a significant elements of fuzzy inference. Pursuant to the phrasing of the Mamdani's rule they take a following form: if ( $x_1=A_1$ ) and/or ( $x_2=A_2$ ) and/or ... then ( $y=B$ ), where:  $x_1, x_2, \dots, y$  – linguistic variables,  $A_1, A_2, \dots, B$  – fuzzy sets. The defined logical conditions between the input characteristics (linguistic variables) and a specified output characteristics (linguistic variable).

3. Analysis

Based on fuzzy sets and fuzzy logic principles the analysis of a set is a system analysis is performed after accepting appropriate numerical values of analyzed input parameters connected with linguistic variables  $x_1, x_2, \dots$  and a fuzzy set is denoted, which is connected with linguistic variable  $y$ .

4. Defuzzification

One value defining a result is obtained from the obtained result in a form of a specified fuzzy set connected with linguistic variable  $y$ . Process of defuzzification is not unambiguous. Various methods are used, e.g. of the first maximum, last maximum, centre of gravity, centre of maximum.

#### 4. IDENTIFICATION AND EX ANTE RISK ASSESSMENT IN A PROJECT USING FUZZY LOGIC ATTEMPT

The analyzed example refers to a quantitative risk analysis in a project, which was presented in an article (Kozien, 2018). This analysis was performed using a risk-list method proposed by the author, and being an extension of Bradley's concept (Bradley, 2006). For the total analysis of project risk, performed *ex-ante*, the partial risks in the scope of project milieu are analyzed and they refer to: client and terms and conditions of a contract, supplier, maturity of organization, scope of the project, project team participating in the project. Similarly as in the article (Kozien, 2018) in reference to the Bradley's proposal (Bradley, 2006), the risk is assessed quantitatively in this scope [0,4]. For the total analysis of the project risk, using the fuzzy analysis method, the above partial criteria were approved as the input quantities of analyses, assuming linguistic variables assessing risk level for each criterion in a two-level form: low risk/high risk. Next, for each of the partial criteria the characteristic, arbitrarily approved membership functions were presented in Figure 1. Whereas, in order to describe the complete risk of the project in reference to Bradley (Bradley, 2006) four levels of linguistic variable are defined: low risk, moderate risk, high risk, very high risk and the membership function was approved in a form presented in Figure 2. In the subsequent stage a set of 64 rules of inference were formed. It was assumed that:

- low risk occurs in case when at least one partial risk was assessed to be high;
- moderate risk occurs when two or three risks were assessed to be high;
- high risk occurs when four risks were assessed to be high;
- very high risk occurs when at least five partial risks were assessed as high.

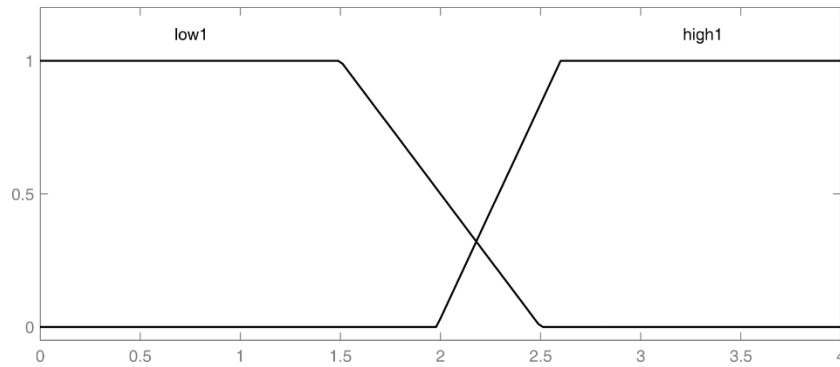


Figure 1: Membership functions for two levels of risk of the partial criteria

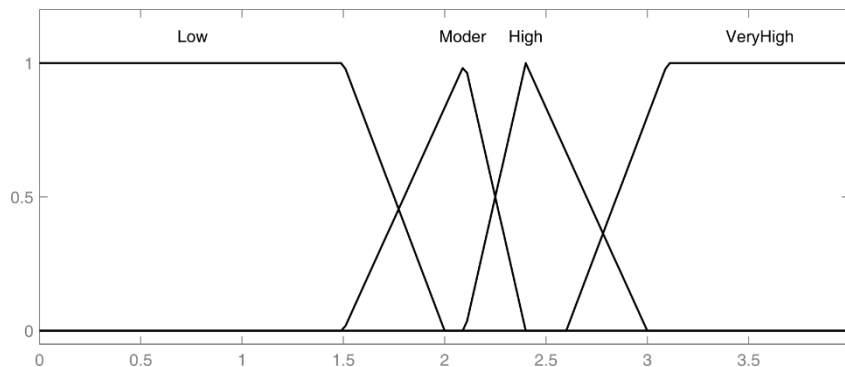


Figure 2: Membership functions for four levels of total risk

Analysis was performed following the acceptance of the following values of partial risks, the same ones like in an article (Kozien, 2018):

- Client – 3.50,
- Terms and conditions of the contract – 1.33,
- Suppliers – 2.16;
- Maturity of the organization – 2.00;
- Scope of the project – 2.29;
- Project team – 2.49.

The performed analysis using fuzzy logic allows for designation of complete project risk assessment of the value of 2.12, what in a descriptive interpretation means moderate risk. This is the same linguistic description of the risk is applied in the risk-list method (Kozien, 2018) and almost the same obtained quantitative result (for the risk-list method the obtained estimation of the complete risk estimation was 2.13 – moderate risk).

## 5. CONCLUSIONS AND RECOMMENDATIONS OF SPECIFIC SOLUTIONS

Identification and ex ante risk assessment in a project is a key element of project management, facilitating making a decision on its implementation or abandonment. The suggested method of identification or ex ante risk assessment in a project using the fuzzy logic serves for assessment of the complete risk in an initial phase of a project. Method of identification and ex ante risk assessment is of universal character, it means that a number of assessed risks may change. The benefit of the method is a possibility of performing the identification and ex ante assessment of complete risk in a project at a stage of its preparation. Project manager may define strategy of proceeding in reference to identified partial risks in a project, i.e. take up a decision on their acceptance, avoidance, securing transfer or reduction. Fuzzy logic method seems to be a method which in the most natural manner allows to take into consideration a descriptive character of ex

ante assessment of partial risks and the complete risk in a project in fuzzy subjective categories: low risk, moderate risk, high risk, very high risk. In an analysis, apart from input values characterizing the level of partial risks, it is essential to properly define membership function which must be connected with a kind of project which is being assessed with this method. Quantitative result of total analysis of risk also depends on a selection of one models of defuzzification presented in the article.

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# **SATISFACTION DETERMINANTS OF HEALTHCARE PROFESSIONALS AND INSTITUTIONS IN PORTUGAL'S NORTH REGION**

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## **ABSTRACT**

*The issue of job satisfaction is a very interesting topic nowadays, as it is increasingly important that employees feel good within the organization, ensuring they are satisfied with the tasks assigned, together with the possibility to claim whenever they are not satisfied. The examination of the satisfaction determinants has thus become increasingly relevant because it is pointed out as a variable, which implicitly and explicitly, is linked cumulatively to the productivity and personal fulfilment of workers. Greater professional satisfaction contributes to the professional quest for finding of a meaning in the work activity, while adopting positive attitudes towards institutional development (Lunga, Veloso & Fernandes, 2017). The main objective of this research is to assess the level of satisfaction of the employees of the Integrated Response Centers (CRI – “Centros de Respostas Integradas”) in the Northern Region of Portugal, through the application of the CAF Model 2006, and also to assess the main variables that may influence job satisfaction. The results show that the degree of professional satisfaction of the CRI employees in the North of Portugal is positive and facilitates an understanding of the determinants of professional satisfaction and their mastery in organizational strategy and competitiveness. Furthermore, the results suggest that CRI health professionals from the North of Portugal are globally dissatisfied, while the study additionally indicates which variables influence the most the professional satisfaction of the CRI employees in the North of Portugal. This paper offers a contribution to support those responsible with the definition of policies and measures that allow the improvement of professional satisfaction and consequently of the organizational performance and competitiveness.*

**Keywords:** *Professional Satisfaction, Public Institutions, Organizational Performance, Motivation, Management, Integrated Response Centers (CRI)*

## **1. INTRODUCTION**

Human resource management is based on the affectation of human behavior and its connection and correlation with organizational objectives. The management of workers, from planning, direction and leadership, to control are closely related to the perceived dimensions of their workers. When analyzing dimensions that promote professional satisfaction is building a set of determinants that can be evaluated in the context of Human Resources Management in order to maximize value for the professional and also for the institution. This study focuses on the professionals who work in the CRI of the North region, trying to perceive the professional satisfaction of these collaborators, and to relate the variables associated with this condition

(sociodemographic, professional context, training context and work context). Professional activity occupies most of the time of the people as workers, and assumes considerable importance in the life of the active population. For this reason it is extremely relevant that the workplace provides general well-being, since this satisfaction exhibits a direct connection with the other spheres of life of the active population. Professional satisfaction is a difficult subject to clarify because it relates the individual to his / her posture and how he / she feels in the workplace, and thus can be considered an essential theme for the progress and sustainability of the tasks of the organizations that takes this theme to be the focus of analysis in recent years (Oliveira, 2015). According to Graça (1999), job satisfaction comprises an attitude or an emotion that assumes concrete meaning in behaviors and opinions expressed. According to Henriques (2009), each subject has his or her priorities and then their satisfaction will depend on several factors such as their training, their aspiration, the task they carry out in the organization, their experiences and their experiences, we can add that professional satisfaction is the relation of quality of life at work and the emotional conditions of the subject relative to work. Barros and Cunha (2010) affirm that it is the activity that determines the set of all the actions (thoughts, feelings and emotions) that characterize human behavior at work. There are several studies that show that job satisfaction has an effective effect on the productivity of organizations, on the well-being of employees and also on the various dimensions that are directly or indirectly associated with people, both in the labor and personal fields. Several dimensions were indicated in order to ascertain professional satisfaction: working and health conditions, job security, achievement, autonomy, relationship, prestige and remuneration. Professional satisfaction can be assessed by different approaches and in different environments. The purpose of this study is to study the determinants of professional satisfaction of the CRI employees in the Northern Region and to perceive that aspects are more valued by these professionals in their work environment. This study supposes a reflection about the way in which the sociodemographic variables, of professional context, of context of formation and of work context influence the level of professional satisfaction, of the professionals that exercise functions in the CRI of the North region. Thus, it is crucial that the IRI Directorate of the Northern Region understands what its employees expect and has the duty to promote measures in this direction, evidently within the admissible and practicable parameters of the institution. The realization of this research on the professional satisfaction of the CRI employees of the Northern Region makes it possible to understand the perception of these professionals about this reality, to know what motivates them and what their expectations, and through this knowledge to improve their productivity, performance and efficiency, as well as the quality of the service provided by the Integrated Response Centers. Lobos (1978) argues that so many managers and social researchers believe that if labor dissatisfaction were reduced, human barriers to production would be eliminated and transformed into a force that would promote improved performance and consequently organizational competitiveness. It is hoped that this study will contribute to a better understanding of the professional satisfaction of the CRI employees of the Northern Region in order to allow the Directors of the CRI to adopt intervention measures that favor the well-being, the expectation of the professionals and simultaneously promote, the best institutional performance and the quality of service provided by the CRI of the Northern Region of Portugal.

## **2. THEORETICAL BACKGROUND**

### **2.1. Job Satisfaction**

Work satisfaction is observed as a relevant requirement for the progress of tasks in organizations and is related to the subject's way of being, his expectations and the way he feels in the workplace. This concept depends on several factors, so it is difficult to produce an exact definition of it.

We can thus define professional satisfaction as the consequence of the appreciation that each subject makes regarding the level of realization of their values, needs, preferences, work experiences and self-fulfillment (Oliveira, 2015). There are several meanings of the concept of satisfaction at work or professional, we can refer to satisfaction as an emotional condition, feelings or affective attitudes, including the latter term other phenomena such as esteem, appreciation, mood and emotions that are the form of a more complete affection and whose duration is more precise than the other phenomena (Locke, 1976, Cristes, 1969, Mueller & McCloskey, 1990, Fiske & Taylor, 1991, Muchinsky, 1993, Newstrom & Davis, 1993 and Fernández- cited by Ferreira, Neves & Caetano, 2001). Other authors define satisfaction at work as a generalized provision with regard to work, thus observing the satisfaction in the circuit of work postures, being allied to subjects and due appreciation by the subjects (Beer, 1964, Arnold, Robertson & Cooper, 1991, quoted by Ferreira, Neves & Caetano, 2001). We can highlight several factors that contribute to professional satisfaction, they are the autonomy so that employees can participate in aspects of the decision-making procedure, thus collaborating to the satisfaction of the characteristics of commitment and autonomy of work, open participation and exchange also provide a secure relationship between management and employees. Another relevant factor is the employee reward system which must be based on the work model, level of skill and knowledge and the burden on employees to feel appreciated and motivated in their work, thus satisfying the rewarding character of his work. The bonus factor is based on performance as well as on human resource strategies such as open participation, career advancement plans and employee reward systems (Mohanty, 2009, op. cit. Saner & Eyupoglu, 2015). According to Fonseca (2014), professional satisfaction should be understood as a compound, subjective occurrence that varies from subject to subject, also depends on reasons internal and external to the professional environment, and may thus influence health physical and intellectual well-being of the professional, as well as his / her social and professional conduct, affecting his or her private life, family life and the organization in which he / she is inserted.

## **2.2. Determinants of professional satisfaction**

According to the authors Raziq and Maulakhsh (2015), there are several determinants of job satisfaction, such as including employees in the overall decision-making process, flexible work schedules, less workload, a group work approach and a high management support. These factors thus have a positive impact on employee performance leading to a high level of job satisfaction, making employees more committed to business, more motivated to work and more predisposed to high productivity for business, benefiting the business in the long run. We can distinguish the determinants of job satisfaction through the function characteristics, these are based on the "Job Characteristics Index - JCI" and depict four characteristics of this tool, independence, return, diversity and similarity of tasks, rewarding, and orderly, of particularities and organizational oppressions (where we can distinguish eight likely areas of stimulus oppression, being communication required for the proper execution of the task, working tools, materials and administrator, economic support, tasks (eg due to the constraints of the private and the work environment, and vice versa), demographic variables, dispositional factors ( such as genetic character, personality traits, among others) (Ferreira, Neves & Caetano, 2001). As indicated by Alcobia (2001), op. cit. Fonseca (2014), we can identify several dimensions of job satisfaction, such as leadership, organization, co-workers, work contexts, career development, expectations promotion, monetary gratification, "subordinates", the permanence of work, the amount of work and self-fulfillment. Conferring to Locke (1976), nine dimensions are highlighted, these being distributed as follows, the first six are considered "events" or "conditions" (manifested in five conditions, the internal nature of work, the salary, the promotion, the stability of employment

and the circumstances of work) and the last three are called "agents" (what the author refers to as the subject itself, the leaders, colleagues and the specificities of the organization).

### 3. METHODOLOGY

This research deals with the professional satisfaction of health professionals working in the Northern Portugal CRI and intends to understand some of the determinants that influence how the employee feels in the workplace and how he perceives his profession. In order to respond to the main objective, the following research hypotheses (HI) were established:

- H<sub>1</sub>: There are differences in the average values of work satisfaction for the sociodemographic characteristics.
- H<sub>2</sub>: There are differences in the average values of job satisfaction for the professional characteristics.
- H<sub>3</sub>: There are differences in the average values of job satisfaction for the level of training.
- H<sub>4</sub>: There are differences in average values of job satisfaction for the job characteristics.

In order to respond to the main objective of the present study, an anonymous and confidential questionnaire survey was applied to the health professionals of the Northern Portugal CRI, divided into two parts. In the first part, composed of a previous questionnaire, the questions were elaborated by the researchers, including sociodemographic, professional, training and work variables, among others. A second part is the CAF Model 2006, Common Framework for Quality Assessment of the Common Administrations of the European Union. After data collection, the database was constructed, processed, processed, analyzed and interpreted. Initially, to describe and characterize the study sample, an exploratory descriptive analysis of the data was performed according to the nature of the variables under study. Statistical measures were used: absolute frequencies, relative frequencies, mean, standard deviation, bar graphs, with the purpose of describing the characteristics: sociodemographic, professional, work and satisfaction manifested by the respondent. Subsequently, to perform the necessary inferential analysis, the parametric tests were applied to understand the differences between the means and the relation between the variables, whenever possible, and when the assumptions for their application were not violated and when this is not possible tests not parametric. The relationship between the variables of the first part of the questionnaire and the dimensions of satisfaction with the work scale, namely: Overall satisfaction of employees with the institution (SGFI); Satisfaction with the management and management systems (SGSG); Satisfaction with working conditions (SCT); Satisfaction with Career Development (SDC); Levels of motivation (SL); Satisfaction with leadership style (SEL); Satisfaction with superior leadership style (SELT); Satisfaction with the leadership style of the intermediate level manager (SELI); Satisfaction with hygiene, safety, equipment and services (SCHSES); Satisfaction with the current remuneration system (SSRV) will establish the predominant determinants of job satisfaction in these professionals.

## 4. DATA ANALYSIS AND FINDINGS

### 4.1. Sociodemographic Characterization

Table 1 presents the sociodemographic characterization of the individuals involved in the survey. A total of 169 employees participated in the study, 25.4% (43) men and 74.6% (125) women. It is observed that 27.2% (46) were 40 years old, 40.8% (69) were between 41 and 50 years old and 32% (54) were older than 50 years. Regarding marital status, 66.9% (113) were married or in union, 21.9% (37) were single, 10.7% (18) were divorced and one individual was widower. The majority, 66.9% (113) had children. Of these 42.5% (48) had a child, 44.2% (50) and 7.1% (8) had three or four children. As for educational qualifications, 21.3% (36) did not have a university degree, 27.2% (46) had a degree, 19.5% (33) were specialists and 18.3% (31)



. Regarding the professional category, it is observed that 24.3% (41) were technical assistants; 13.6% (23) were social workers; 23.7% (40) nurses; 18.3% (31) were psychologists; 11.2% (19) physicians; 3.6% (6) operational assistants; 1.2% (2) sociologists and 4.1% (7) were senior technicians.

Variables		n	%
Gender	Male	43	25,4%
	Female	126	74,6%
	Total	169	100%
Age	Up to 40 years	46	27,2%
	41 to 50 years	69	40,8%
	Higher 50 years	54	32,0%
	Total	169	100%
Marital Status	Single	37	21,9%
	Married/Union of fact	113	66,9%
	Widower	1	0,6%
	Divorced/Separate	18	10,7%
	Total	169	100%
Children	Yes	113	66,9%
	No	56	33,1%
	Total	169	100%
Number of children	One son	48	42,5%
	Two sons	50	44,2%
	Three or four children	8	7,1%
	Did not answer	7	6,2%
	Total	113	100%
Academic Qualifications	No higher education	36	21,3%
	Bachelor's Degree	7	4,1%
	Graduation	46	27,2%
	Postgraduate studies	8	4,7%
	Specialty (Expertise)	33	19,5%
	Master	31	18,3%
	PhD	8	4,7%
	Total	113	100%
Professional Category	Technical assistant	41	24,3%
	Social worker	23	13,6%
	Nurse	40	23,7%
	Psychologist	31	18,3%
	Doctor	19	11,2%
	Operational Assistant	6	3,6%
	Sociologist	2	1,2%
	Senior Technician	7	4,1%
	Total	147	100%

*Table 1: Sample sociodemographic characterization*

#### **4.2. Results of the sociodemographic Dimension**

Regarding the results of the dimensions of the CAF scale according to the gender of the respondent, it can be seen that in all dimensions the average values obtained for women are higher than the average values obtained for men. It is verified that the observed differences between men and women are not at a significance level of 5% statistically significant. Regarding the results of the CAF scale according to the respondent's age range, employees older than 50 presented higher average satisfaction values in all dimensions except for NMs in which the younger employees present higher average value. By applying the Anova test it is concluded that the observed differences are not at a significance level of 5% statistically significant. It can be said that satisfaction levels in each dimension of the scale and overall are identical among employees of different age groups. It can be seen that the results of the dimensions of the CAF scale according to the civil status of the respondent are, in all dimensions, the average values obtained for unmarried employees are higher than the average values obtained by married or in union. It is verified that the observed differences between the different civil states are not at a significance level of 5% statistically significant. The results of the dimensions of the CAF scale according to the fact that the respondents have children or not, indicate that in all dimensions the average values obtained by employees who do not have children are slightly higher than the results of employees with children. It is verified that the observed differences between employees with or without children are not at a significance level of 5% statistically significant.

#### **4.3. Results of the training Dimension**

Regarding the qualifications, it is verified that the obtained results are relatively close between different qualifications, standing out the professionals with baccalaureate / degree with the highest average levels of satisfaction in almost all dimensions and overall satisfaction and the professionals with masters / doctorates with the lowest average levels of satisfaction in all dimensions of the CAF. By applying the Anova / Kruskal-Wallis test we conclude that the observed differences are at a significance level of 5% statistically significant in SEL and SSRV dimensions. By the application of the multiple comparisons it was concluded that the differences in the SEL dimension are significant among professionals with bachelors degree and those with masters / doctorate; in the SSRV dimension the differences are significant among the professionals with no higher qualification and those with masters / doctorates. It was verified that the results of the dimensions of the CAF scale according to the ease of attending training by the professionals interviewed, the following, in all dimensions, the average values obtained by the professionals who affirm that they are easy to attend training are higher than the values obtained by professionals who did not express this facility. It is verified that the observed differences between professionals with and without ease of attending training are statistically significant in the dimensions: SGFI, SCT, SDC, SELI and SG. In the remaining dimensions the observed differences do not present statistical significance at a significance level of 5%. It can be said that professionals with ease in attending training were more satisfied in the dimensions evaluated by the CAF, being this difference statistically significant in SGFI, SCT, SDC, SELI and overall scale.

#### **4.4. Results of the professional Dimension**

Regarding the professional category, it can be verified that the results obtained are relatively close between categories, standing out the nurses with higher average levels of satisfaction in the dimensions: SGSG (2,858); STC (3,475); SDC (3,245); SEL (3,261); SELT (3.033); SELI (3,490); SCHSES (3.0282) and SG (3.191). In the other dimensions, the health or support technicians in the service stand out. The lowest mean values in all dimensions, except SSRV, were obtained by physicians. By applying the Anova / Kruskal-Wallis test, we conclude that the observed differences are at a significance level of 5% that is statistically significant in the

SDC and SELI dimensions. By the application of multiple comparisons it was concluded that the differences in these two dimensions are significant between nurses and physicians. With respect to the results obtained for dimensions and overall CAF as a function of the professional service time, it is verified that the results are very similar between the groups. The satisfaction, considering the time of professional exercise, in average terms in the dimensions: SGSG, SELT and SSVR is inferior to the theoretical average values, in the remaining dimensions and total of the scale is superior. As for the results obtained for the dimensions, it is verified that, in general, mid-career professionals have the lowest average levels of satisfaction and those who work for at least 30 years present the highest average satisfaction values. After applying the Anova or Kruskal-Wallis test depending on whether or not the assumptions were verified, it was concluded that the differences observed among professionals with different professional service times are not at a significance level of 5% that are statistically significant. Thus, it can be affirmed that the professional service time is not determinant in the satisfaction of the professionals in the scale under analysis. Regarding the results obtained for dimensions and overall CAF as a function of the service time in the function, it is verified that the results are very similar between the groups. The satisfaction, considering the time of exercise in the function, in average terms in the dimensions: SGSG, SELT and SSVR is inferior to the theoretical average values, in the remaining dimensions and total of the scale is superior. As for the results obtained for the dimensions, it is verified that, in general, the professionals who are in the middle of the time of service in the function present the lower average levels of satisfaction and those who work between 20 and 24 years in the function present the mean values of satisfaction, except for the dimensions: SDC, SELT, SCHSES and SSRV in which the highest values are of the professionals with at least 25 years in the function. After applying the Anova or Kruskal-Wallis test depending on whether or not the assumptions were verified, it was concluded that the differences observed between the professionals with different service times in the function are not at a significance level of 5% statistically significant. Thus, it can be stated that the time of service in the function is not determinant in the satisfaction of the professionals in the scale under analysis. The results of the dimensions of the CAF scale according to the link of the professionals interviewed indicate that in all dimensions the average values obtained by professionals with a non-effective link are higher than those obtained by the professionals in the service. It is verified that the observed differences between effective and non-effective professionals are statistically significant in the dimensions: SGFI, SGSG, SELT and SG. In the remaining dimensions the observed differences do not present statistical significance at a significance level of 5%. It can be said that non-effective professionals were more satisfied in the dimensions evaluated by the CAF, being this difference statistically significant in SGFI, SGSG, SELT and overall scale.

#### **4.5. Results of the working Dimension**

The results of the dimensions of the CAF scale according to the type of service provided by the professionals under study indicate that in all dimensions, except for: NM, SELI and SCHSES, the average values obtained by professionals with direct service provision are higher than the average values obtained by professionals without direct benefit. At a significance level of 5% it was concluded that the observed differences were statistically significant in SSRV. In the remaining dimensions and overall satisfaction the observed differences are not at a significance level of 5% statistically significant. Regarding the workplace, it is observed that the results obtained are relatively close between different places, especially professionals in the therapeutic community with the highest levels of satisfaction in the dimensions: SGFI, SGSG, SDC, NM and overall satisfaction; the professionals of the IRC-North presented the highest average levels in the dimensions: SCT, SHSES and SSRV; the professionals of the central services were the most satisfied with the leadership.

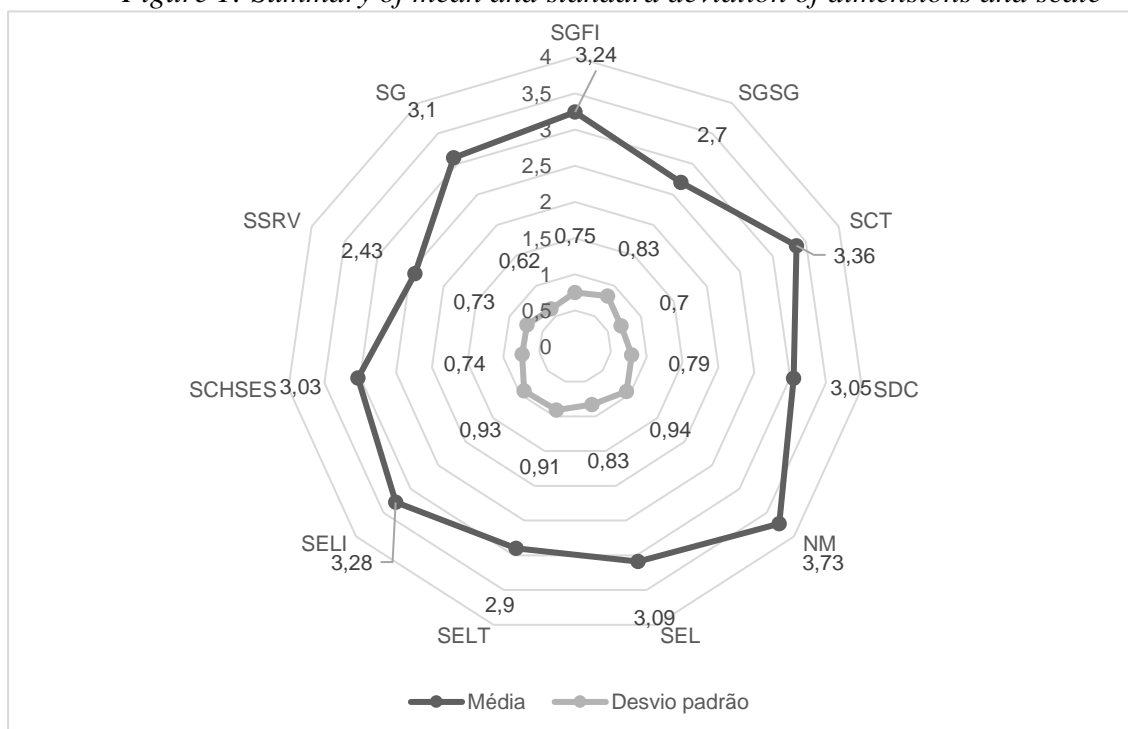
On the other hand, in all dimensions, the professionals of the PIAC, Alcoologia and Desabituação (alcohol detox) presented the lowest average levels of satisfaction in all dimensions of the CAF. By applying the Anova / Kruskal-Wallis test, we conclude that the differences observed are at a significance level of 5%, which is statistically significant in the SGSG dimension, and it is concluded through multiple comparisons that the differences are significant among the professionals who working in the Northern CRI in those working in "PIAC / Alcoologia / Desabituação". In the remaining dimensions and overall satisfaction the observed differences are not statistically significant. Thus, it can be stated that in general the workplace is not determinant in the satisfaction felt by professionals, with the exception of the SGSG dimension. The results of the CAF scale as a function of the satisfaction with the salary by the professionals interviewed indicate that in all dimensions the average values obtained by professionals who affirm that they are satisfied with the salary are higher than the values obtained by professionals who do not expressed this satisfaction. It is verified that the observed differences between satisfied and unsatisfied professionals with the maturity are statistically significant in the dimensions: SGFI, SGSG, SEL, SELT, SCHSES, SSRV and SG. In the remaining dimensions the observed differences do not present statistical significance at a significance level of 5%. It can be affirmed that satisfied professionals with the maturity were more satisfied in the dimensions evaluated by the CAF, being this difference statistically significant in SGFI, SGSG, SEL, SELT, SCHSES, SSRV and overall scale. The results of the dimensions of the CAF scale depend on the possibility of choosing the same institution to work for the professionals under study. They say that in all dimensions the average values obtained by professionals who stated that they would choose the same institution are higher than the average values obtained by professionals who would not make this choice. At a significance level of 5% it was concluded that the observed differences are statistically significant in SGFI and NM dimensions. It can be suggested that the choice or not of the same institution to work is not determinant in the satisfaction of the professionals evaluated by the CAF, with the exception of the SGFI and NM dimensions. The results of the dimensions of the CAF scale according to the existence of incentives felt by the professionals interviewed indicate that in all dimensions, except for SCHSES and SSRV, the average values obtained by professionals who stated that there are non-monetary incentives are higher than the values obtained by the professionals. professionals who do not identify such incentives. It is verified that the observed differences are statistically significant in the dimensions: SCT, NM, SEL, SELI and SG. In the remaining dimensions the observed differences do not present statistical significance at a significance level of 5%. The results of the dimensions of the CAF scale due to the existence of workplace conflicts felt by the interviewed professionals indicate that in all dimensions the average values obtained by professionals who stated that there are no conflicts in the workplace are higher than the values obtained by professionals who identify conflicts in the workplace. It is verified that the observed differences are statistically significant in the dimensions: SGFI, SGSG, SCT, SDC, NM, SEL, SELT, SELI and SG. In the dimensions: SCHSES and SSRV, the observed differences do not present statistical significance at a significance level of 5%. The results of the dimensions of the CAF scale as a function of the satisfaction with the social recognition by the interviewed professionals indicate that in all dimensions the average values obtained by the professionals who affirm that they are satisfied with the social recognition are superior to the values obtained by the professionals who did not manifest satisfaction. The observed differences between satisfied and unsatisfied professionals with maturity are statistically significant in the dimensions: SGFI, SCT, SDC, NM, SEL, SELT and SG. In the remaining dimensions the observed differences do not present statistical significance at a significance level of 5%. It can be said that professionals satisfied with the recognition were more satisfied in the dimensions evaluated by the CAF, and this difference was statistically significant in SGFI, SCT, SDC, NM, SEL, SELT and overall scale.

The results of the dimensions of the CAF scale according to the agreement or not about the retirement age by the professionals under study indicate that in all dimensions, except for SCHSES and SSRV, the average values obtained by professionals who stated that they did not agree with the retirement age are higher than the average values obtained by professionals who agree with the age of retirement. At a significance level of 5% it was concluded that the observed differences are not statistically significant. It can be affirmed that the agreement with the retirement age is not decisive in the satisfaction of the professionals evaluated by the CAF. The results of the dimensions of the CAF scale as a function of the managerial performance of the professionals under study indicate that in all dimensions, with the exception of SGSG and SELT, the average values obtained by the professionals who claimed to hold a management position are higher than the average values obtained by professionals who do not hold management positions. At a significance level of 5% it was concluded that the observed differences are not statistically significant. It can be affirmed that the performance of managerial position is not determinant in the satisfaction of the professionals evaluated by the CAF.

#### 4.6. Characterization of the Job Satisfaction Scale

Through the analysis of figure 1 it is possible to observe the average level of satisfaction of the respondents in all dimensions and overall scale as well as the dispersion of results, which illustrates the information in table 4. It is verified that the dispersion is in all situations less than 1 and that in general the collaborators under study are dissatisfied.

Figure 1: Summary of mean and standard deviation of dimensions and scale



*SGFI* - Overall satisfaction of employees with the institution; *SGSG*- Satisfaction with management and management systems; *SCT* - Satisfaction with working conditions; *SDC*- Satisfaction with career development; *NM* - Levels of motivation; *SEL* - Satisfaction with leadership style; *SELT* - Satisfaction with top leadership style; *SELI*- Satisfaction with the managerial style of intermediate level manager; *SCHSES* - Satisfaction with the conditions of hygiene, safety, equipment and service; *SSRV* - Satisfaction with the current remuneration system; *SG* - Global Satisfaction

Table 2 presents the results of dimension characterization. It is observed that in terms of internal consistency this varies from reasonable to very good, since the lowest Cronbach coefficient is 0.700 and the highest is 0.968. Theoretically, the expected average in each dimension is 3 points, thus, mean values lower than 3 reveal dissatisfaction and higher than 3 satisfaction, the higher the average value the higher the satisfaction in the dimension under analysis. The highest average levels of satisfaction in the dimensions were observed: SGFI (3.24 ± 0.75); SCT (3.36 ± 0.70); NM (3.73 ± 0.94) and SELI (3.28 ± 0.93): On the other hand, in the dimensions: SDC (3.05 ± 0.79); SEL (3.09 ± 0.83) and SCHSES (3.03 ± 0.74), it is verified that the average satisfaction is very close to 3, which reveals little satisfaction. In the dimensions: SGSG (2.70 ± 0.83); SELT (2.90 ± 0.91) and SSRV (2.43 ± 0.73) are relevant to the dissatisfaction of the individuals under study. In general, it is observed that the employees are not satisfied, 3,10 ± 0,62, because the average value obtained is slightly higher than expected.

*Table 2: Characterization of the dimensions evaluated in the CAF questionnaire*

Dimensions	Alpha Cronbach	n	Empirica		Average Empirical	Standard Deviation	Theoretical Average
			l Minimum m	Empirical Maximum			
SGFI	0,911	167	1,11	5	3,24	0,75	3
SGSG	0,934	164	1,00	5	2,70	0,83	3
SCT	0,876	168	1,00	5	3,36	0,70	3
SDC	0,877	168	1,00	5	3,05	0,79	3
NM	0,951	168	1,00	5	3,73	0,94	3
SEL	0,971	159	1,00	5	3,09	0,83	3
SELT	0,968	159	1,00	5	2,90	0,91	3
SELI	0,973	159	1,00	5	3,28	0,93	3
SCHSES	0,839	166	1,00	5	3,03	0,74	3
SSRV	0,700	164	1,00	4	2,43	0,73	3
SG	0,974	153	1,13	4,71	3,10	0,62	3

*SGFI - Overall satisfaction of employees with the institution; SGSG- Satisfaction with management and management systems; SCT - Satisfaction with working conditions; SDC- Satisfaction with career development; NM - Levels of motivation; SEL - Satisfaction with leadership style; SELT - Satisfaction with top leadership style; SELI- Satisfaction with the managerial style of intermediate level manager; SCHSES - Satisfaction with the conditions of hygiene, safety, equipment and service; SSRV - Satisfaction with the current remuneration system; SG - Global Satisfaction.*

In order to complement the study, the correlation analysis was performed between all dimensions and also the weight of each dimension in the overall satisfaction (table 3). It was necessary to resort to Spearman's correlation coefficients since there was no assumption of normality in all dimensions. Not all coefficients presented are statistically significant, those with statistical significance are positive indicating a relationship in the same sense between the different dimensions. The table shows the coefficients with a value higher than 0.70 which shows a strong association. Thus, it can be said that the associations between: SGFI and SDC; SEL with SGSG; SELT with SGSG and SEL; SELI with SEL are at least strong. Regarding the overall satisfaction the strongest contributions are of the dimensions: SEL, SGSG, SGFI and SELT with correlation coefficients above 0.80.

*Table following on the next page*

Table 3: Spearman correlation coefficients

Dimensions	SGFI	SGSG	SCT	SDC	NM	SEL	SELT	SELI	SCHSES	SSRV	SG
SGFI	1	0,691**	0,685**	0,724**	0,490**	0,665**	0,602**	0,581**	0,291**	0,225**	0,820**
SGSG		1	0,553**	0,654**	0,331**	0,762**	0,725**	0,649**	0,377**	0,163*	0,848**
SCT			1	0,608**	0,448**	0,572**	0,457**	0,557**	0,352**	0,141	0,731**
SDC				1	0,551**	0,652**	0,609**	0,569**	0,324**	0,154*	0,788**
NM					1	0,392**	0,265**	0,445**	0,226**	-0,048	0,531**
SEL						1	0,885**	0,890**	0,484**	0,112	0,915**
SELT							1	0,599**	0,405**	0,193*	0,801**
SELI								1	0,431**	-0,001	0,816**
SCHSES									1	0,247**	0,557**
SSRV										1	0,235**
SG											1

*SGFI* - Overall satisfaction of employees with the institution; *SGSG*- Satisfaction with management and management systems; *SCT* - Satisfaction with working conditions; *SDC*- Satisfaction with career development; *NM* - Levels of motivation; *SEL* - Satisfaction with leadership style; *SELT* - Satisfaction with top leadership style; *SELI*- Satisfaction with the managerial style of intermediate level manager; *SCHSES* - Satisfaction with the conditions of hygiene, safety, equipment and service; *SSRV* - Satisfaction with the current remuneration system; *SG* - Global Satisfaction.

\* - significant at 5%; \*\* - significant at 1%.

## 5. DISCUSSION AND CONCLUSIONS

The organizations only achieve success if they reach the objectives with the effort of all its workers, that working in team promote the organizational performance. Any organization with satisfied employees has many advantages because it attracts the best, reduces staff complaints, increases productivity, reduces costs, improves the image and gains competitiveness (Mezomo, 2001). The present research was based on a reflection about how sociodemographic, professional, training and labor variables influence the level of professional satisfaction of the employees of the Integrated Response Centers of the North of Portugal. This paper provides the type of understanding that these professionals have about the organizations in which they perform functions, which are constantly changing, in order to detect causes of maladaptation and its consequences, in order to make the desired changes and implement measures that promote satisfaction professional. The sociodemographic variables do not present a significant influence on the CAF dimensions nor on overall satisfaction. Female professionals are more satisfied than male professionals, employees over 50 years of age present greater satisfaction in all dimensions except for the Motivation Levels (ML) dimension in which the new employees are who are more satisfied, unmarried professionals are more satisfied than married or in-union professionals, and employees who do not have children have a higher level of satisfaction than employees with children. Contrary to the present study, Luthans (1989) and Green, Ross and Weltz (1999) and Graça (2016), affirm that sociodemographic variables can influence job satisfaction. The Rocha study (2016) is in agreement with the present study, noting that sociodemographic variables are not explanatory factors for professional satisfaction. According to Ribeiro (2014), there are some socio-demographic variables that influence the satisfaction at work, such as age, gender and no descendants. Regarding the professional variables, there are two with a considerable influence in some dimensions of the CAF, the professional category and the type of bond. The professional service time and the time of service in the function did not have a significant influence on the results obtained for the CAF. The professional category has a significant influence on the dimensions: SDC and SELI and the type of link in the dimensions: SGFI, SGSG, SELT and overall satisfaction. It was verified that in these dimensions nurses were significantly more satisfied than physicians and non-effective professionals more satisfied than those who were effective. We can consider that, professionals with higher levels of satisfaction in the dimensions: SGSG; STC; SDC; SEL; SELT; SELI; SCHSES and SG are the nurses. In the other dimensions, the health or support technicians in

the service stand out. Doctors are the least satisfied professionals in all dimensions. With regard to professional practice time, we can highlight that professionals who are in the middle of their career are less satisfied than those who have worked for at least 30 years. In the time of service in the function we can point out that the professionals who are in the middle of the service time in the function are less than those who work between 20 and 24 years in the function, except for the dimensions: SDC, SELT, SCHSES and SSRV - in these dimensions the ones that stand out most satisfied are the professionals with at least 25 years in the job and the professionals with ineffective link are more satisfied than the effective professionals in the service. The training variables presented significant influence in some dimensions of CAF. The literary qualification has a significant influence on the dimensions: SEL and SSRV and the ease in attending formations in the dimensions: SGFI, SCT, SDC, SELI and overall satisfaction. It was verified that in those dimensions were professionals with masters / doctorates who were significantly less satisfied and the professionals who were able to attend training who were more satisfied. We also emphasize that in all dimensions there are more professionals who say that they are easy to attend training than professionals who did not express this facility and professionals with ease in attending training are more satisfied in the dimensions evaluated by CAF, and this difference is statistically significant in SGFI, SCT, SDC, SELI and overall scale. With regard to labor variables with significant influence in some dimensions of the CAF: the direct provision of services, the workplace, the satisfaction with the maturity possibility to choose again the same place to work, the existence of incentives, existence of conflicts satisfaction with social recognition. The variables: agreement with the current retirement age and management position did not have a significant influence on the results obtained for the CAF. The direct benefit has a significant influence on SSRV, being with professionals with direct service delivery more satisfied. On the other hand, it was verified that the workplace is not determinant in the satisfaction felt by the professionals, with the exception of the SGSG dimension, in which the professionals working in the North CRI were significantly more satisfied than the professionals working in the PIAC / Alcoholism / Disabitation. The satisfaction with the maturity is determinant in the results of the dimensions: SGFI, SGSG, SEL, SELT, SCHSES, SSRV and SG, and it was concluded that satisfied professionals with maturity were more satisfied in the dimensions assessed by CAF dimensions. The study conducted by Moura (2012) indicates that most labor variables influence professional satisfaction. Yuen, Loh, Zhou and Wong (2018) also add that the work environment is one of the variables that most influence employee satisfaction. In agreement with the present study, Pina, Cunha et al. (2003), indicate that salaries and monetary gratuities provide job satisfaction. Herzberg, Mausner and Syderman (1959), indicates that one of the factors that elevates satisfaction is reward (motivational factor) and one of the factors that provokes dissatisfaction in the work is the orderly (context or hygienic factor), we can then consider that this theory is in agreement with the results obtained in the present study since both positively or negatively influence the employees' professional satisfaction. Adams and Freedman's (1976) theory of equity cited by Yuen, Loh, Zhou and Wong (2017), is also in agreement with the present study because it indicates that the subjects are motivated when compensated in a fair way, that is, one more the influence of rewards on job satisfaction. The analysis of the results obtained with the study revealed that the employees of the Northern Portugal CRI are dissatisfied or dissatisfied. In this measure, it is considered that those responsible for the IRCs of the North of Portugal, in order to obtain more satisfactory results from the employees, involves them in decision-making processes and in activities that promote the improvement of the organization's own functioning, should enable professionals to reconcile work with personal or health-related issues, motivate employees to learn new working methods individually or as a team and provide all the necessary equipment and services for the proper performance of their tasks, provide equal opportunities for the development of new professional skills or in the promotion processes themselves, and



last but not least, the remuneration of employees should be good the work it performs. For all these topics to be successful, it is up to the leadership to accept the criticisms and suggestions for improvement, to develop training actions and to adapt the treatment given to the people, the needs and the situations in question. These actions and suggested measures will contribute to the increase of the professional satisfaction and consequently will positively influence the better provision of health care and performance and organizational sustainability. The main limitation of the study is related to the size of the sample. Furthermore, data collection has proved to be very difficult. In future researches, we suggest that they may cover larger samples, including other public and private institution, that may allow to establish comparisons between the professional satisfaction of its employees and their determinants.

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# IS BUSINESS' PERCEPTION ON SELECTED FORMAL AND INFORMAL INSTITUTIONS AFFECTED BY THE BUSINESS CLIMATE?

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## **ABSTRACT**

*Business climate is subject to the influence of both the informal (e.g. corruption and political connections) and formal institutions (e.g. business enabling policies and tax treatment). This paper seeks to explore the relationship between business climate and business' perception on corruption, political connections, tax treatment and business enabling policies in the context of a developing country. To test the proposed hypotheses, the following tests: Kruskal-Wallis, Jonckheere-Terpstra, and Mann-Whitney tests are applied on an original dataset containing 404 businesses from post-socialist Albania. Results show that business' perception on both formal and informal institutions differs across the business climate levels. As the business climate "moves" towards favorable level, it is observed that there is a decreasing trend in business' perception on business enabling policies and corruption, and an increasing trend in tax treatment and political connections. The post-hoc test reveals that businesses score higher on tax treatment and political connection when business climate is not favorable as compared to normal. Also, when comparing not favorable versus favorable levels, whereas in case of corruption the opposite results are met. Regarding business enabling policies, businesses score higher when the business climate is favorable compared to not favorable and normal levels. In conclusion, the business climate in Albania does not have a similar effect among informal institutions, nor among formal ones.*

**Keywords:** *business climate, business enabling policies, corruption, political connection, tax treatment*

## **1. INTRODUCTION**

### **1.1. Research problem**

A good business climate leads to firm growth by encouraging investment and productivity (Dethier, Hirn, & Straub, 2011). In this regard, it can be assumed that business climate affects business' behavior and/or perception on informal and formal institutions. Generally, an institution is a concept which might be formal or informal, with the capacity to shape business' behavior or attitude by constraining or enabling its activity. Tax treatment and business enabling policies are considered as formal institutions, whereas corruption and political competition as informal ones. According to the fifth Business Environment and Enterprise Performance Survey (EBRD, 2017), informal competition, corruption and tax administration were among the top four business environment constraints identified by Albanian firms. Informal and/or unfair competition is somehow related to political connections because those firms that have connections with local or national politicians or public administrators might benefit by skipping some law requirements (Krasniqi & Desai, 2016; Rajwani & Liedong, 2015). Small and medium-sized enterprises (SMEs) play a crucial role for the Albanian economy (Xheneti,

2017). They generate over two thirds of value added and above 80% of employment, compared to the EU value added average of 57% and employment average of two thirds (European Commission, 2017). Therefore, fostering entrepreneurship should be a constant concern for policymakers. Furthermore, an improvement of business environment may also lead to attracting foreign investments and to the creation of a functional market economy, especially in countries in the Western Balkan (Kittova & Steinhauser, 2018; Osmani, 2016). Good governance may lead to strengthening of the formal institutions and weakening of informal institutions. Using eclectic theory of entrepreneurship, Thai and Turkina (2014) found that there is a significant impact of quality of governance on formal (positive effect) and informal (negative effect) institutions. This research paper examines these effects within the context of a post-communist and developing economy such as Albania. Further, business climate might not have the same effect on all formal institutions, as well as on informal ones. Previous researchers argued that in developing and transition economies, the effect of institutions is the opposite of what is expected in developed ones. This consideration can be attributed especially to the informal institutions. So, corruption has a positive association with firm growth (Hashi & Krasniqi, 2011) or with firm innovative activity (Tomaszewski, 2018). On the other hand, essential role in shaping the relationship between political connections and firm performance are played by political, institutional, and economic environments (Jackowicz, Kozłowski, & Mielcarz, 2014).

## **1.2. Aim and motivation**

The aim of this paper is to explore whether there is a relationship between business climate and business' perception on selected formal and informal institutions in the context of a developing country, Albania. From the set of the formal institutions, tax treatment and business enabling policies are selected, on the other hand, corruption and political connections informal institutions are selected for analysis. In the course of conducting this research, the authors did not find significant evidence to suggest that this type of relationship has been explored, especial in context of a post-socialist country. The results of this research may be of a particular interest for policymakers that intend to improve the business environment and to foster entrepreneurship.

## **2. LITERATURE REVIEW**

Institutional environments may have influence on the relationship between opportunity entrepreneurship and economic development by stimulating business owners' behavior (Ghura, Li, & Harraf, 2017). Moreover, a favorable business climate leads to the growth of firms by motivating investments and productivity (Dethier et al., 2011). Consequently, entrepreneurs' perception of both formal and informal institutions may be affected by the nature of the business climate where firms operate. Formal institutions are rules that are openly codified, in the sense that they are established and communicated through official channels. Tax treatment and business enabling policies are two formal institutions. Business' perception on tax treatment and/or administration may be influenced by the condition of the business climate where businesses operate. When compared to high-income countries, tax administration is identified as a problem in middle-income countries (Dethier et al., 2011). Also, in Central and South East European countries, entrepreneurs perceive the level of taxes and, in particular tax administration, as one of the major obstacle for the firm growth (Batsakis, 2014; Hashi & Krasniqi, 2011; Hashi & Mladek, 2001). In context of Albania, changes in taxation procedures are identified as one of the most important obstacles faced by entrepreneurs (Xheneti & Bartlett, 2012). In a broader discussion, Stallmann and Deller (2011) found evidence that taxes are associated with a poorer business climate and lower economic performance. Moreover, Braunerhjelm and Eklund (2014) examine the tax administration and found a significant

relationship between entry rate and tax administrative burden. Considering the above facts and linkages, if business climate is favorable, then entrepreneurs tend to perceive the job of tax officers more positive than in an unfavorable business climate. To foster entrepreneurship, business enabling policies should be considered by policymakers. Policies aimed at improving the framework conditions for doing business could encourage start-up activity and entrepreneurship (Brixiova & Égert, 2017). Business climate can be improved even by government involvement in the economy. Bjørnskov and Foss (2013) argue that, as government increases the active involvement in the economy, the impact of entrepreneurship on productivity increases. Almost similar results were established by Fereidouni and Masron (2012). Similarly, Surfield and Reddy (2016) found that business climate coincide with a lower incidence of job loss. Additionally, other scholars argue that in the short-term, policymakers cannot do much to change the shape of the industry profile in a country, however, only in the long-term, public investments in infrastructure or education might influence an economy by shifting it from one set of industries to another (Kolko, Neumark, & Mejia, 2013). Government can enable and constrain (through regulations) entrepreneurship start-up and their activity (Xheneti & Smallbone, 2008). In the context of Albania, Xheneti and Bartlett (2012) found that support-related obstacles do not affect firm growth. Similarly, Čadil, Mirošník and Reháč (2017) found that cohesion policy support has no impact on value added and value added per labor cost of SMEs that operate in Czech Republic (Cepel, Stasiukynas, Kotaskova, & Dvorsky, 2018). However, according to Blume (2006), the local economic policies are associated with the business climate. Thus, firm satisfaction on local economic policies is determined by a set of factors covering business climate. Based on the above discussion, an increasing trend is expected in business' perception in business enabling policies across the business climate levels. Informal institutions are socially shared rules, usually not written, that are formulated, delivered, and enforced not through official channels. Corruption is considered as a classical informal institution (Estrin, Korosteleva, & Mickiewicz, 2013) especially in transition economies (Krasniqi & Desai, 2016). Several researchers treat corruption as an influential factor on business activity (Fereidouni & Masron, 2012), but there is a debate in academic literature on the direction of its effect (Boudreaux, Nikolaev, & Holcombe, 2018; Tomaszewski, 2018). Thus, Grosanu and Bota-Avram (2015) rated control of corruption as a significant factor for the business environment. Also, Dutta and Sobel (2016) found evidences that corruption hurts entrepreneurship. Nevertheless, South Eastern European countries reflect a positive association between corruption and firm growth, meanwhile countries from Central East Europe have a negative association (Hashi & Krasniqi, 2011). Furthermore, business owners from Western Balkan tend to justify it as "greasing the wheels" (Budak & Rajh, 2014). Based on these evidences, in the context of a post-socialist country, a positive association is expected between the perception on corruption and business climate. Political connections is another informal institution that plays a role in the business environment. Political, institutional, and economic environments play crucial roles in shaping the relationship between political connections and firm performance (Jackowicz et al., 2014). Firms that have connections with politicians might perform better (Ang, Ding, & Thong, 2013; Dicko, 2017) and also they reflect lower risk as compared to those which do not have any political links (Boudreaux et al., 2018). Amore and Bennedsen's (2013) results indicate that doing business with the public sector is an important channel for transferring rent to connected firms by increasing their profitability. However, there are some scholars who found the opposite: firm performance is lowered by political connections (Jackowicz et al., 2014). In countries that institutions are not strong, firms tend to involve in local political activities (Krasniqi & Desai, 2016; Rajwani & Liedong, 2015). This involvement may lead to future benefits that politicians may offer to them. Further, political connections are more present among older entrepreneurs due to their wider experience, social and possible connections with politicians (Xheneti & Bartlett, 2012).

Political connections are affected by the prevailing country-level institutional and political environment, firm characteristics (Boubakri, Guedhami, Mishra, & Saffar, 2012), and also by economic environment (Jackowicz et al., 2014). Consequently, it is expected that business climate to affect political connection. The arguments, relationships and evidence set out above lead to the following hypotheses:

- Hypothesis 1: Business' perception on tax treatment (H1a), business enabling (H1b) policies, corruption (H1c) and political connections (H1d) are affected by business climate.
- Hypothesis 2: There is a trend across the levels of business climate in the business' perception on formal institutions (increasing trend on tax treatment, H2a, and business enabling policies, H2b), and informal ones (increasing trend on corruption, H2c, and decreasing trend on political connections, H2d).
- Hypothesis 3: Compared to the "not favorable" business climate level, firms that perceive business climate as "normal" or "favorable", score higher on tax treatment (H3a), business enabling policies (H3b) and on corruption (H3c), and lower on political connections (H3d).

### 3. METHOD AND PROCEDURES

#### 3.1. Variable measurement

Business climate is measured by one question, which is: how are the conditions of doing business nowadays? Respondents had to choose one alternative between three options: [1] Not favorable, [2] Normal, and [3] Favorable. Tax treatment, business enabling policies, corruption and political connections were composed by the mean of a selected item set different per each variable (refer to Table 4). The items of tax treatment and corruption were formulated as five-point Likert scale, [1] Fully disagree, to [5] Fully agree, and the items of political connections and business enabling policies were in a form of four-point scale, [1] No, not at all, to [4] Completely.

#### 3.2. Reliability test

Before computing the mean of item set per each variable, the reliability of the scales was checked. Reliability test checks whether a measure reflects the construct that it is measuring or not. *Table 4* shows the results of Cronbach's alpha, which is a test of reliability. Considering DeVellis's (2017) criteria, *tax treatment* and *political connections* were minimally acceptable, whereas *corruption* and *business enabling policies* were respectable.

#### 3.3. Statistical method

To test H1, Kruskal-Wallis H test was used. This test allows scholars to compare the scores on one or several continuous variable for three or more groups (Pallant, 2016). In addition, the comparing categories of business climate produce a meaningful order of medians. To test H2, Jonckheere-Terpstra test was performed. A negative/positive  $z$  score indicates a trend of descending/ascending medians (Field, 2009). To judge this effect size, Cohen's (1988) criteria were applied: .01, .30 and .50 for small, medium and large effect, respectively. To test H3, Mann-Whitney U test was used.

*Table 4: Cronbach's alpha per each composed variable*

Variables	Number of items	Mean	Standard deviation	Cronbach's $\alpha$
Tax treatment	4	3.36	.97	.677
Business enabling policies	4	1.86	.69	.750
Corruption	4	2.84	1.13	.749
Political connections	3	2.55	.70	.675

### 3.4. Data collation and sample profile

Firm was the unit of analysis. A face-to-face structured interview was done with one member from the management team of the firm. The owner, co-owner, financial manager, director, deputy director or manager was considered as a suitable person to present the firm's viewpoints. Overall, 404 businesses in Albania were part of observation conducted by IDRA Research and Consulting, a market research company established in capital city. Due to distributing the sample, the business database of General Directorate of Taxation was used and, to make sure the representation of the results, county (12 counties), business size (number of employees) and business sector (manufacturing, service and trade) were considered as strata. The questionnaire was a semi-adaptation of International Labor Organization previous similar surveys. Table 5 represents the profile of our final dataset. About 58% of the observed data were gathered from firms located in capital city, 23% from south, 11% from central and 8% from north region of the country. This represents the distribution of businesses throughout Albania. Tirana, the capital city, has the major part of the businesses which operate in Albania. North region has the lowest number of firms as compared to the other regions, even though there are four different counties. This is driven by the low number of inhabitants and the economic development level in these areas. The highest score is recorded in capital city (63% "not favorable"). Less than one in seven firms evaluated the business climate as favorable.

Table 5: Sample profile and the distribution of business climate categories across regions

		Business climate			Total	
		Not favorable	Normal	Favorable	<i>n</i>	Share
Region	South	57%	29%	14%	92	23%
	North	50%	28%	22%	32	8%
	Central	50%	46%	4%	46	11%
	Capital city	63%	23%	14%	232	58%

## 4. RESULTS

Table 6 demonstrates the results of the Kruskal-Wallis and Jonckheere tests for business climate and tax treatment, business enabling policies, corruption and political connections. Business climate is an ordinal variable with 3 categories, which are in ascending. The Kruskal-Wallis test showed that business climate affected our variables. Thus, business' perception on tax treatment, business enabling policies, corruption and political connections differs across the business climate levels. Even though the significance of business enabling policies was at the edge of critic level ( $H(2, n = 368) = 5.984, p = .05$ ), it was considered statistically significant along with other variables. The other two tests shed more light on this issue. Thereby, the evidence failed to reject H1a, H1b, H1c and H1d. To follow up these findings, Jonckheere-Terpstra test was conducted, which explores whether is a trend across the business climate levels in our variables or not. It appeared a statistical significance ascending trend in the data in cases of corruption and business enabling policies. On the other hand, in case of tax treatment and political connections, this test revealed a significance descending trend in business climate levels. In contrast to Kruskal-Wallis test, there was no doubt in the significance of the trend related to the case of business enabling policies,  $J = 24943, z = 2.039, p = .041, r = .106$ . Regarding the strength of the effect, the  $r$  statistic indicated a small to medium effect in case of corruption and business enabling policies, whereas in case of tax treatment and political connections it was medium to large. Hence, as more favorable the business climate was, the business' perception on business enabling policies and corruption were increased. Nevertheless, in cases of tax treatment and political connections was noticed a descending trend, as it was moved from not favorable to favorable levels of business climate. All things considered, the evidence supported H2b, H2c and H2d. Since it was noticed a descending trend in business' perception on tax treatment, then H2a is not supported.

*Table 6: Results of Kruskal-Wallis and Jonckheere-Terpstra tests*

Variable	Grouping variable <i>Business climate</i>	n	Mean	SD	Kruskal-Wallis test			Jonckheere-Terpstra test			
					H	df	Sig.	J	Z	Sig.	r
Tax treatment	Not favourable	236	3.61	.98	38.732	2	.000	15332	-6.197	.000	.309
	Normal	111	3.04	.74							
	Favourable	55	2.98	.96							
Business enabling policies	Not favourable	211	2.48	.83	5.984	2	.050	24943	2.039	.041	.106
	Normal	104	2.25	.63							
	Favourable	53	2.32	.70							
Corruption	Not favourable	230	2.62	1.16	28.405	2	.000	28158	5.344	.000	.269
	Normal	110	3.06	1.06							
	Favourable	55	3.32	.95							
Political connections	Not favourable	218	2.72	.69	41.126	2	.000	12643	-6.405	.000	.333
	Normal	101	2.33	.58							
	Favourable	52	2.21	.69							

To test hypothesis 3, Mann-Whitney U test was run. It appeared that, besides business enabling policies variable ( $U = 12544$ ,  $z = -.58$ ,  $p = .562$ ), business' perception on our variables was statistically significant different between "not favorable" and "normal" levels of business climate (see *Table 7*). A close look at their mean ranks leads to the determination of the difference direction. Firms scored higher on business enabling policies and corruption and lower on tax treatment and political connections when the business climate was "normal", than when it was "not favorable". The effect size resulted small to medium. There was no significant difference on our variables when the comparison of "normal" and "favorable" levels of business climate was done. However, regarding the comparison of "not favorable" and "favorable" categories of business climate, it was found a significant difference among them in all variables (see *Table 7*). Our expectations were accomplish since, compared to "not favorable" business climate level, firms that percept it as "favorable" had higher scores on business enabling policies (169.81 vs 139.81) and corruption (187.85 vs 132.27) and lower scores on tax treatment (mean ranks: 102.61 vs 156.11) and political connections (89.69 vs 146.43). The strength of the effects were close to medium. Altogether, we found evidence that support H3c and H3d, while H3b was partially accepted.

*Table 7: Results of Mann-Whitney U test, where grouping variable is Business climate*

Variable	Mean rank			Mann-Whitney test			
	Not favorable	Normal	Favorable	U	z	Sig.	r
Tax treatment	193.99	131.50		8381	-5.432	.000	.292
Business enabling policies	171.38	178.00		12544	-.580	.562	.033
Political connections	178.54	119.99		6968	-5.323	.000	.298
Corruption	156.33	200.13		9391	-3.857	.000	.209
Tax treatment	156.11		102.61	4104	-4.261	.000	.250
Business enabling policies	139.81		169.81	5126	-2.408	.016	.148
Political connections	146.43		89.69	3286	-4.753	.000	.289
Corruption	132.27		187.85	3858	-4.508	.000	.267
Tax treatment		85.35	79.77	2848	-.707	.480	.055
Business enabling policies		78.55	93.48	2504	-1.897	.058	.151
Political connections		79.35	72.44	2389	-.926	.355	.075
Corruption		79.08	90.85	2594	-1.496	.135	.116

## 5. DISCUSSION AND CONCLUDING REMARKS

Our findings showed that the effect of business climate on formal institutions is ambiguity: formal institutions do not have similar effect. A positive association was identified between business climate and business' perception on business enabling policies, which goes in line with previous research, whereas, surprisingly, the opposite association was noticed between business climate and business' perception on tax treatment. However, as it could be better if enterprise



policy formulation follow the Arshed, Carter and Mason's (2014) framework even in case of Albania. Also, Xheneti (2017) provides a conceptual framework on how to analyze policy formulation, linking policy formulation and the intended outcomes of policies in Albanian case. Similar to formal institutions, informal ones do not perform the same association with business climate. Our results showed that business climate has a negative association with political connections, whereas with corruption that association is positive. Concerning political connection, our results are in line with previous research (Jackowicz et al., 2014). Also, the negative association between corruption and business climate was identified even by other studies, especially focusing on those countries with weak institutions (Budak & Rajh, 2014; Hashi & Krasniqi, 2011). As it was mentioned by the report of European Commission (2017), substantial efforts were made in Albania to foster entrepreneurship. They consist on introducing the action plan for cooperation between universities, industry and government, and the work on setting up an incubator for start-ups. However, further business environment reforms are needed to tackle deep-rooted obstacles such as infrastructure (electricity and roads), registering property and enforcing contracts (EBRD, 2018). The aim of this research was to check whether is a relationship between business climate and business' perception on selected formal and informal institutions in the context of a developing and post-communist country, Albania. Based on our analysis, across the levels of business climate, there is a difference in business' perception on tax treatment, business enabling policies, corruption and political connections. As the business climate moves toward "favorable" state, the post-hoc tests revealed an ascending trend in business' perception on business enabling policies and corruption and a descending trend on tax treatment and political connections. The findings of this study are useful for designing policies with the main purpose of fostering entrepreneurship and improving business environment. The results are useful to policymakers since significant relationship between business climate and formal and informal institutions were identified. Therefore, this research creates a value added on entrepreneurship literature.

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## WRITTEN CORRESPONDENCE AS AN ELEMENT OF PHYSICAL EVIDENCE OF A SERVICE COMPANY

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### ABSTRACT

*The objective of the paper is to investigate whether written correspondents actually constitute a physical evidence of a service company and especially which aspects of letters (if any) are important to customers. The paper reviews the available literature and contains the results of a qualitative research conducted by the authors in cooperation with a large energy company in Poland. The authors' research showed that written correspondence with the energy supplier is an element of building the company's image. It is therefore a considerable part of the physical evidence as the sixth marketing mix element. The respondents expect from a large company professionalism in all activities, also in the method of constructing messages directed to them. This applies to the use of letterhead, a permanent and thoughtful layout of the letter, the way of constructing statements or placing advertisements in correspondence.*

**Keywords:** *Physical Evidence, Written communication, Qualitative research*

### 1. INTRODUCTION

Physical evidence as a marketing mix element covers any tangible commodities that facilitate performance or communication of the service. It includes every tangible touch point i.e. brochure, building, dress of the people, furniture, wall decor etc. Letters (written correspondents) are an important part of physical evidence that is provided to customers, especially when a company decides to or is obliged to send such correspondents. Letters have to meet the overall objective of communication, which is to achieve the common understanding of a specific content. Therefore, efficient written communication, in accordance to the highest standards in this area, is a very important element of building relations of a large service organization with clients. It refers particularly to the mail merge communication. In order to increase the efficiency of written communication it is important to shape the message in such a way, so that it is properly understood by the recipients. Taking into account the physical evidence, besides the message itself, recipients consider other aspects of a letter, such as professional letterhead or the layout of the letter. These elements also influence the company's assessment as a reliable partner. This article is another publication from the series on written communication of a large organization (Rosa et al., 2018, Gracz et al., 2018, Ostrowska et al., 2018).

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## **2. DEFINITION AND MEANING OF A PHYSICAL EVIDENCE IN SERVICES**

Services and material products differ significantly and in many respects. In the literature, it is usual to distinguish services from "pure" goods, pointing to their immateriality, impermanence, difficulty in standardization and inseparability of acts of production and consumption. It should be assumed that the diversity of service activities has a significant impact on the way service companies operate on the market and has significant consequences in relation to specific marketing activities, in particular the choice of instruments used and their role. The assessment of product quality requires a clear differentiation between material goods and services. While the quality of goods depends largely on the production process and can be subject to standardization, the quality of the service largely depends on the employee performing it, and to a certain extent also on the client (Stach, 2008, p. 7). Intangible elements present in services are variable, difficult to describe, subjectively and emotionally perceived. Services are "experienced" and not "accessed" in their possession, and their perception is always very subjective. Therefore, the criteria to be used in assessing the quality of services are more complex and intangible. According to Ch. Grönroos, shaping the customer's opinion about the quality of services is influenced by technical quality (staff qualifications, physical evidence, that is, equipment and appearance of the service) and functional quality (staff behavior, communicativeness) [Światowy, Pluta-Olearnik, 2000, p. 50- 53]. Analysis of the quality of services can be carried out according to a list of dimensions or quality factors. The best-known list was created by A. Zeithaml, A. Parasuraman and L. Berry in the SERVQUAL model. They have compiled 10 areas that influence the assessment of the quality of service performed by customers, including: the type of material means used, or physical evidence [Zeithaml, Parasuraman, Berry, 1990, p. 16]. The physical evidence shapes the image of the service, its quality or the conditions in which it is provided. It contributes to a better presentation of the elements forming the product being a service. This results from the non-material nature of services, where the physical evidence is a material part of the service. A tangible evidence is physical evidence that provides a specific indication that customers can receive in the process of receiving a service. On this basis, they assess the credibility of the service they receive as well as its quality [Peszko, Matuszczak, 2017, p. 219]. To reduce the uncertainty of purchase, buyers look for signs or evidence that confirms the quality of service offered. The state of the facility in which the service, equipment is provided, as well as the aesthetics and professionalism of promotional materials, which affect the perception of the quality of the service are important. Therefore, in relation to services, the significance of a physical evidence in influencing purchasers' decisions is much more often noticed. In literature, a physical evidence is defined as:

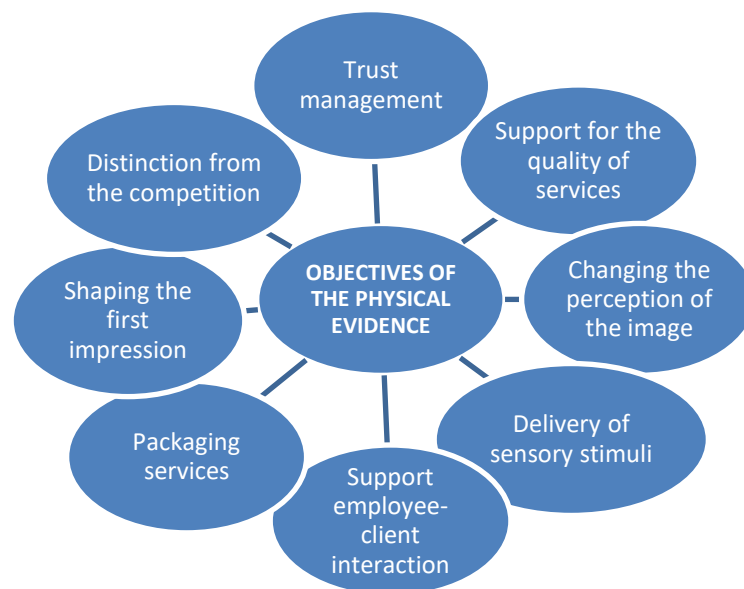
- material, tangible aspects of the delivery of a product or service, e.g. a shop, a company layout. The physical evidence specifies what the customer can see or feel through the additional elements surrounding the service provided [Leadley, Forsyth, 2004, pp. 402, 405].

- tangible proof that the service has been delivered [Blythe, 2014, p. 16],
- "material environment of the process of rendering and consuming services, tangible goods or other material elements of service" [Rosa, 2014, p. 168].
- the environment in which the service is provided, where there is interaction between the company and the customer: furniture, noise level or layout; various tangible goods that allow the provision of services (e.g. a car in a transport company), and enable and facilitate communication [Boguszewicz-Kreft, 2005, p. 296],

Physical evidence in the marketing of services supports other marketing activities by influencing the image of the client about a given service. Physical evidence (physical environment) has a similar effect on the client's decisions as a packaging of material goods. It affects the image, evokes specific customer behavior, suggests potential use as well as indicates the quality of the service provided. It is a kind of signaling device that attracts a specific group of customers, at the same time discouraging those unwanted [Kotler, 2005, p. 449, Boguszewicz-Kreft, 2005, p. 299], as well as it shapes the atmosphere of a given interior. A buyer using a transport service can be an example. He sees and assesses the means of transport used by the carrier - its equipment, type, technical condition, comfort [Mazur, 2001, p. 171]. This in turn affects the perceived quality and further consumer decisions, including whether a given person will use the given service once again. Thanks to its elements, customers identify the company, distinguish it from competitors and position it within other companies providing similar services on the market.

### 3. OBJECTIVES OF IMPACT AND ELEMENTS OF THE PHYSICAL EVIDENCE

Based on the characteristics of the physical evidence, we can indicate eight of its main objectives (Fig.1).



*Figure 1: Objectives of the impact of a physical evidence (Peszeko, 2017, p. 199)*

The physical evidence consists of three elements: external and internal attributes called the servicescape and other material goods [Hoffman, Bateson, 2015, p. 204]. Figure 2 presents examples of individual parts.

*Figure following on the next page*

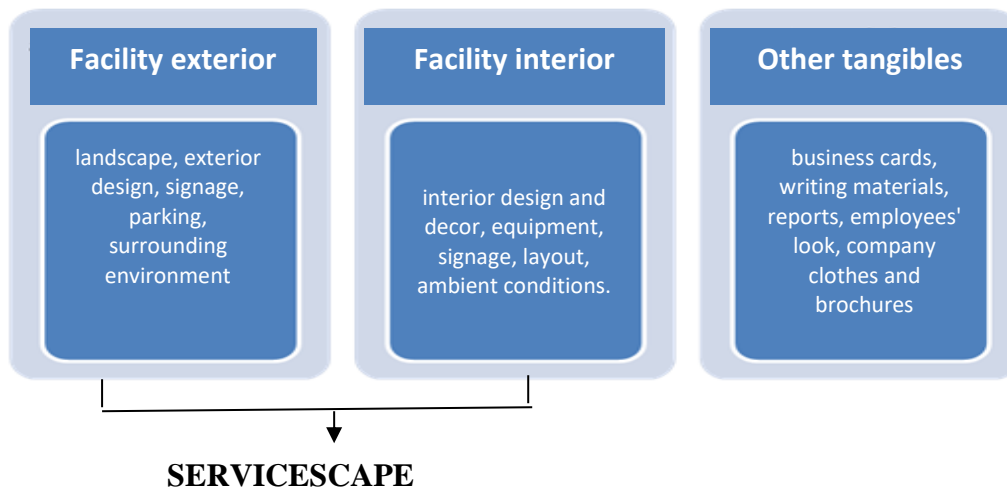


Figure 2: Elements of physical evidence (Peszko, 2017, p. 200)

Servicescape as a concept, was developed by B. H. Booms and M.J. Bitner. This concept aims to help assess the difference in the customer's feeling between, for example, a large transport company and a small delivery company. The authors defined the concept as: an environment in which services are gathered, where there is interaction between the seller and the customer in connection with material goods that facilitate presentation and communication with the service [Booms, Bitner, 1981]. It includes both internal and external attributes of the physical environment. Servicescape is different depending on the service. It all depends on the nature of the service, who takes actions within the framework of a material certificate [Verma, 2012, p. 98]. You can indicate three types of services in which the servicescape takes a different form and allows for achieving a different company goal [Rama, Rao, 2011, p. 263].

1. Self-service (there is only a client - e.g. self-service parcel delivery point, postal services),
2. Interpersonal services (both customer and employee are present, e.g. airport, restaurants, post offices),
3. Remote services (there is only an employee, for example, automated voice notification, e-mails).

The form used translates into goals that the company expects to achieve thanks to their use. Through self-service activities, the creative use of the material company certificate can support individual positioning and segmentation strategies and strengthen specific marketing goals, e.g. customer satisfaction. In the case of remote services, operational efficiency may be the primary goal achieved thanks to a physical evidence, which translates into employee satisfaction. In the case of this form, most customers do not have the opportunity to see or experience the physical activities of the company. In the case of interpersonal services, both organizational and marketing goals can potentially be addressed through a careful project of a physical evidence [Bitner, 1992, p. 58]. A physical evidence is a source of messages sent to the environment through overall identification. In order to be able to distinguish a company among many others, it is necessary to create a corporate identification system. The image of a company or brand on the market is the reflection (result) of the conscious and planned use of the overall identification. It also plays an important role for staff. Affects the well-being and efficiency of tasks performed by employees [Mazur, 2001, p. 172]. The identification of the company on the market consists of [Rosa, 2009, pp. 76-77]:

1. visual identification system, which includes: company name, company logo, company colors, permanent graphic element. These elements may appear on various media:
  - printed materials,
  - internal and external correspondence,

- outside and inside the company's headquarters, points of sale,
  - products,
  - packaging, which concerns both their color shapes and labels,
  - garments,
  - souvenirs,
  - fairs and exhibitions, e.g. on stands and exhibits,
  - means of transport,
2. system of other (non-graphic) symbols and behaviors, which include: sound symbols, shape of packaging, aesthetics and consistency of written communication (traditional and electronic), professional website, the way of dressing the employees, behavior, business savoir - vivre common for company employees.

A physical evidence plays a special role in shaping the "reception quality" of the service provided (the decor of a given company, uniforms consistent with the visual form of the company's resources, material of brochures provided to customers). There are four general ways to improve the quality through a material certificate [Blythe, 2014, p. 742]:

- creating a material certificate that will strengthen loyalty,
- use of a material certificate to strengthen the brand image,
- use of a material test that has the essence of value in itself,
- creating a material certificate that leads to high sales.

In order to achieve visible effects of the material certificate of services, specific guidelines for the construction of an effective strategy are distinguished [Chand, [www.yourarticlelibrary.com](http://www.yourarticlelibrary.com)]:

- Recognition of the strategic impact of a material certificate,
- Creating a map of the material certificate of services,
- Explaining the role of servicescape,
- Assessment and identification of the possibility of a material certificate,
- Being prepared for the need to update and modernize the physical evidence,
- Work on the complex possibilities of a cross-functionality certificate.

Most activities within the framework of developing physical evidence are expensive and require a long time to bring the assumed results. This strategy must be clearly defined and adapted to the objectives, mission and specificity of the company's operation.

#### **4. RESEARCH METHODOLOGY**

The presented research was conducted in Szczecin, in the focus workshop in the Service Inter Lab center from 13.06 to 06.07.2017. The authors of this article were responsible for the scenario of the research, selection of respondents and moderation of interviews. The energy company provided sample templates of written communication and participated in adjusting the scenario of the research to the specifics of the industry. People using the services of the energy company, selected in a targeted manner were the respondents. Differentiating criteria included: gender, age, education, as well as the type of customer - individual or business. In the first stage of the study, three focus group interviews (FGI) were conducted - two among individual consumers divided into young people (up to 40 years of age) and mature people (over 40 years) and one of the company's representatives. During the second stage of the study, i.e. the verification stage, two research groups were accepted - individual persons and corporate customers. Each group interview (FGI) was attended by 7-8 participants, this is the optimal number due to the duration of the study and possibility of an effective examination.

The three research objectives were stated:



- Objective 1: The understanding of behavior and preferences of customers in the scope of written communication.
- Objective 2: The analysis of current state of written communication in the scope of layout.
- Objective 3: The analysis of chosen aspects of written communication in the scope of affordability and clarity.

The written communication presented during the research included, for example, personalized letters based on templates provided by the energy company and which concerned the most common cases of correspondence with consumers.

## **5. DESCRIPTION OF RESEARCH CONCLUSIONS**

As mentioned earlier, written correspondence is one of the elements of physical evidence, which affects the assessment of the quality of services rendered. Raciti and Dagger's research has shown four components of written communication that influence the development of customer relations: message clarity, aesthetics, accuracy and physical features [Raciti, Dagger, 2010, pp. 103-108]. Written communication is a specific type of company communication with clients, which for many clients is the basic form of contact with an energy supplier. In the conducted study, clients were asked to present expectations regarding such elements of written correspondence as: envelope, company paper, invoice, individualization, editorial page, signature, attached leaflets and advertising materials. Correspondence with individual clients is less frequent (compared to business customers), it is received several times a year and is limited to sending invoices and information about changes in tariffs. The conclusions from the study presented below take into account segmentation of clients due to their age (young and old) and the type of client (individual and business).

### **5.1. Communication channel**

Young people prefer e-mail correspondence because of its virtual character and the possibility of checking it from different places. Young people believe that e-mail correspondence also affects the perception of the company. The appearance of an e-mail is important to them, which testifies to the professionalism of the company. Thanks to a properly worded e-mail subject, credible sender's address, and the content with the headline with the energy company logo, participants believe that it is easier to identify the sender and feel safer. The e-mail should be short and concise, and above all, the response should be within a few hours, not days. Business customers also prefer e-mail contact. According to the surveyed young people, the basic advantage of the paper form is that it contains stamps, subject, customer number - placed in the content of the letter. During the contact with companies, older people prefer written correspondence, which is caused by the materiality of this form of communication. The letter sent and the response received can be archived and photocopied with possible cancellations. The written correspondence of both parties also allows to accurately describe the problem, as well as to provide detailed explanations or expectations.

### **5.2. Envelope**

The envelope creates the first impression of the recipient of the letter. The respondents expect that it will be addressed by name and will contain the company's logo allowing identification of the sender. In the template presented in the letters, the client's number was in the upper part of the letter on the left, and the client's data due to the address window in the envelope was on the top of the magazine but on the right. Older respondents believe that the number should also include the name and surname of the client, so that it is clearly known that this number applies to them. Hence the suggestion of the respondents to transfer this number to the address field and place it under the customer's address data.

### **5.3. The layout of the letter**

The people who took part in the study pointed out that they are used to certain formats, learned these principles during school education, and for this reason they proposed a traditional form of layout of the correspondence (from the top of the page):

- letterhead - containing the logo on top left,
- unified date format (place, day.month.year),
- complete customer data together with the number,
- an explanation of what the letter concerns,
- welcome phrase,
- the content of the written communication,
- farewell phrase (on the right side of the traditional letter, on the left in emails),
- legal aspect at the end in the form of links,
- list of attachments,
- contacts as a footer in a letter (letterhead: all contact details for the company).

### **5.4. Letterhead**

The visual layout of the correspondence is of great importance for all the customer groups studied. The basic expectation is a carefully designed letterhead - containing the company logo in the header and contact details in the footer (website, email address, telephone, mailing address). During the study, the letterhead design was positively assessed with a clear company logo (placed on top of the letter on the left), which allows quick identification of the sender and finding all contact details in the footer of the paper. If such data is included on letterhead, there is no need to repeat it in the content of the letter, unless in a given case one should contact a specific person or department, then this information should be given and selected. According to the respondents, the traditional postal address should also be included in the address data (it was not included in the presented template), because in the case of receiving a letter from the company in a traditional form, some respondents would like to respond to it as well. The specific address of the company increases the company's tangibility and makes it more credible.

### **5.5. Individualization**

Young respondents believe that in the formal correspondence of the company with clients, the recipient should not be addressed by name, but courtesy phrases should be used. The form "Dear Sir / Madam, Ladies and Gentlemen" is accepted, but without adding a name. This phrase should be personalized not only by the right form in greeting, but also the entire content of the letter. This involves the need to personalize many fields in the content of each template, because if the letter is addressed to a specific person, all content must be adapted to this. Older respondents also believe that the form of an official greeting is most appropriate in correspondence with companies. Although there were people in this group who were of the opinion that their name in greeting can be added. At the end of the correspondence, all respondents suggest a formal phrase "yours faithfully".

### **5.6. Length of letters**

After reading the presented model letters, the respondents stated that there is too much content in them. All participants of the study expressed the opinion that there should be 1 or at most 2 pages. Some of the research participants from the business customer segment emphasized that they prefer that the letters should be printed bilaterally, then the company can actually boast that it is ecological.

The surveyed young people and business clients suggested that instead of expanding the content of the letter, it could be accompanied by an additional information leaflet showing the successive stages of a complicated but often typical procedure.

### **5.7. Professionalism of the edition of written correspondence**

In its templates, the company used a single line that caused the impression of a lot of information. Young people suggested the use of 1.15-1.5 spacing between the lines. According to older respondents, the margins should be standardized in the templates - which was not the standard in the company. They should not be too wide (from 2 to 3 cm), so that the content of the letter does not extend to subsequent pages. The individual paragraphs should be clearly separated and there is no need to indent at the beginning of the paragraph. For some of the participants, especially from the group of business clients, it is important that the text be justified to the right and left sides.

### **5.8. Business fonts and infographics**

Symbols and choice of fonts influence the perception of the company and may be an element enabling recognition of the brand are also important in marketing communication [Cvitić, Šimić, Horvat, 2014, pp. 49-50]. Young people pointed to the lack of unified fonts in the presented letters. The company should choose one type of font and consistently use it, because the lack of uniformity creates an impression of lack of professionalism. In their opinion, all elements should have a fixed size - date, customer data, contractor's number, correct wording of the letter, refund applies, signatures. Some of them can be either bold or even bigger (letter number or contractor's number) to make them easier to find. In the case of a complicated procedure, for example connecting to the network, young people and businessmen suggested using infographics explaining the next steps. Thanks to this, the letter would have greater readability and it would be easier to remember pictures of the recipient. The patterns of letters presented during the study posed a considerable difficulty, especially for the elderly. The first observation of the participants of the study was that the letters from energy companies are usually written in small print. Older people, with age, notice deterioration in the quality of vision. Letters addressed to the elderly should be written in a larger font, e.g. Arial 11 or 12, so that they can be read without glasses also by far-sighted people.

### **5.9. Invoice**

An invoice is a document that business and individual customers receive from an energy company. What makes cooperation difficult is the complex rules of charging service fees (many components of the invoice: subscription fee, fixed network charge, variable network charge) and extended procedures (for example connection to the network). The respondents believe that the company would benefit a lot from simplifying the invoice and making it more readable. The appearance of the invoice indicates the professionalism of the supplier, it should be printed in color with the company's logo and contain only the most important information. It would be helpful to display the date of payment, the amount to be paid and the account number to make the transfer. It is these elements that the respondents usually look for when paying bills or planning a budget. Extended invoices and additional pages on which information is explained or repeated are assessed badly by respondents. Young people were disturbed by this lack of care for the natural environment - waste of paper and ink - they paid attention to this aspect. Entrepreneurs also do not appreciate the additional pages that prolong the reading process and create a problem during archiving.

### **5.10. Signature**

Correspondence should be formulated in first person in the plural, because the writer represents a large organization. Statements - "we checked, analyzed" increase the credibility of the message. However, the letter should be signed by a specific person, so that it is clear who is dealing with the case and who wrote the letter - name, surname, function, stamp and facsimile, which increases the credibility of the correspondence. The respondents expect to personalize the correspondence. The signature "sincerely the customer service department" has been negatively evaluated, because there is no specific person who is responsible for the letter. In traditional correspondence, the signature should be on the right side, separated from the right margin.

### **5.11. Promotional information**

In the template of the letters, the advertisement of another company's product was printed on the reverse side. Young respondents think that the ad is colorful, looks nice, but you can overlook it if it is on the other side of the letter. On the other hand, a separate card for advertising is, according to the respondents, a non-ecological solution. The advertisement placed at the bottom of the correspondence does not bother them. Older respondents stated that the advertisement was noticed by them, but according to the respondents it is not needed, it is better that the letter has fewer pages, and promotional information can be attached to the letters in the form of a separate leaflet. Representatives of companies, i.e. business respondents, do not like the idea of placing ads on the back of a formal letter. The respondents believe that nobody will read it anyway, and the letter loses its rank. It's better when an additional leaflet was inserted into the envelope with the letter.

## **6. CONCLUSION**

A physical evidence is an important element in shaping the external and internal image of a service company. Professionally designed, it becomes a confirmation of the quality of services offered. That is why service companies analyze its individual elements, constantly modify them and eliminate weaknesses. Among the elements of the material certificate of service enterprises mentioned in the article, it was emphasized that they also include written correspondence. Analysis of such elements of written correspondence as: the appearance of the envelope, design of the company's paper, invoice design, individualization, professionalism of the edition, signature, attached leaflets and advertising materials showed that the service buyers attach importance to the overall image of the correspondence, as well as specific expectations regarding the individual elements. Young consumers expect slightly more modern forms, colorful and more attractive elements of the infographics type. In contrast, older, mature recipients expect a simple, short, understandable message written in a larger font, but they also pay attention to the look of the magazine. Business customers are also part of this trend. Taking into account the expectations of the market segments discussed in the article, it should be noted that written correspondence, which is of mass character, should be a refined and professional visual element of the physical evidence. The layout and other elements of a letter should be considered as an important part of the physical evidence of a service company. The overall quality of written correspondents is an element affecting the image of a service company as a reliable partner. There are certain aspects of the creation of a letter that can enhance the overall experience of a service customer and therefore increase the image of a service company.

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## HELPING BEHAVIOR AND TEAMWORK IN THE LIGHT OF ORGANIZATIONAL CITIZENSHIP BEHAVIOR CONCEPT

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### ABSTRACT

*Nowadays teamwork became the key for success of many organizations. The team can not be treated just as a sum of people working together but as a new quality of work. Most of all a team means people collaboration and mutual help. One of the concepts regarding employees mutual help is Organizational Citizenship Behavior. The paper refers to the issue of OCB, understood as behaviors voluntarily undertaken by an employee, not constituting the scope of his formal duties and fostering the effectiveness of the organization. The first of seven main categories of OCBs is helping behavior which is the main topic of the paper. The aim of the paper is to present the idea of employees' helping behavior in team cooperation based on case study of chosen Polish enterprises.*

**Keywords:** *Organizational Citizenship Behavior, teamwork, helping behavior*

### 1. INTRODUCTION

Contemporary organizations of are more often than ever built on team-work. Consequently, their performance and success depend on individual willingness to contribute to the collective results (Glińska-Noweś, Szostek, 2017, p. 46; LePine, Erez, Johnson, 2002, p. 52). Development of organizational behaviors' discipline within management studies results in elaboration of several constructs describing employee behaviors in an organization. One of the concepts explaining beneficial employee behaviors supporting overall organizational performance is Organizational Citizenship Behaviors (OCB) (Glińska-Noweś, Lis, 2016, pp. 266-267). OCB represent voluntary behaviors that go beyond the scope of employee job responsibilities. Several research had proved that perceiving the boundaries of job responsibilities varies from employee to employee (Nezakati, Asgari, Karimi, Kohzadi, 2010, p. 49). Citizenship behaviors can be directed towards the organization (e.g., carrying out role requirements well beyond minimum required levels) and/or they towards individuals (e.g., helping a specific other person with a relevant task) and contribute only indirectly to the organization (Pare, Tremblay, 2000, p. 4). The benefits of OCB are acknowledged in several organizational studies (Yoshikawa, Hu, 2017, p. 99, Smith, Organ, Near, 1983, p. 654; Appelbaum et al., 2004, p. 19).

## 2. ORGANIZATIONAL CITIZENSHIP BEHAVIORS

OCB typically refer to behaviors that positively impact the organization or its members. The concept of OCB regards employee behaviors that are not part of an individual job description, are not included in an employee contract and are beneficial for organizational performance (Smith, Organ, Near, 1983, p. 654; Appelbaum et al., 2004, p. 19). Employees conduct them without expectations of rewards, motivated by willingness to support the workmates and the organization (Organ, Podsakoff, MacKenzie, 2006, pp. 8-11; Nezakati et al., 2010, p. 48; Glińska-Neweś, Szostek, 2017, p. 47). One of the first definitions of OCB was created in 1988 by Organ who defined them as “an individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization” (Organ, 1988, p. 4). For example, such behaviors include acts like: helping a new employee to catch up, helping a co-worker to deal with work overload or staying at work after hours, taking additional responsibilities, putting extra hours, tolerating temporary impositions without complaint, promoting a work climate that is tolerable and minimizes the distractions created by interpersonal conflict, defending organization and openly speaking about important issues of organization etc. (Kark, Waismel-Manor, 2005, p. 895; Organ et al., 2006, p. 224). Organizational citizenship behaviors are personal and volunteer behaviors which are not mentioned directly in official rewards system of an organization. However, they contribute to effectiveness and efficiency in an organization (Nezakati, Asgari, Karimi, Kohzadi, 2010, p. 48). The benefits of OCB are acknowledged in several organizational studies (Yoshikawa, Wei Hu, 2017, p. 99). In the relevant literature OCB have been recognized as having positive implications for both employees and organizations. The research has proved that individual employee engagement in OCB can increase job performance, enhance team cohesiveness, contribute to overall effectiveness of organization, particularly by strengthening its innovativeness and adaptability (Podsakoff, MacKenzie 1997, pp. 262–270; Podsakoff, Ahearne, MacKenzie, 1997, pp. 263-264; Bolino, Turnley, Niehoff, 2004, p. 301;). As highlighted by Yoshikawa and Hu, without OCB a team may not be able to achieve its performance goals and this may negatively influence organization’s competitive advantage (Yoshikawa, Hu, 2017, p. 99). In the relevant literature there are different proposals regarding OCB elements and dimensions. The analysis of different studies shows that about 30 different organizational citizenship behaviors can be identified (Nezakati et al., 2010, p. 50). Most works on the topic are based on Podsakoff et al. who provided seven common themes of OCB that are: helping behavior (including altruism and courtesy), sportsmanship, organizational loyalty, organizational compliance, individual initiative, civic virtue, and self-development (Podsakoff et al., 2000, p. 516). In the simplest way they may be explained in following way (Glińska-Neweś, 2017, p. 47):

- altruism is expressed through voluntary helping workmates in problematic moments in the workplace,
- courtesy refers to preventing workmates from the occurrence of problematic situations, accompanied by an employee awareness of his/her behaviors’ impact on others’ work;
- organizational compliance means obedience, acceptance and strict adherence to organizational procedures;
- sportsmanship regards readiness to tolerate any inconvenient conditions in the workplace without complaining;
- organizational loyalty includes promoting an organization outside, protecting it against external threats and showing commitment to it;
- individual initiative refers to conducting the activities surpassing standard requirements, such as proposing improvements for an organization or taking additional responsibilities;
- civic virtue regards employee’s willingness to participate in governance process and take responsibility for the whole organization;

- self-development means voluntary employee's engagement in learning and training in order to gain new knowledge and improve skills and competencies.

In our paper we are particularly focusing on helping behavior as significant form of OCB. Based on relevant literature one can notice that helping behavior has been identified as an important form of citizenship behavior by most researchers working in the field (cf. Smith, Organ, Near, 1983, p. 657; Organ, 1990, pp. 94-98; Williams, Anderson, 1991, pp. 601-617; Van Scotter, Motowidlo, 1996, p. 526). Employees' helping behaviors are of great significance for the organization as they make the work system more efficient. It is due to the fact that one worker can utilize his or her slack time to assist another on a more urgent task. According to Podsakoff et al., conceptually helping behavior refers to voluntarily helping others with, or preventing the occurrence of, work-related problems (Podsakoff et al., 2000, p. 516). The first part of this definition regards helping others with work-related problems. This part includes several elements highlighted by different researchers. Organ points out that helping other involves altruism, peacemaking, and cheerleading (Organ, 1990, pp. 94-98). As noted by Organ, altruism refers to "discretionary behaviors that have the effect of helping a specific other person with an organizationally relevant task or problem" (Organ, 1988, p. 8). Altruism is characterized as a helping behavior, which is expressed through voluntarily helping workmates with work-related problems, such as helping workmates who have been absent, helping others who have heavy workloads etc. (Podsakoff et al., 1990, p. 121). It is concerned with going beyond job requirements to help others with whom an employee comes into contact. Peacemaking regards behaviors focused on preventing or solving conflicts and cheerleading. Moreover, Graham (1989) calls the dimension referring to helping others as 'interpersonal helping'. Furthermore, Williams and Anderson point out so called 'OCB-I' which refer to the behaviors immediately beneficial for employee workmates (Williams, Anderson, 1991, pp 601-617). Moreover, according to Van Scotter and Motowidlo, helping others include 'interpersonal facilitation' (Van Scotter, Motowidlo, 1996, pp. 525-531). Podsakoff et al. argue that the second part of the helping behavior definition captures notion of courtesy. What is important, courtesy is distinct from altruism. While altruism regards coming to the aid of someone who already has a problem, courtesy refers to helping workmates in order to prevent a problem from occurring, or taking steps in advance to mitigate the problem (Kark, Waismel-Manor, 2005, p. 898). The examples of courtesy are: being mindful of how employee's behavior affects other people's jobs, avoiding creating problems for workmate and taking steps to try to prevent problems with other workers (Podsakoff et al., 1990, p. 121, Pare, Tremblay, 2000, p. 13; Bukhari, 2008, p. 107). Although there are many approaches regarding the components of OCB dimension which is helping behavior, several empirical research (MacKenzie, Podsakoff, Fetter, 1993, pp. 70-80; MacKenzie, Podsakoff, Rich, 1999, pp. 118-121; Podsakoff, MacKenzie, 1994, pp. 351-363; Podsakoff, Ahearne, MacKenzie, 1997, p. 263) has confirmed the fact that all of these various forms of helping behavior load on a single factor (Podsakoff, 2000, p. 517).

### **3. TEAM AND TEAMWORK**

Today more and more teamwork is considered as the key for success of many organizations. In line with recent literature the team is treated not just as a sum of people working together but as a new quality of work. Based on literature review it is very difficult to point out one clear definition of a team (Grego-Planer, Sudolska, 2018, p. 106). Nevertheless, while analyzing the matter of team and teamwork in the literature, it is possible to outline the most significant characteristics of a team. Team can be treated as the set of more than two people who have common goal, common norms and create specific structure. However, it has some characteristics that distinguish it from other social groups. The main feature distinguishing team refers to motivating people.



Team members are motivated by interpersonal ties as well as by the material benefits resulting from team performance and outcome (in a group people are motivated only by interpersonal ties). Moreover, in a group there are no functions, while in team one can notice several functions related to different qualifications of its members. Another feature distinguishing team from a group regards the fact that team is singled out in organizational structure of a firm and has clear boundaries. Based on above said characteristics, we can state that a team is specific social group whose members are tied by formal and informal relations and they undertake several task in order to obtain material as well as non-material benefits (Kozusznik, 2011, pp. 102-103). According to Katzenbach and Smith (1993, s. 55), the most important while talking about a team refers to the its structure and the way of functioning. The aforementioned researchers perceive a team as "a small group of people whose capabilities and skills are complementary, who have the same approach to work and are engaged in the activities focused on accomplishing a common goal" (Katzenbach, Smith, 1993, p. 55). Based on relevant literature, we assume that the engagement of particular team members is of significant importance for common results generated by teams. It has been proved that people perform better in a team while there is a strong mutual commitment to their joint work and mutual purpose. This commitment creates compelling social and emotional bonds among work-mates who start to believe that 'we' will all succeed or fail together (Hill, Lineback, 2012, p. 16). However, creating the sense of purpose felt by the team members requires positive interpersonal behaviors, such as helping each other, in the workplace (King, George, Hebl, 2005, p. 587). Here it seems necessary to highlight that in the workplace, helping behaviors are typically neither prescribed in job descriptions nor can they be planned for or anticipated in advance. Helping a colleague navigate an unfamiliar computer program or helping another group solve a problem are the examples of spontaneous or voluntary acts that occur in organizations and are often taken for granted (King, George, Hebl, 2005, p. 588). Thus if managers want their subordinates to display such behaviors, first of all they should think about creating sense of community and commitment and in their teams. Moreover, while considering the matter of helping behaviors within a team, we need to remember that teams are created in a way that their members can combine and apply their differences in skills and abilities through helping each other, and providing each other with advice. For this reason helping behaviors are important not only for employees, as they provide and maintains a good and friendly environment, but also for the organization, as they increase its productivity (Godeanu, 2012, p. 394).

#### **4. THE METHOD OF THE STUDY**

The empirical contribution of the paper concerns the case of two companies operating in Poland. One of the investigated firms operates in the market of financial services and the second operates in insurance sector (the companies did not agree to present their names). The research method applied to achieve the aim of the paper is the case study analysis. Based on relevant literature, the major advantage of the case study method is using empirical demonstration from real organizations in order to contribute to the knowledge in the field (Myers, 2010, pp. 227-248). Moreover, as observed by the leading researchers in the field, the case study method has a great potential to study the issue of managing employee organizational citizenship behaviors (Schweer et al., 2011, pp. 35-42,). In order to achieve the aim and objective of the paper, the following study questions have been addressed:

1. What is the intensity of requests for help within a team?
2. Is overload of helping observed in investigated teams?
3. Are helping behaviors of employees monitored by team leaders? If yes, how is it done?

The analyses were carried out on the basis of original source materials collected in the investigated companies. The study used detail in-depth personal interviews with employees.

There were four teams (two from each company) that contributed with interviews including. These were: Debt Collection Department (Team 1) and Contact Centre (Team 2) of the company operating in the market of financial services as well as Factual Expert Department (Team 3) and Promotion Department (Team 4) from the company operating in the insurance sector. Most of the employees in analyzed teams have been working in the company over five years so they have an extensive experience in collaborating with one another. Table 1 presents general characteristics of the investigated team members.

<b>Sex \ Team</b>	<b>Team 1</b>	<b>Team 2</b>	<b>Team 3</b>	<b>Team 4</b>
Female	8	7	0	8
Male	1	5	8	2
<b>Age</b>				
27-33	1	5	0	2
34-40	3	4	4	8
41-47	4	2	4	0
48-54	0	1	0	0
55-61	1	0	0	0
<b>Period of working</b>				
Up to 5 years	1	2	0	2
Over 5 years	8	10	8	8

*Table 1: Characteristics of analyzed teams' members (Own elaboration)*

Structured interviews with teams' members were focused on four issues: evaluation of helping behaviors intensity, recognizing the problem of helping overload, recognizing the problem of helping behaviors monitoring by leaders as well as evaluating the importance of helping behaviors analysis for the coordination of teamwork.

## 5. RESEARCH FINDINGS

Posing the first research question we wanted to find out what is the intensity of helping behaviors within the investigated teams. Through intensity we understand the frequency of requests for help made by particular team members and addressed to other work-mates. The interviews with employees of the Team 1 allowed to identify two persons who are burdened with requests for help from their team-mates. The findings of the research proved that in average 7 work-mates ask them for help every day. These employees declare trying to honor all the requests for help. Similar situation had been identified in Team 2. In this case over 80% of requests for help is submitted to three employees. However, In Team 3 we identified quite different and even worse situation. In this case most of requests for help from team members are addressed just to one employee. This employee is the leader of Team 3. During the interviews the members of Team 3 agreed that the leader of their team has an extensive knowledge in the field they perform. In addition, they pointed out also his empathy and willingness to help others. In Team 4 the situations is similar as in Team 1 and Team 2. This means that most of requests for help from team members are submitted to two persons who try to honor them and help their work-mates. During the interview employees from Team 4 claimed that they ask still the same colleagues for help due to their willingness to help. They noticed that "although we work together in one team, not everybody is eager to help while it is needed". Thus, the results of the conducted interviews proved that taking into account helping behaviors in each of four investigated teams there are few employees who stand out from their colleagues. Research outcomes show that the employees who are mostly asked for help positively react on most of these requests and try to help their colleagues. The measures used in the survey allowed us to calculate Pearson correlation coefficient between the number of requests for help and positive reaction to them.

The calculation of correlations indicates that really strong positive correlation (0,901) exists between above mentioned variables. This means that the more requests for help an employee receives, the more he/she reacts to them. This finding is really interesting but also alarming because it suggests that the workers who are friendly and willing to help others today in short time will become heavy overloaded with work. In turn with time they become personally ineffective. Among the analyzed teams we also identified team members to whom other employees submit only 10% to 30% of requests for help. Additionally, we observed that these employees, being relatively not overloaded with such requests, do not react on them. An interesting conclusion from the conducted interviews refers to the fact that employees prefer to ask for help not these work-mates who have great knowledge and are experts in the field but these who display helping behaviors. Addressing the second research question we wanted to find out if overload of helping is observed in investigated teams. Team members had been asked if they feel overburden with cooperation within a team, in particular with the frequency of requests for help from their work-mates and by being engaged in too many tasks. During the interview employees answered according to Likert scale, where 1 meant lack of overload and 7 very high overload. The findings regarding this issue are shown in Table 2.

Perception regarding overload with helping	Number of answers (scale from 1 to 7)						
	1	2	3	4	5	6	7
Team 1	2	3	2	0	0	1	1
Team 2	2	4	2	1	0	2	1
Team 3	3	2	0	1	1	1	0
Team 4	1	4	2	1	1	1	0

Table 2: Employee overload with helping - scale from 1 to 7 (Own elaboration)

While considering the issue regarding overload of helping behavior within investigated teams, the research findings were extreme. In Team 1 two employees feel high or very high overload of helping other team members. On the other hand, the rest of Team 1 members do not feel overloaded with helping their work-mates. What is interesting, the research findings proved that these employees who feel highly overburden are the same who display helping behaviors most frequently (the research was not anonymous). We found similar situation also in Team 2. In this case 3 employees feel overburden with helping others at work. Situation in Team 3 and 4 is quite different. In both cases only one person declared to feel highly overloaded with helping her/his colleagues. Analyzing above said findings one can ask the question: why in the same team some employees feel highly overburden with helping others but some while other (most) team members do not feel the same? The results of the conducted research allow to state that employees who feel highly overloaded with helping others every day receive requests for help from about 80% of their work-mates. On the contrary, employees who do not feel overloaded with helping behavior receive only 10% to 30% requests for help from other team members. This allows to draw a conclusion that the division of work within a team is unequal. Team members who are most frequently asked for help by their work mates are people who are friendly, willing to help and interested not only in others' problem related to work but also in personal problems of their colleagues. Raising the third question we consulted the matter of monitoring employees' helping behaviors by team leaders. Our research findings proved that almost every day some employees ask for help the same work-mates although in many cases this help is not needed. This suggests that collaboration and helping behaviors within a team are not properly monitored by team leaders.

The problem of team collaboration monitoring had been studied by several researchers who agree on the statement that managers need to understand how information flows across teams as well as need to map the demand and supply for collaboration and help. Thus, leaders managing teams first of all should be able to assess where the collaboration, and in particular help, is necessary and where it is not. Such knowledge enables to identify those employees who are overloaded with helping others (Cross, Rebele, Gray, 2016, pp. 77-84; Ballinger, Craig, Cross, Gray, 2011, pp. 1-23; Cross, Gray, 2013, pp. 1-17). Team members who are known for being eager to help others, are drawn into several projects as key elements of teams. Due to their giving mindsets and the desire to help others, such employees contribute beyond the scope of their roles and drive team performance. Nevertheless, the danger is related to the fact that with time those helpful employees feel so overtaxed that they are no longer personally effective (Grego-Planer, Sudolska, 2018, p. 109). In turn, very often, employees who are the highest in demand by their colleagues to help, with time become those who are the most likely to leave the company and take their knowledge as well as network with them (Cross et al., 2016, pp. 78-79). Presented research findings proved that in Team 1 and Team 2 there are employees who feel highly overburden with collaboration and helping others. Although their helping behaviors are voluntary, team leader should pay attention to not abuse their willingness to help. Based on research outcomes we identified that the leader of Team 1 do not monitor the intensity of helping behaviors of his team members at all, In fact he is not interested in this issue, just focused on the final result of the team. In Team 2 the situation is different. The leader of team 2 applies several tools to monitor helping behaviors within the team. Thanks to using electronic communication tracking and 360-degree feedback system, she knows the number of requests for help as well as she is able to identify employees who ask for help and these who display helping behaviors. She is aware of the fact that in her team there are three persons who are really willing to help their work-mates. Additionally, she knows that one employees displaying helping behaviors feels highly overloaded with it. Moreover, the leader of Team 2 admitted to worry about losing this capable and helpful employee so she took appropriate steps in order to change the situation and retain this person in a company. In team 3 the leader is mostly overburden with helping his team members. However, he admits that he gets a lot of satisfaction from helping others and his work-mates really appreciate this. Finally, the leader of Team 4 says that he knows who in his team mostly displays helping behaviors. Nevertheless while asked about the manifestations of these behaviors, he was not able to provide any examples. Summing up, the problem of collaboration and helping each other in all four investigated teams should be analyzed and monitored by team leaders. Employees who are capable and display helping behaviors and thus influence team performance, should be noticed and appreciated. Here it seems important to notice that Cross et al. have found out that more often than not the volume of work that collaborative and helpful employees do in order to benefit others goes unnoticed (Cross et al., 2016, p. 78).

## **6. CONCLUSION**

Concluding, the study examined the existence of employees helping behaviors and the matter of monitoring these behaviors within working two teams in two chosen enterprises. The conducted analysis allowed to answer the research questions that have been addressed. Within the investigated teams we found individuals who displayed helping behaviors and felt overburden with helping their work-mates. However, we found out also that the more requests for help these helping employee receive, the more they react to them. This research outcome seems to be a signal for team leaders to undertake appropriate steps to monitor employees collaboration better in order to prevent individuals' overload with helping. The importance of analyzing and monitoring employees' helping behaviors is mentioned by several researchers (Cross et al., 2016, pp. 77-84; Ballinger et al. 2011, pp. 1-23; Cross, Gray, 2013, pp. 1-17).

While studying the problem of monitoring employee collaboration and helping behaviors Cross and Gray noticed that rebalancing collaboration and help demands for overburden employees can be achieved by redefining their roles, modifying their behaviors and developing alternative sources of information (Cross, Gray, 2013, p. 9). When considering the matter of overload with helping person's work-mates, the issue of modifying employees' behavior seems to be crucial. Here we pose the question: What kind of practices aimed at changing employees attitudes and adopting extra-role behaviors could be introduced in the analyzed enterprises? Our research outcomes allow to state that in the analyzed companies workers' helping behaviors are not appreciated. Moreover, the leaders of investigated teams generally do not use tool to influence their helping behaviors. In order to change employees' behaviors towards work-mates as well as in an organization, it is necessary to create appropriate foundation in organizational environment (Nezakati et al., 2010, p. 51). As highlighted by Pare and Tremblay, recognition of performance is the only predictor of OCB. Of course, we can assume that a successful employee whose work performance is recognized by his superiors and his peers, will tend to do more than what is formally required of him/her. It is widely known that the most obvious form of recognition comes in the form of salary increases and bonuses. However, in the broader terms of a positive work environment and recognition can take several forms from a formal award program to a thank you note for a job well done (Pare, Trmblay, 2000, p. 13). Research findings presented in the paper indicate that in the investigated companies generally there is no standardized system of monitoring and recognizing employees' helping behaviors. Although the practices applied by the leader of one of investigated teams (Team 2) are different, in three of four analyzed teams no methods are applied to monitor team members collaboration and their helping behaviors. This poses a serious threat to personal effectiveness of overloaded employees. In turn, it constitutes a risk of decrease of team and organizational performance. The research project presented in the paper and its results have their limitations. First of all, the findings are derived from data collected through interviews conducted within the case study of only two companies. We are aware that any attempts to generalize on this basis are challenging while pattern matching with theoretical assumptions and explanation building become very difficult. Moreover, we are aware the interviewed employees expressed their subjective opinions in the matter which is full of nuances. Thus, the presented study inspires us for further in-depth investigations, with a use of participatory observation or focus group interviews with the employees.

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# IMPLEMENTATION OF THROUGH LIFE CYCLE MANAGEMENT ON DEFENSE ACQUISITION PLANNING (STUDY ON SUKHOI SU-35 PROCUREMENT PLAN AS A SUBSTITUTE F-5E / F TIGER II SQUADRON 14 TNI AU)

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## **ABSTRACT**

*Almost every country has experience about the problem of affordability or ability in the procurement of weapons, tools, or other types of defense systems because the budget allocation for defense is limited. The countries prefer to allocate a large portion of the budget to other sectors. This makes the State pay more attention to the management of its weapons procurement by prioritizing the principles of effectiveness and efficiency, by forming and managing projects in the procurement of weapons, both domestic projects and foreign cooperation projects. The purpose of this study to analyze the Implementation of Through Life Cycle Management (TLCM) on Defense Acquisition Planning (Study on the Sukhoi SU-35 Procurement Plan as a Substitute for the F-5E / F Tiger II 14 Squadron of the Air Force), as well as to know the ability of Defense Acquisition in defense management readiness on Indonesian military defense equipment. The research method used qualitative method with data collection methods through in-depth interviews with informants. The results show that in an effort to improve the ability of Defense Acquisition (Factors of TLCM) the field of Defense Logistics in Defense Management has not been implemented in a structured and comprehensive manner in accordance with the perspective of defense management from more developed countries, especially regarding the preparedness in defense logistics management such as management and availability defense equipment owned by Indonesia. Based on the results of the research, researchers are suggested the need to socialize the implementation of Defense Management in Indonesia in the context of Procurement of TNI Armed Forces.*

**Keywords:** *Affordability, Defense Acquisition, TLCM*

## **1. INTRODUCTION**

Budget management is one of the biggest challenge for Indonesia. Facing the limited funds allocated to the defense sector, Indonesia must modernize its defense equipment. Therefore, the Government of Indonesia seeks to make policies in order to carry out effective and efficient defense acquisitions, starting with optimizing the role of the Indonesian defense industry in every acquisition of foreign defense and security equipment and the existence of trade offsets or offsets. The latest news is the Government still discuss about the plan to purchase 10 units of SU-35 from Russia. Looking at the public price of 1 unit of SU-35 which reached US \$ 65 million, it can be illustrated that the purchase will spend a huge amount of money. This price is only to one unit, do not include the routine maintenance costs, cost of building special facilities, developing pilot resources, overhauling, up to the cost of destruction / disposal when the service



period has expired. The purchase or acquisition of a defense is a high cost activity. Management of effective and efficient defense acquisition activities is needed so that limited resources of Indonesian can be used effectively. However, now the defense acquisition process, in addition to getting the desired price package, is also required to get optimal capabilities from purchasing a product. This is done by reviewing and managing all aspects of the use of a product cycle, so that the use of a product does not consume resources that are greater than the allocation. This method is called Through Life Cycle Management (TLCM), an acquisition management that can translate defense policies into military capability development programs that are needed, as a whole, on all lines of development and defense (DloD / Defense Line of Development). Generally, the TLCM process includes Plan, Deliver and Maintenance, and Disposal (Addock, 2007). As any project generally, planning is a very important process, which determines the overall process of acquisition, so that a comprehensive study needs to be carried out. Planning in TLCM is called the TLCM Planning Cycle, which results in a user requirement document (URD) or in Indonesia called an operation requirement (Opsreq) and a system requirement document (SRD) or in Indonesia called a technical specification (Spectech). Opsreq relates to the capabilities desired by the user of a defense system, while the Spectech is opsreq which has been translated into the indicators of technical and functional specifications of the related defense equipment. The Spectech always adjusts to Opsreq, therefore the preparation of Opsreq is a strategic matter regarding the capability that is desired by users of the defense equipment to be acquired in relation to defense and mission policies that will be carried out by the defense system. Buying defense equipment is the same as buying the capability, if a defense system cannot run a mission that is intended of its function, it means the buyer or user does not get any capability from the defense system. On the other hand, the purchase price of defense equipment is not cheap, if the user does not get the ability of a defense system means there is a lot of money wasted. A comprehensive defense acquisition plan is needed to describe the capability of the defense equipment that is desired with consideration of Indonesia's defense policy, Indonesian foreign policy and the strategic environment at national, regional and international levels. It would better if the TLCM could be implemented as an effort to support the Air Force as potential users, in planning the SU-35 acquisition project as a substitute for the F-5E / F Tiger II, especially in terms of planning. This phenomenon prompted the writing of this research entitled Implementation of Through Life Cycle Management in Planning Projects for Acquisition of Sukhoi SU-35 Fighter Plane in lieu of F-5E / F Tiger II Squadron 14 TNI AU. Referring to the formulation of problems, it is necessary to analyze the potential implementation of the TLCM Planning Cycle in optimizing the planning of the SU-35 acquisition project instead of the F-5E / F Tiger II in the Air Force 14 Squadron.

## **2. RESULT AND DISCUSSION**

### **2.1. Tlcm Planning**

In the process of planning, TLCM is began by forming an Integrated Project Team (IPT) which is an acquisition project team that moves the defense system acquisition process and provides a balance between performance, costs and time within the limits determined by the authorities. The team brings together the defense stakeholders with industry under one implementation leadership, ensuring that acquisition projects can run flexibly and could always adaptive to rapid changes in the strategic environment without impacting changes in terms of performance, cost and time. IPT needs a comprehensive set of skills to perform its functions. Personnel capabilities in IPT can be seen in the Figure below.

*Figure following on the next page*

<b>KEY SKILLS WITHIN IPT</b>						
<b>Functional</b>	Finance	Commercial, Legal & Policy	Project & Program Mgt	Defense, Engineering & Science	ICT	Logistics & SCM
<b>Cross Cutting</b>	Accounting, Forecasting, Investment Appraisal					
	Assurance, Safety & Risk Management					
<b>Core Competence</b>	Knowledge Management	Change Management	Leadership & HRM	PR, Communication, Gov't Relation	<b>Business Skills</b>	

*Figure 1: Key Skills Within IPT*

*Source: Stuart Young and Haryo Budi Rahmadi. (2015). Defence Acquisition & Project Management Platinum Card VI.0.*

The table above shows that in acquiring effectively and efficiently, there is a set of capabilities expected from leaders and personnel in IPT, not only the requires of Project Management or financial skills, but also requires of personnel with Information & communication technology, Logistic & Supply Chain Management, as well as other management skills such as Knowledge Management and Risk Management. Moore and Antill (2012) describe that IPT is empowerment and coordination between personnel from various organizations, so it is important to have strong leadership, education and commitment. After the IPT is formed, the first phase of TLCM is making concept. In this phase, IPT plans everything about the course of the project as outlined in the business case document or proposal. The contents of the proposal are identification of the following:

- a) The purpose of the acquisition project;
- b) Options regarding the method of purchase, desired technology, and funding sources;
- c) User Requirement Document (URD) is a document about the capabilities that the user wants. In Indonesia known as the operation requirement (Opsreq);
- d) Risk analysis;
- e) Organizations / agencies / institutions involved in the project; and
- f) Schedule and location of project implementation.

After the conceptual phase is complete, IPT can go on the next phase, namely assessment. In this phase, the choices of concept on project proposals that have been formed will be assessed, considered, and then decided on the following:

- a) Strategies to reduce the bad risks as the project progresses;
- b) System Requirement Document (SRD), in Indonesia known as technical specifications (Spectrum), contains the technical specifications of assets that refer to the capabilities desired by users according to what has been prepared in the URD;
- c) Appointment of partners or suppliers;
- d) The choice of the most effective project costs; and
- e) Other project plans.

Furthermore, these phases of activity are incorporated in a TLCM plan called Capability Development Planning (CDP). The planning can be explained through 6 levels which become a cycle called the Capability Planning Cycle (CPC). The full cycle can be seen in Figure 2.

*Figure following on the next page*

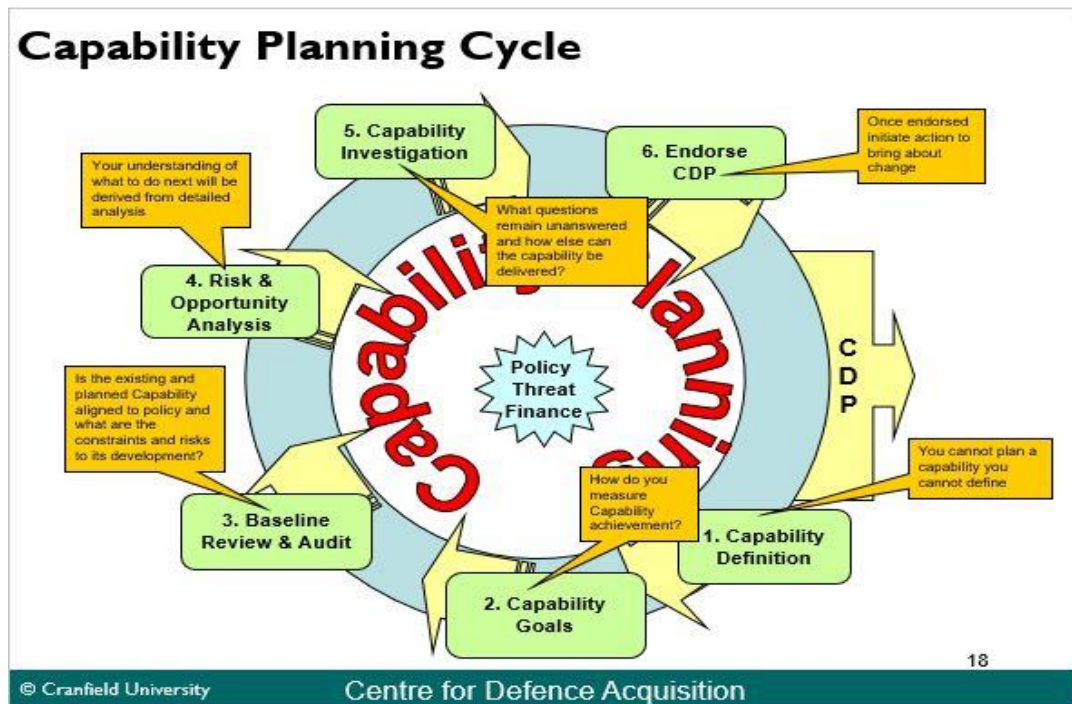


Figure 2: Capability Planning Cycle

Source Stuart Young (2015). *Requirement Setting and Intelligent Customer*.

a) Capability Definition

IPT determines the acquisition project objectives and then determines the capabilities desired by the user, in other words this is the part of preparation on User Requirement Document (URD). Foreign policy, defense and security are a reference. The things that need to be understood as a consideration are the existence of threats that are both real and potential. The environment where the assets will be operated must also be considered.

b) Capability Goals

This cycle is a time when IPT begins to translate the desired ability into the System Requirement Document (SRD) or technical specification (spectech) that defines capabilities in more detail and measurable. These technical specifications function as targets for achieving the desired capabilities.

c) Baseline Review & Audit

In this third cycle, IPT conducts a review and examination of the capabilities that have been owned with the aim of finding the capability gap between the desired capabilities and the capabilities currently owned. A review of the gap tells where the current position of ability. The gap study is the basis and priority of fulfillment in conducting defense acquisition.

d) Risk and Opportunity Analysis

Determine the levels of risk that can be tolerated to be managed. Then identify opportunities that can be utilized to close the capability gap effectively. Through an analysis of risks and opportunities that exist, it directs IPT to various types of defense acquisition implementation options, either by making new purchases, updating the system, leasing, and also the Private Financial Initiative (PFI) involving actors in the private sector.

e) Capability Investigation

At this level IPT analyzes and determines the choice of the implementation of the acquisition process to be carried out. The matters that are taken into consideration are among others: risk and opportunity, costs, duration of time when these capabilities are needed, national defense industry capabilities, the latest developments in technological innovations, and the ability of project related organizations to run projects successfully.

f) Endorse CDP

Examine and re-evaluate the suitability of the plan that has been compiled with the allocated budget, after that the plan is ratified and submitted to the relevant stakeholder for approval.

The CPC planning cycle becomes a benchmark or comparison with the Sukhoi SU-35 acquisition planning process which is the study in this research.

**2.2. Defense Military Equipment on Ministry of Defense of Indonesia**

The results of interviews and discussions with Pusada and Center of Defense Industry on Ministry of Defense were obtained data that the implementation of Indonesian acquisitions referred to the Minister of Defense Regulation Number 17 of 2014 concerning the Guidelines for the Implementation of the Main Equipment of the Weapon System in the Ministry of Defense and the Indonesian National Army. Stages of procurement of TNI defense equipment based on Minister of Defense Regulation no. 17 of 2014 can be seen in the following Figure.

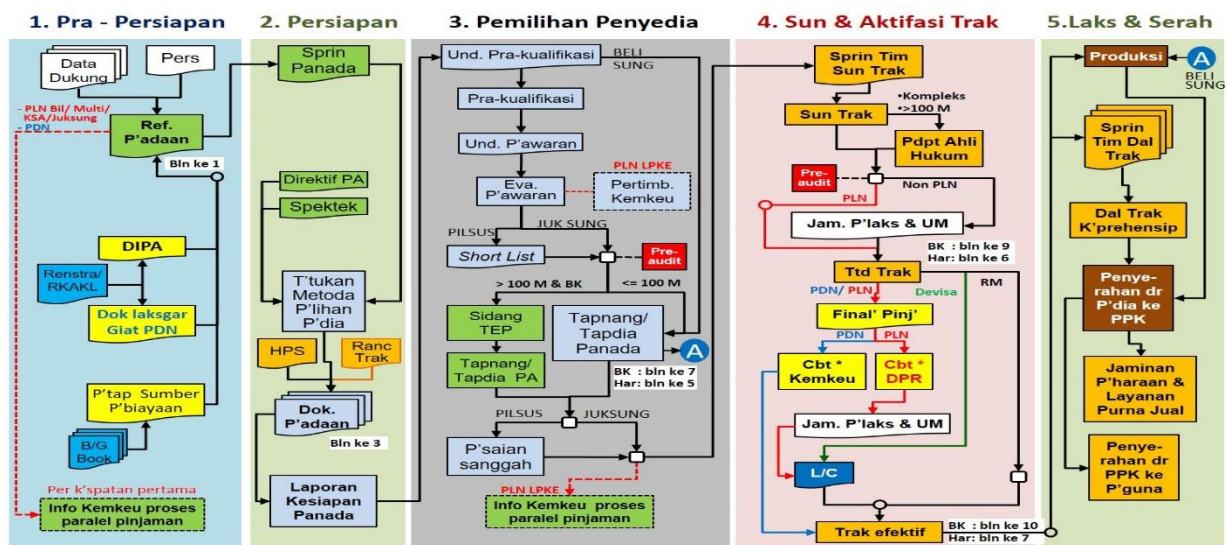


Figure 3 : Phase of Defense Military Acquisition  
 Source : Minister of Defense Regulation Number 17 of 2014

The Figure above shows the acquisition process of TNI defense equipment consists of 5 (five) stages, namely pre-preparation, preparation, selection of defense equipment providers, preparation and activation of contracts, as well as the implementation of acquisition and handover of defense equipment. Taking into account the activities in Figure 3, the planning stage of the acquisition of TNI defense equipment is in the pre-preparation stage and preparation between the entire acquisition of TNI defense equipment. PA / KPA conducts general acquisition planning which includes the following activities:

- a) Developing a work reference framework (KAK) or Term of Reference (ToR), contains an analysis of the needs of TNI defense equipment, operational requirements, technical specifications, estimated total costs, description of activities, and implementation time.
- b) Arrange and establish budgeting plans for the procurement of TNI defense equipment.
- c) Establish a general policy on job packaging, how to procure TNI defense equipment and the organization of procurement of TNI defense equipment.

The PA / KPA then formed the PPK as the executor of the TNI defense equipment procurement. One of the main tasks and authorities of the PPK is to establish a plan for the procurement of TNI defense equipment that includes the TNI defense equipment technical specifications, Self

Estimated Prices (HPS) and draft contracts. The guideline was made in order to implement an effective and efficient acquisition of TNI defense equipment. Minister of Defense Regulation Number 17 of 2014 replaced the previous regulation Minister of Defense Regulation Number 34 of 2011 because it is deemed no longer in line with the development of laws and organizations and work procedures within the Ministry of Defense and the Indonesian National Army.

### **2.3. Indonesian Capability in the Composite of the Official Air Condition / Operation (OLOU)**

More than 3 (three) decades of F-5E / F Tiger II aircraft have carried out tasks in the ranks of the 14th Air Force Squadron fighter aircraft. Now, 16 (sixteen) aircraft have been purchased in 1980 with only 10 units in total that have been grounded gradually since 2015. In addition to the F-5E / F Tiger II aircraft there are no more fighter planes operated and maintained by the 14th Air Squadron. OLOU's current task is fully carried out by Air Squadron 11 Hasanudin Air Base which operates 16 Sukhoi type SU-27SKM and SU-30MK / MK2 aircraft. Both fighter planes have been equipped with various types of weapons to support the role of the two aircraft as multirole fighter, including the most recent is the Kh-59ME anti-ship missile and 80-mm S-80 caliber rocket made in Russia to complete the domestic P-100 bomb production in range of air to ground ammunition. Previously the Sukhoi line had been equipped with air-to-air (air to air) missiles of the R-73 and R-77 types. In addition to missile and rocket missiles, the Sukhoi Air Force also features an internal GSh-30-1 canon of 30 mm caliber.

### **2.4. Contribution and Strategy in the TLCM Plan Cycle**

#### *2.4.1. Capability Definition*

IPT determines the acquisition project objectives and then determines the capabilities desired by the user, in other words this is part of the preparation of User Requirement Document (URD). Foreign policy, defense and security are a reference. The things that need to be understood as a consideration are the existence of threats that are both real and potential. The environment where the assets will be operated must also be considered. Defense Policy is a reference for all defense capacity development activities. Defense acquisition is same, the purchase program always refers to the policies and missions that will be implemented. However, there is one type of defense equipment that will still need to be acquired regardless of the orientation of its defense policy, namely the defense equipment hitter, this is because a country cannot eliminate the possibility of attacks from other countries as a threat. A striking feature of the defense equipment hitter is its very high technical specifications, as well as the technology embedded in the defense equipment is also sophisticated, so that it directly causes a deterrent effect on other countries. The acquisition project for the replacement of the F-5E / F Tiger II with a more recent generation fighter is an acquisition to increase the power or capacity of the Indonesian Air Force hitter. On several occasions KASAU, the TNI Commander, Minister of Defense said that the purchase of Sukhoi SU-35 as a substitute for the F-5E / F Tiger II to secure Indonesian territorial as archipelago state, to do so required sophisticated defense equipment and had a high deterrence effect. It is natural to see the Strategic Environment around Indonesia in terms of fighter aircraft ownership, Singapore has operated the SG F-15 with special specifications for Singapore plus the projected acquisition of the latest F-35 fighter aircraft along with Australia, while Malaysia has operated the F-18 Hornet . The most obvious development is that China has started to operate the SU-35, a 4.5 generation fighter which even in the simulation cannot be matched by the F-35 though. The strategic environment needs to be analyzed comprehensively, although in general in defense acquisition its analysis revolves around the issue of the dynamics of the development of the regional situation, existing and future threats, then the Indonesian political situation with the country of origin of the defense equipment provider.

However, the analysis of the strategic environment will be more optimal with the identification of resources and technology that has been owned. Not only how much the defense budget or how much export credit can be used, but also identification of national strategic industries related to the acquisition project, moreover Indonesia always requires offset in every acquisition project. The offset focused on mastering the new technology is focused on developing national strategic industries. In order to master new technology, it is necessary to identify what technology has been mastered, this is where the importance of the existence of knowledge management skills in IPT. Knowledge Management makes the identify of technology that has been mastered to be more organized, its knowledge management also makes the new technology that is entered into the strategic industry can be continued ito monitored for its relevance, so that it is always appropriate for the national strategic industries concerned. Do not forget to also identify strategic industries from abroad that have the potential to become partners.

#### *2.4.2. Capability Goals*

This cycle is a time when IPT begins to translate the desired ability into the System Requirement Document (SRD) or technical specification (spectech) that defines capabilities in more detail and measurable. These technical specifications function as targets for achieving the desired capabilities. Following up on the capability needs to cause deterrence effects in the mission of guarding Indonesian territorial waters, the Indonesian Air Force has stated that the replacement aircraft of the F-5E / F Tiger II is able to intervene, able to provide air defense and protection, as well as air patrol with a minimum combat radius of 350 NM. Then to get a replacement aircraft that is suitable to obtain this capability, the TNI-AU has compiled replacement aircraft requirements which are divided into Opsreq and Spectech. There are 5 (five) traits that make the requirements can be said to be good. First the requirements must be Specific, which means that the requirements must be precise or precise and delivered in a sentence that shows the results that will be obtained by the user. Second Measurable, so that it can be easily determined when the desired results have been reached. Third can be Achievable, requirements can be arranged up to a high level but can still be achieved. Fourth Realistic, or can be said to be relevant to the needs of users in carrying out their mission. Fifth, Timely, there is a specific time setting regarding when the requirements that have been prepared can be realized. These five properties are shortly called SMART, using the first letter of each trait. Observations made on the Opsreq and Spectech that have been compiled for the replacement aircraft project for the replacement F-5 E / F Tiger II show specific, measurable and achievable properties. The specific nature of the list of results to be achieved from the replacement aircraft listed in Opsreq, while the measurable properties are seen from the detailed requirements and parameters that have been announced.

#### *2.4.3. Baseline Review & Audit*

In this third cycle, IPT conducts a review and examination of the capabilities that have been owned with the aim of finding the capability gap between the desired capabilities and the capabilities currently owned. A review of the gap tells where the current position of ability is. The gap study is the basis and priority of fulfillment in conducting defense acquisition. Defense military equipment on specification requirements that have been compiled are not immediately juxtaposed with defense equipment that has been widely circulated in the defense equipment market, but need to be compared first with the military capabilities that are currently owned. In this fighter acquisition project, the spectek (SRD) has been compiled compared to the F-5E / F Tiger II which has been owned by the Air Force, such as the following ability comparison.

No	Spesification	F-5E/F Tiger II	Capability that Needed
1	Combat Radius	570 NM	350 NM
2	Speed	0,86 Mach	2.0 Mach
3	Thrust/Weight Ratio	0,4	1
4	MOTW	24723	12000
5	Jarak Deteksi Radar	10 NM	120 NM
6	Jarak Take Off	450	1800 M
7	Jarak Landing	412	1800 M

There are things that are quite stalled from the comparison beside, that the expected specifications are even smaller than the fighter aircraft that will be replaced. As in combat radius, the proposed parameter is 350NM, even F-5 itself has 570NM. Then regarding the complete carrying capacity with weaponry / MOTW because the TNI AU wants a replacement plane that can carry many types of weapons so that it is optimal as a multipurpose plane, the parameters used are 12000 lbs, whereas the average MOTW multi-aircraft is above 16000 lbs, even F-5 itself has a MOTW weighing 24723 lbs. Some figures in the parameters lower than the F-5E / F Tiger II technical specifications have not shown a realistic operating requirement. It should be noted that studies made by the Indonesian Air Force compile the draft and the spectacle, then immediately juxtapose the operating requirements with the specifications of several fighter planes that are substitute candidates for the F-5E / F Tiger II, such as Gripen, F-16, SU-35 even with F -35. A better step can be taken if the replacement aircraft operating requirements are appropriate to deal with threats compared first with the strength that is now owned by the Air Force, namely the F-5E / F Tiger II specification. In addition to showing the position, the comparison can also show the capability gap between what is currently owned and the desired capability, how much the gap must be cut. The usefulness of knowing this gap is so that IPT can prioritize gaps in which sectors will be prioritized.

#### 2.4.4. Risk & Oportunity Analysis

Determine the levels of risk that can be tolerated to be managed. Then identify opportunities that can be utilized to close the capability gap effectively. Through an analysis of risks and opportunities that exist, it directs IPT to various types of defense acquisition implementation options, either by making new purchases, updating the system, leasing, and also the Private Financial Initiative (PFI) involving actors in the private sector. There is only 1 risk and 1 opportunity analyzed by the Indonesian Air Force in the aircraft acquisition project replacing the F-5E / F Tiger II, which is the risk of being embargoed by military products and the potential to obtain transfer of technology. To deal with these risks, Indonesia tends to avoid these risks and choose a country that is unlikely to give an embargo on Indonesia. As for opportunities, Indonesia only sees the opportunity of transfer of technology. Therefore, increasing military capability must always be accompanied by the intensity of defense diplomacy as the main media to communicate the improvement of Indonesia's defense capabilities, so that the military confidence of other countries against Indonesia's defense forces is well maintained. In the midst of the huge risks involved in acquiring aircraft replacing the F-5E / F Tiger II, of course there is a great opportunity that can be utilized, namely offset requirements. A reciprocal requirement for trade in the defense sector, this is natural, because a country's military is an official consumer of a defense industry. Offset requirements from an Defense Military Equipment acquisition project are targeted to reach 85% of the total project value, if not at least 35% of the total project.

#### 2.4.5. *Capability Investigation*

At this level IPT analyzes and determines the choice of the implementation of the acquisition process to be carried out. Decisions that are taken into consideration include: risks and opportunities, costs, duration of time when these capabilities are needed, national defense industry capabilities, the latest developments in technological innovations, and the ability of acquisition-related organizations to run projects successfully. On August 22, 2017, the Indonesian government decided to acquire an SU-35 aircraft to replace the F-5E / F Tiger II. Amid the identified risks, Indonesia decided to take the good opportunities gained by acquiring the SU-35. First, increasing the capability of Indonesia's combat capability and deterrence, this is needed to address the condition of developing fighter aircraft maps in Asia Pacific countries. The second opportunity is that there is an offset requirement of 35% of the total contract value that Russia can fulfill. A third opportunity is a trade reward scheme in an agreement between Indonesia and Russia. This is interesting because the activity is worth 50% of the contract value. Regarding performance, despite the first SU-35 flight in 2008 and operating officially since February 2013 in the Russian air force, many believe the SU-35 has very good performance. The assessment began when the 2013 Paris AirShow event, the SU-35S, which is the most sophisticated variant in the flanker family today, showed off and managed to amaze many of the spectators present. This fighter was developed from the first generation SU-27 since 1988, but the SU-35S was the latest development which began in 2003 with emphasis on 2 (two) parameters, namely maneuverability and avionics. The result is the SU-35S with various advanced technologies similar to those embedded in the T-50 PAK-FA, a 5th generation (five) Russian aircraft which is still in development. In addition to the SU-35S, another variant is the SU-27M / SU-35 which is the first development and is only produced in limited quantities. Then there was the SU-35BM which was the result of the first development since 2003. The superior basic capability of the SU-35 S is indeed compatible with the needs of the Indonesian Air Force who have advanced maneuverability and avionics. A pair of Saturn AL-41F1S engines are capable of producing a maximum thrust of 29,500 lbs equipped with a TVC (trust-vectoring control) to direct the exhaust gas impulse on the engine chimney so as to increase the agility of the aircraft. Then for detection devices, like the SU-27 belonging to the TNI-AU, the SU-35S also features active and passive sensors. Radar Irbis-E has a maximum detection range of up to 400 KM, while the passive sensor is OLS-35 which consists of an infrared camera, electro optics, laser rangefinder and designator targets that are useful for detecting targets in the opposite position as far as 90 Km. As for defense, the SU-35 S features a Khibiny-M electronic shield as electronic countermeasure (ECM). General information about prices, on the market the SU-35S fighter aircraft is offered at a price of \$ 65 million, but this figure is only for the purchase of 1 (one) unit of Su-35S. One important thing that is not considered by the procurement team is time. Production of the SU-35S itself is still in a reasonable level for 2 (two) before getting the first unit, but in this acquisition project the procurement team seems to not take into account the time problem. The SU-35 was officially chosen by the Indonesian government in August 2017 and Indonesia is projected to receive the first unit in 2020. On the other hand, the F-5E / F Tiger II which will be replaced by the status has been grounded or has not operated since 2015. It shows that there the vacuum of capability of the entire combat power of the Air Force for 5 (five) years until the first unit of the Su-35 was handed over to the Government of Indonesia. This is where the important value of planning Through Life Cycle Management, not only gives the buyer guidance to get the Defense Military Equipment that suits their needs and an overview of the costs to be incurred until the end of the defense system, but also provides a clear time frame in terms of production time, Defense Military Equipment time entered devotion, the time of defense equipment must be upgraded / overhauled, until the time the defense equipment must stop operating and be destroyed.



#### 2.4.6. Endorse EDP

This is the last stage before planning the TLCM Acquisition. Examine and re-evaluate the suitability of the planning, calculation and analysis that have been made and compiled with the allocated budget, the point is to ensure that the project remains in line with the ability of the Indonesian government (affordable). Strategic environments, both political, economic and other sectors change dynamically as planning acquisitions are being made. These changes certainly affect the planning that has been made, as an example of the Financing Source, if the acquisition plan has exceeded 1 year there is the possibility of financing planning will also change, because the budget ceiling is also likely to change to adjust the currency exchange rate. So that the final planning evaluation must always be done to ensure that the plan remains affordable. after that the plan is ratified and submitted to the relevant party for approval.

### 3. CONCLUSION AND RECOMMENDATION

From the research that has been done, researchers can provide conclusions and suggestions that can be described as follows.

#### 3.1. Conclusion

- a) The implementation of the concept of Through Life Capability Management (TLCM), which is an acquisition management method to translate defense policies into programs needed to develop military capabilities, as a whole, on all lines of defense and strength of Defense in Indonesia.
- b) Ministry of Defense and the TNI must be able to describe the capabilities of the defense capabilities properly. Through describing well-being, Kemhan and TNI can optimize their position as the only defense customer in Indonesia. This position provides several important potentials for Indonesia in the process of acquiring SU-35 as a replacement aircraft for the F-5E / F Tiger II, including:
  - The Air Force will get the SU-35 whose specifications have been adjusted to the special needs of the Air Force, not the standard specifications of the factory.
  - From a time standpoint, the planning process will be faster if Opsreq is clearly described from the start. Changes to opsreq will only prolong planning time and as a time-out project has the potential to increase costs.

#### 3.2. Recommendation

- a) It is recommended that there is a defense management plan, namely Defense Logistics Management, in this case in the form of a Defense Acquisition with the full form of the TLCM Concept, for the selection of the F-5 E / F Tiger Plane in dealing with the National Defense conflict in government policies that must be followed by all Ministries and institutions and stake holders in Indonesia.
- b) Defense acquisition planning is suggested to be more focused on Opsreq which has been described rather than focusing on the types of aircraft on the market.
- c) It should be considered the involvement of various parties from various institutions in defense acquisition planning, especially those who have expertise in risk management. It is intended to identify a strategic environment in a more comprehensive manner, not only matters relating to threats, so that identification of risks and potential that can be taken also results in more comprehensive results. In addition, parties who have knowledge management skills are also needed to optimize the management of transfer of technology as part of the acquisition agreement.
- d) There needs to be socialization or learning to all policy makers and elements involved, regarding the Defense Management Concept especially in the field of Defense Acquisition.

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## **DISSECTING LOCAL WISDOM AS THE MAIN CORE OF STATE DEFENDING STUDY ON SPECIAL REGION OF YOGYAKARTA**

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### **ABSTRACT**

*The condition of strategic environment of the world is changing rapidly and give a big influence on Indonesia which can be a threat or an opportunity. The Ministry of Defense in Indonesia as the apparatus of the state have a responsibility for maintaining state's sovereignty. One of the program as an effort to defend the sovereignty and national security through strengthening the values of state defense to the whole society. One of the things that can be the main core in the effort to develop the state defending is through the dissection of local wisdom values that exist in each area in Indonesia. Indonesia is known as the country which have many cultures and it becomes an identity of Indonesia because with the pluralism but can live peacefully and side by side under the auspices of Pancasila and the slogan of 'Bhinneka Tunggal Ika' which means in spite of difference but still hold on as unity. This research conducted in Special Region of Yogyakarta (DIY) and show that DIY which is famous as City of Culture is able to make local wisdom as a trigger in implementing the values of state defending. It can be seen from the government programs and the live of society in DIY that have reflected the implementation of state defending value. Methodology of this research is qualitative technique with descriptive approach.*

**Keywords:** *Local Wisdom, Sovereignty, Defending State*

### **1. INTRODUCTION**

The logical consequence of the application of National Defense and National Security have to in compliance with the effort to strengthen and increase the potential resources for defense in the regions. Nowadays, the strategic environment of global, regional, and national is always change dynamically and it could give another effect to the sovereignty of the State.<sup>1</sup> The threats that come to the state with two shape, unreal threat such as military assault and the real threat or nirmiliter threat that unknowingly has attacked the nation, such as the effort to weaken the mental generation through the use of technology. In the nation and state, each countries clearly have a philosophy or worldview that is made and applied in nation's life and also be the guideline. The philosophy could be the national values derived from the process of social construction. Existence of externalization from individuals and groups become the foundation that lead to the formation of values that is applied in nation.

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<sup>1</sup> Indonesia Defense White Paper, Ministry of Defense (Buku Putih Pertahanan Indonesia Kementerian Pertahanan)

Based on the collection of values, then deductively can be the holy value of the nation. The resulting national values can also be a unifying force that unites the pluralistic of the nation. Special Region of Yogyakarta (DIY) is one of the provinces in Indonesia that has the privilege of coming from the fusion of the Unitary State of Yogyakarta and the State of Duchy of Alaman. DIY is located in Java Island, bordering directly with Central Java Province and Indian Ocean. The total area of DIY is 3,185.80 km<sup>2</sup> and consists of one Municipality and four Regencies, divided into 78 districts and 538 villages. According to the Population Census (SP) results from 1971-2010, there are escalation of population in DIY, as follows:<sup>2</sup>

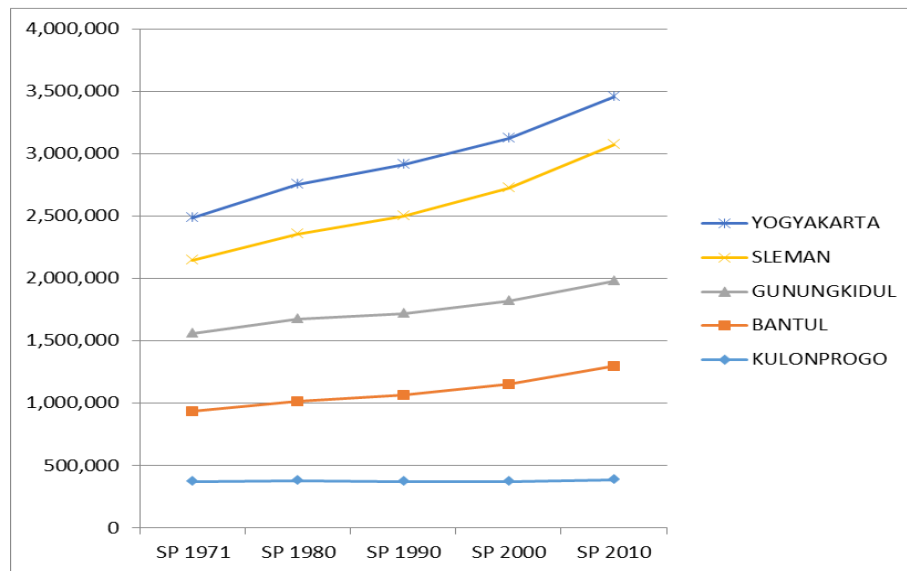


Figure 1: Gambar 1.1. Population Census DIY 1971-2010

Since independence of Indonesia, DIY has its own history associated with the struggle to maintain the independence of the State of Indonesia. This is not separated by the existence of Keraton Ngayogyakarta Hadiningrat and with all of the culture. Until now, many cultures have become the uniqueness of DIY, among the culture in social environment, fashion and dressing studio, arts, crafts, traditional games, culinary, facilities, and infrastructure, history and archeology. Base on the argumentation above, this paper will discuss about the efforts of the government of DIY in dissecting local wisdom to be the trigger and reference to socialize state defense to the whole society.

## 2. DETAIL RESEARCH

### 2.1. Theory

There are several theories are used as a reference to strengthen the results of this study, such as management theory, the policy implementation theory, community development theory, and the concept of state defense.

#### 2.1.1. Management Theory

Management can be defined in many ways. This is some definition of management:

- The process about activity that have been planned
- The process of planning, organizing, directing and controlling activities, it is also known as the management functions,
- Coordinating the activities
- Deciding organizational goals that will be achieved through all the activities,

<sup>2</sup> Population Census of Special Region of Yogyakarta

- e) Empowering the organizational resources to achieve that goal,
- f) Achieving goals effectively and efficiently.

Legality is the most important factor in any organization management. Legality in defense policy describes the organizations and institutions that will implement the policy along with all the managerial attributes. That way, a check and balance that can guarantee the defense policy does not deviate from the goal of its formation. The corrective action can be taken if the person who have responsibility but do not act in accordance with the managerial attributes that have been described. The managerial attributes mean the policy objectives and job descriptions.

### *2.1.2. Policy Implementation Theory*

Implementation of policy is a legal administration tool where various actors, organizations, procedures, and techniques that work together to implement the policies to achieve the goals.<sup>3</sup> Dwiyanto Indiahono stated that policy implementation is an important stage in policy.<sup>4</sup> This stage determines whether government policies can be applied in the field and produce outputs and outcomes as planned. Output can be seen in a short time after policy implementation. Outcome is the impact of policies that can arise after the release of policy output. Outcome can be measured after the output is discharged or for a long time. Implementation is a common process of administrative. The implementation process will begin if the objectives and targets have been established, the activity program have been prepared and the funds are ready to distribute and reach the target. The success or failure of a policy depends on some of the conditions of the policy itself, the consistency and effectiveness of its implementation and the occurrence of unexpected developments. Possibility of failures can be caused by unwell implementation or by unsuccessful-implementation.<sup>5</sup> Implementation of the policy can be done through two options that directly implements in the form of programs or through the formulation of derivative policies or derivatives of the policy. At this stage of implementation various interests will compete. So some policies can get the support from the execution but otherwise some others will be opposed. The model of policy implementation depends on the type of policy. Model selection is based on the effectiveness of policy implementation that is strategic and related to the safety of the nation can be implemented with top down model. Policies that are not directly related to top down models. Policies that are not directly related to national security can be implemented with bottom up models. It is more effective to use both so as to balance the government and community participation.

### *2.1.3. Teori Community Development*

Community development is an activity that organized systematically, planned, and directed to increase community access to achieve a better social life, economic, and quality of life.<sup>6</sup> The essence community development is an empowerment effort undertaken by companies, governments, and local communities. Implementation of community development program can be done with community development cycle starting with development principle, that is development of concept, objective, and target program based on community need analysis or community needs analysis. In conducting needs analysis, the community must be able to understand what the wants and needs of society. These needs must be long-term and not temporary. Needs analysis must be carefully, involving community figures to explore the idea of a program that be needed by wider society.

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<sup>3</sup> Budi Winarno, *Theory and Processes of Public Policy*, (Yogyakarta: Media Pressindo, 2002),

<sup>4</sup> Dwiyanto Indiahono, *Public Policy Base on Dynamic Policy Analysis*, (Yogyakarta: Gava Media, 2009)

<sup>5</sup> Ar. Mustopadidjaja, *Management of Public Policy Process, Formulation, Implementation, and Evaluation*, (Jakarta: Lembaga Administrasi Negara, 2003)

<sup>6</sup> Reza Rahman, *Corporate Social Responsibility Between Theory and Reality*, (Jakarta: Buku Kita, 2009)

The next stage is the socialization of the program to the entire community. So as the target of the activity, the community felt ownership and responsibility for the implementation and success of the program. In the process of socialization must be done through the media with the right communication message. This socialization program is part of public relations activities, including creating communication strategies to build relationships with their communities. On other side, community development activities contain of efforts to increase participation and ownership (participating and belonging together) on empowerment programs implementation. Community participation expressed by Jim Ife and Frank Tesoriero, as a concept in community development is a central concept and basic principle of community development. the increase of community participation is one form of community empowerment berorien tasi on achievement of community implementation.<sup>7</sup> Community development as a concept has a broad perspective. Empowerment means the development of equitable sharing of power to increase political awareness and increase their influence on natural resources and sustainable management.<sup>8</sup> Empowerment is a tool to achieve the goal, to strengthen the capacity of their organization / group so can be able to change the current state, have the power to encourage the greatest change that is needed in society.

#### 2.1.4. State Defense Concept

The awareness of state defense is an essential thing and have to be owned by every citizen of Indonesia, as a manifestation of the rights and obligations in the effort to defend the state. Awareness of state defense be the basic capital as well as to strength of the nation, in order to maintain the integrity, sovereignty and prosperity of the nation and state of Indonesia. The 1945 Constitution of the Republic of Indonesia (UUD 1945) regulates the State Defense Efforts on Article 27 Paragraph (3): "Every citizen shall have the right and obligation to participate in the state defense" and Article 30 Paragraph (1): "Every citizen shall have the right and obligation to participate in the defense and security of the state."<sup>9</sup> Awareness of state defense is one of the real manifestation of the contribution by citizens in the effort to develop, strengthen and strengthen the resilience of the nation in the face of increasingly uncertain globalization. Nowadays, technology and scientific are so advances and could bring the impact and influence in all aspects of human life, both positive and negative. One of them is freedom and excessive openness has shifted the values of togetherness, solidarity, and brotherhood. The interests of individuals and groups are increasingly prominent, assuming that they are the most correct, slandering and blasphemous people who disagree with themselves and their groups. State defense is a fortress for the state in saving the survival of the nation's life. Improving the quality of the existence of the state need the spirit and defend the country in its community, without the spirit the nation's life will easily falter, fade, and eventually the country will be destroyed. State defense is the attitude of every single people with the spirit of unyielding striving in the soul of "Sapta Marga", based on faith and piety, intent unanimous determination and dare to sacrifice to carry out the defense of the country based on the attitude of professionalism and the integrity to achieve the goal of a safe state with the foundation of

In the Constitution Number 3 of 2002 about State Defense on Article 9 is clearly mandated on the rules of state defense for all of citizen in Indonesia, as follows:

- a) Every citizen should have the right and obligation to participate in the defense of state embodied in the administration of national defense.

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<sup>7</sup> Jim Ife and Frank Tesoriero, *Community Development: The Alternative of Human Development in Globalization Era*, (Yogyakarta: Pustaka Pelajar, 2008)

<sup>8</sup> S. Pranata, *Pemberdayaan Masyarakat di Bidang Kesehatan, Gambaran Peran Kader Posyandu dalam Upaya Penurunan Angka Kematian Ibu dan Bayi di Kota Manado dan Palangkaraya*, (Surabaya: Badan Penelitian dan Pengembangan Kesehatan, Kementerian Kesehatan RI, 2011)

<sup>9</sup> The 1945 Constitution of the Republic of Indonesia (UUD 1945)

- b) The participation of nationals in the state defense, referred to paragraph (1), should be conducted through civic education, compulsory basic military training, devotion as soldiers of the Indonesian Army voluntarily or compulsorily, and devotion according to the profession.
- c) Provisions on civic education, mandatory basic military training, and professional service are governed by law.

The concept of state defense have two main program through physical and non-physical. This review will focus on non-physical state defense. According to Constitution Number 3 of 2002 on State Defense of citizen participation in non-physical state defense can be conducted through civic education and dedication in accordance with the profession. Citizenship education is given with the intention of inculcating the spirit of nationality and love of the country. Citizenship education in Indonesia is conducted through formal channels (schools and universities) and non-formal (social) channels. Based on this bligation, the involvement of citizens in non-physical state defense can be done in various forms, over time, and in all situations, for example:<sup>10</sup>

- a) Following civic education both through formal and nonformal channels.
- b) Implementing a democratic life by respecting dissent and not forcing the will to solve common problems.
- c) Participate in surrounding environmental activities by planting, preserving and preserving.
- d) Real work for humanity to advance the nation and state.
- e) Take an active role in participating in tackling threats, especially nirmiliter threats, such as volunteering flood disaster.
- f) Participate in activities that involve mental spiritual coaching in the community so as not to be influenced by foreign cultural influences that are not in accordance with the norms of life of the Indonesian nation.
- g) Pay the taxes and levies that serve as a source of state financing to carry out development.

## **2.2. Methodology**

The approach of this research thorough descriptive analysis. Data had been collected through direct observation, in-depth interview, and literature study. Analysis data use Miles and Huberman Theory.

## **3. RESULT AND DISCUSSIONS**

Based on the research that has been done and in-depth study through the study literature, there are interesting things that can show that in instilling the values of state defense to the community, the DIY government succeeded in making the culture as a trigger. Therefore, the value of culture and state defense can go hand in hand and able to shape the community of DIY to be strong and love his country.

### **3.1. Social Condition of Special Region of Yogyakarta**

In the procedure of filling the positions of Governor and Vice Governor one of the conditions that must be met by candidates for Governor and Vice Governor is to reign as Sultan Hamengku Buwono for candidate of Governor and enthroned as Duke of Paku Alam for candidate of Vice Governor. Yogyakarta is a city of students and a cultural city that still emphasizes and maintains local wisdom in various activities and everyday life. Recorded 107 Cultural Infrastructures, 459 Indigenous Ceremonies, 4944 Art Organization, 43 Cultural Villages, 515 Heritage Sites, 48 Museum, and a Cultural Park show the many cultural potentials in tangible (physical) form which are still preserved very well by community.

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<sup>10</sup> Ministry of Research, Technology, and Higher Education, 2016

Similarly, the form of intangible culture (non-physical) which also has many kinds such as art organizations, performing arts, cinema, traditional, etc. Yogyakarta is known as a student city because it has 106 colleges including six state universities and 101 private universities. As a student destination from various regions of Yogyakarta, there is a very high potential of threat and vulnerability including high premordialism among learners resulting in egocentricity among students, acculturation of various cultures that will erode and cause lack of respect for local culture and wisdom, the emergence of sparism seeds and other vulnerabilities. To deal with the various threats and vulnerabilities, Kesbangpol DIY is quite active by facilitating and coordinating inherent and conducting guidance through a comprehensive approach to all levels of community components, that is with religious leaders, traditional leaders, community leaders and affiliated and affiliated community and youth organizations in cooperation with the government such as Muhammadiyah Youth, KNPI, IKAL, Senkom, etc.

### **3.2. State Defense in the Special Region of Yogyakarta**

The Government of Yogyakarta Special Region through Badan Kesatuan Bangsa dan Politik (Kesbangpol) has a very significant role as the facilitator of four pillars of nationality, namely Pancasila, 1945 Constitution of 1945, Bhineka Tugal Ika and the Unitary State of the Republic of Indonesia (NKRI) always strives to work with all components of society implements the four pillars of nationality that represent the compulsory state, which must be maintained, understood and understood in order to create a resilient national resilience in the face of various threats from both inside and outside DIY. The concept of Pancasila in the life of society and the beauty of peace that must be lived by the whole society of DIY is a necessity. In the implementation of the concept of Pancasila, DIY has Pancasila Village which is a village that has characteristics in its daily life role and practice of Pancasila. *Indahnya Damai* Program implemented through the program "Jogo Wargo" (keep the citizens) that if there is a friction or dispute in the community then attempted form of problem solving with kinship to find the word mufakat, but if already entered into the realm of law strived no second court enough first only. Implementation of Kesbangpol DIY program related to the essence of state defense, such as national insight and Pancasila ideology mostly implemented through community approach is the right way to maximize the implementation of these values. This is in line with community development theory which means community development or society. Community development is as the process by which the efforts of the people themselves are united with those of governmental authorities to improve the economic, social and cultural conditions of communities, to integrate these communities into the life of the nations, and to enable them to contribute fully to national progress. (PBB dalam Luz. A. Eeinsiedel, 1968). The definition emphasizes that community development is a process whereby community enterprises or potentials are integrated with government resources to improve economic, social and cultural conditions, and integrate communities within the context of the life of the nation and empower them to able to contribute fully to achieve progress at the national level. Empowering the community is an effort to provide opportunities and opportunities for workers to increase their potential and ability, and in self-determining madiri their desired future. Therefore, it is necessary that encouragement originating from within a person for the improvement of the state of himself and his environment raised by Mc. Clelland with Nach theory or Need for Achievement. He says that the failure of the development of a society is due to society being fatalistic and accepting fate without resistance. Therefore, for successful development the society must be changed and encouraged to have Nach. One of the ways proposed by this theory is to educate them. To cultivate the awareness, an intervention or external stimulation is needed as a first step. Freire offers that education should be done in a dialogical way. This dialogical process is one method that is included in the major agenda of education Paulo Freire which he called the process of awareness (konsientisasi).



Konsientisasi is an exclusive humanitarian process. "Konsientisasi is a dialectical process in which the poor and oppressed increasingly aware of the situation ketberindasannya and then willing to change his condition. According to Freire's dialogical dialogue theory, the idea requires that the empowerment team not enter into an affirmative relationship as an expert with superior knowledge, but use a position that values local knowledge and wisdom, and seeks reasonable dialogue with community members to learn each other, so that they can move together to achieve collective action (Ife, tesoriero, 2008: 347). Communities that were previously seen as objects of development can now be placed in subject positions. The basic idea underlying this idea is to rely on the efforts of local communities to empower themselves to be able to bargain socio-economically both with government and with the private sector. The step taken is to mobilize a common power through their involvement in a local organization. In developed countries, this condition proves to be effective in raising public interest in socio-economic life. Meanwhile, economic progress can be marked by control at the local community level. This condition is usually covered by the concept of community-based development. Referring to the theory, Kesbangpol DIY has been able to implement it well. This is evident from the active organization and youth community in running the program which is the embodiment of the values of state defense. The existence of community groups can be utilized maximally by Kesbangpol DIY to be part in the implementation of state defense program. Implementation of the program through the development of community groups in the environment of DIY is a real effort in instilling the values of state defense and national insight by still making the cultural value owned by DIY as the main element.

## **4. CONCLUSIONS AND RECOMMENDATIONS**

### **4.1. Conclusion**

Government entities in DIY have implemented state defense through activities carried out by involving all levels of society. In addition, the results of research indicate that the government of DIY which is the subject of research has been able to make the culture as a trigger in the development of state defense values. The template is designed so that authors of the same affiliation. Please keep your affiliations as succinct as possible (for example, do not differentiate between departments of the same organization). This template was designed for two affiliations.

### **4.2. Recommendation**

The suggestion that can be given to DIY government institution in implementing state defense is by strengthening synergy between agencies so as to give maximum output and outcome to strengthen defense management in DIY.

***ACKNOWLEDGEMENT:** This study is a description that shows the program of government Special Region of Yogyakarta to dissecting local wisdom as the trigger of atate defense. The authors extend their gratitude to all government of Special Region of Yogyakarta that have given a great opporunity to do research over the location. A deep gratitude to the community at the location of the activity has provided a warm welcome and opportunity for the researcher.*

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# STATIC VERSUS DYNAMIC SHIFT-SHARE ANALYSIS APPLIED TO THE PANAMANIAN EXPORTS TO THE UE FOLLOWING THE AACUE COMMERCIAL AGREEMENT

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## **ABSTRACT**

*The main objective of this paper is to examine the effects of the Trade Pillar of the Association Agreement between Central America and the European Union (AACUE) on the Panamanian exports to the European Union (UE) by the means of Static Shift-Share versus Dynamic Shift-Share analyses. To achieve this objective, both Static and dynamic Shift-Share analysis methodology was applied to recent data on Panama-European Union trade allowing to compare the results obtained from the two analysis models, therefore contributing to a better understanding of the evolution of the exports from Panama to European Union countries, under the AACUE. In terms of static versus dynamic Shift-Share analyses it is possible to observe that the results obtained in each analysis were approximate, apart some exceptions. However, dynamic analysis eliminates errors presented by the static analysis. Thus, the results of the dynamic analysis can be considered more comprehensive and robust. Overall, according to the dynamic Shift Share analysis employed, it is observed that Panama's exports to the European Union were affected by decreases to countries such as: Germany, Belgium, Spain, Greece, Italy, Poland and Sweden. Concurrently, decreases on the exports of the following products were recorded as well: other fresh and frozen vegetables, fresh fruits.*

**Keywords:** *Static Shift-Share analysis, Dynamic Shift-Share analysis, International Trade, Exports, Panama, European Union, AACUE*

## **1. INTRODUCTION**

Thanks to the phenomena of globalization and International Trade, the role of economic integration between countries and regions is increasingly evident, in order to reduce or eliminate existing trade barriers and boost trade. In this order of ideas, from the nineties to the date the concept of economic integration has expanded not only in commercial aspects but also political and social aspects (De Lombaerde, Kingah, & Rettberg, 2014). In the context of commercial relations between Panama and the European Union, these have an antecedence since Panama belonged to the Generalized System of Preference (GSP +) that allowed many products not to pay tariffs when they entered the EU. Today it has become much more relevant with the signing of the Association Agreement between Central America and the European Union (AACUE) on

June 29, 2012, which includes not only commercial issues, but also cooperation and political dialogue; which is considered by many as a consolidation of the benefits of SPG (EEAS, 2016). In Panama, the commercial pillar of this Agreement entered into force as of August 2013 and in this sense, Panama has the same conditions of access to the EU market as the countries that have a Free Trade Agreement with this economic bloc. In this research work will be characterized the evolution of trade relations between Panama and the EU before and after the validity of the Commercial Pillar of the Association Agreement between Central America and the European Union (AACUE), specifically analyzing exports from Panama to the EU. The objective is to identify the main destination countries of Panama's exports and the main products exported to the EU, to characterize and find explanatory factors of the behavior of the evolution of exports from Panama to the EU. To achieve the proposed objective, the Shift-Share analysis methodology will be applied to the most recent data on Panama-EU trade available in the Statistical Office of the European Communities (Eurostat), in the corresponding period between 2011 and the year. 2016. This methodology is clearly exploratory and allows the growth of a variable to be broken down into three components: national, structural and regional. In this paper, after the present introduction, a review of the literature on the Association Agreements between Central America and the European Union and the Shift-Share analysis is made, then the methodology to be applied is proposed, and then the findings of the analysis, and it ends with the presentation of the discussion and the conclusion of the investigation. Following early researches conducted by Mejia et al. (2018) and Veloso et al. (2018), this paper aims to contribute to the development of literature in international trade in Panama (a contribution to existing statistics on exports from Panama to the European Union) and especially relevant to politicians (wealth creation, economic growth, etc.) and which can be a tool to delineate corporate or national strategies to boost trade between the Panama and the EU.

## **2. THEORETICAL BACKGROUND**

### **2.1. International Trade Agreements Panama – European Union**

According to the context of events that marked trade relations between Panama and the EU, the most important were: the incorporation of Panama to the Central American Economic Integration Subsystem (SIECA) of the Central American Integration System (SICA) and the signing of the Association Agreement between Central America and the European Union (AACUE); This is because when Panama decides to join the Central American Economic Integration Subsystem it accepts all the commitments reached by Central America during the negotiation of the Agreement with the European Union. It should be noted that before the signing of the AACUE, Panama belonged to the Generalized System of Preferences (GSP) of the European Union, which was established in 1971 under the recommendations of the United Nations Conference on Trade and Development (UNCTAD) with the objective of promoting the economic growth of the developing countries. The EU provides three schemes of commercial benefits: GSP standard, GSP+, EBA (Everything but Arms); where each of the beneficiary countries are located according to their needs. Panama was located in the GSP+ scheme; which eliminates all tariffs in more than 66% of EU tariff lines (EC, 2017). The Association Agreement between the European Union and Central America is a broad inter-regional instrument that not only involved trade issues, but went further on issues of cooperation and political dialogue. The negotiations of this agreement ended on May 19, 2010 at the VI Summit of the European Union and Latin America and the Caribbean, which took place in Madrid, after 7 rounds of negotiations that began in 2007 and two technical meetings. However, the parties involved signed the Agreement on June 29, 2012 at a meeting of the Presidents of SICA in Tegucigalpa, Honduras. The Association Agreement is composed of five parts: I. General and institutional provisions; II. Political dialogue; III. Cooperation; IV. Commerce; V. General and final provisions, in addition to the preamble and the annexes.

Has 8 general objectives encompassed in the first and the last one, which are: strengthen and consolidate relations between the Parties through an association based on three interdependent and fundamental parts: political dialogue, cooperation and trade, based on mutual respect, reciprocity and common interest; and encourage the increase of trade and investment between the parties, taking into consideration Special and Differential Treatment to reduce the structural asymmetries existing between the regions. As mentioned above, Political Dialogue, Cooperation and Trade are interdependent parties that constitute the fundamental pillars of the Agreement between the EU and CA (EEAS, 2017). The political dialogue is made up of 12 articles, from 12 to 23, where the main objective considered in this study is to establish a privileged political association based mainly on respect and promotion of democracy, peace, human rights, and the state of law, good governance and sustainable development. The cooperation pillar consists of 53 articles, from 24 to 76, which establish the specific objectives, principles, modalities and cooperation methodology, as well as an evolutionary clause (Herrera, 2014). The Trade pillar is the only one of the pillars that has been ratified and provisionally applied (since August 1, 2013 in Panama). It is composed of 275 articles, from 77 to 351, and 14 titles. Its initial disposition is the establishment of a free trade zone and the relationship with the Agreement on the World Trade Organization.

## **2.2. Shift-Share Analysis**

The Shift-Share Analysis was originally developed in 1942 by Daniel Creamer in his work "Shifts of manufacturing industries" (Cited in Houston, 1967). However, several other authors (Artige and Neuss, 2013; Otsuka, 2017; Fernandes, 2015; Cerejeira, 2011) maintain that the Shift-Share Analysis was developed, applied and formally introduced in 1960 by Edgar S. Dunn in his work "A statistical and analytical technique for regional analysis". This Shift-Share analysis is a descriptive statistical tool used for the analysis of economic, regional, sector, political variables, among others; that decomposes the growth or total decline of the variable in terms of national, industrial and competitive exchange effects (Matlaba, Holmes, McCann, & Poot, 2014). It should be noted that the first investigations in which the Shift-Share analysis was applied were aimed at analysing employment issues. However, over time the technique has been used to analyse tourism issues (Dogru and Sirakaya-Turk, 2017); electrical energy (Grossi and Mussini, 2018); International Trade (Chiang, 2012); predictive purposes (Mayor, López, & Pérez, 2005); as well as topics on agriculture, industry, specialization and competitiveness, human development index (Fernandes, 2015), regional economy, planning, economic policies, transport (Ruiz, Peña and Jiménez, 2015), among others. The success and widespread use of Shift-Share analysis is essentially due to the fact that in the first place the data required for its application are easily accessible, simple, fast and reasonable (Stevens and Moore, 1980). Second, it has low costs, is logical, analytical and easy to interpret (Chiang, 2012). Despite everything mentioned above, the technique of Shift-Share analysis since its introduction has been strongly criticized by several authors (Houston, 1967, Cunningham, 1969; Stevens and Moore, 1980; Bartels, Nicol and Duijn, 1982; Loveridge and Selting, 1998, among others) mainly arguing its limitations in: lack of theoretical support content; aggregation problems; choice of variables and the year of comparison; instability of the regional or competitive component; interdependence between the structural component and the regional component (Richardson, 1978). It is important to express that, from these criticisms many authors were motivated to make revisions that concluded in the creation of extensions, reformulations and modifications to the traditional model. For example: introduction of the assignment effect (Esteban-Marquillas, 1972); introduction of the effect of regional growth and the mixing effect of the regional industry (Aracelus, 1984); expansion of the traditional model to consider the international effect (Sihag and McDonough, 1989) and inter-regional and international trade (Dinc and Haynes, 1998); introduction of probabilistic forms (Knudsen, 2000); introduction of

the spatial structure (Nazara and Hewings, 2004); and the new decomposition of the Shift-Share analysis (Artige and Neuss, 2013). The Shift-Share analysis can be represented by a graph where the axis of the abscissas represents the structural component and the one of the ordinates represents the regional component, allowing the regions under study to be classified according to the values obtained from the decomposition of their growth.

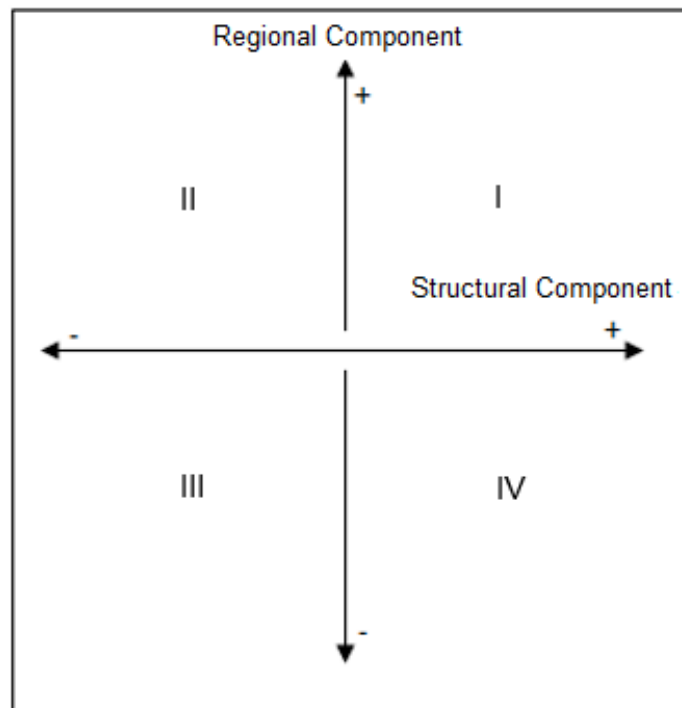


Figure 1: Graph of analysis of the Shift-Share methodology

The first quadrant (I) represents the most favourable situation: the regional effect and the competitive effect present positive values. The second quadrant (II) represents an intermediate situation: the regional effect is positive (local advantages above the average) and the competitive effect is negative (unfavourable productive specialization). The third quadrant (III) represents the most unfavourable situation: both effects are negative which means that the region is not specialized and its growth is below the national average. Finally, the fourth quadrant (IV) also represents an intermediate situation contrary to that of the second quadrant: the regional effect is negative and the competitive effect is positive (Cerejeira, 2011).

### 2.2.1. Traditional Model or Static Model

In general terms for Artige and Neuss (2013) the traditional Shift-Share analysis is a decomposition technique that allows determining an industrial or structural effect and a competitive effect on the growth of an economic variable referring to the national average, in a period of time (initial year and final year). Besides being considered a technique that determines the explanatory components of the variations of an economic variable (Ruiz, Peña and Jiménez, 2015). That is, the evolution of a certain economic variable is explained by the combination of three main components: a) The effect of national growth (national component): explains that part of the variation of the economic variable is due to the growth of the national economy. Measure whether the regional variable evolves at the same pace as the national economy; b) the effect of the sector composition of the region (structural component): explains that part of the variation of the economic variable is due to the growth of specific sectors or industries. Measures the growth or decline of the industry in terms of change at the national level. (Haynes

and Parajuli, 2014) and c) the effect of specific factors of the region (regional, competitive or differential component): explains that part of the variation of the economic variable is due to the growth of regional factors or influences. Measures the specific performance (growth or decrease) of the industry in the region (Haynes and Parajuli, 2014). Adapted general formula of (2011):

$$\sum_k \Delta X_{ik} = \sum_k (X_{ik}^t - X_{ik}^{t-1}) = \sum_k (NX_{ik} + SX_{ik} + RX_{ik}) \quad (1)$$

Where:

$\Delta X_{ik}$ : represents the variation observed in the variable  $X_{ik}$ .

$X_{ik}^t$ : represents the economic variable  $X$  measures in the region  $i$ , in the sector  $k$ , and in the moment  $t$ .

$NX_{ik}$ : represents the national component.

$SX_{ik}$ : represents the sectorial or structural component.

$RX_{ik}$ : represents the regional, competitive or differential component.

### 2.2.2. Dynamic Model

The dynamic Shift-Share analysis is supported by the literature on the work done by Barff and Knight (1988) "Dynamic Change-Participation Analysis" in which they state that the analysis Static Shift-Share only considers the initial and final conditions of a period of time, which creates problems (for example: continuous changes), which can be eliminated by calculating the effects of the analysis annually. That is, the dynamic analysis continuously updates the variations or fluctuations (growth or decline) of the national, structural and regional components and therefore the total growth of a period of time dividing these into sub periods. In this paper, Barff and Knight concluded that: "the difference in the results produced by the two analyzes depends on the magnitude of the change in the industrial mix and the amount of difference in the growth rates of total employment for the region compared to the nation". This model uses the general formula (presented previously) of the Shift-Share analysis with the difference that its application is annual for the period of the year under study. Its use is important when the study period is extensive and is characterized by large variations between regional and national growth or large changes between the sectorial and regional component.

## 3. METHODOLOGY

In order to study the Commercial Relations between Panama and the EU, an analysis was made of the commercial exchange, specifically the exports, registered between Panama and each one of the 28 countries of the European Union for the period between 2011 to 2016. The data were obtained through the statistical source Eurostat (Statistical Office of the European Communities); since, the presentation format was more detailed than other existing statistical sources. The database extracted from Eurostat was built with the category of products with second-level codes, 52 products in total. However, for this study 46 were used that represented the products that Panama exported to the EU. To analyze the exchange rates of exports between Panama and each of the countries of the EU, it was decided to group the data in the following periods 2011-2013 and 2014-2016, which represent the three years prior to the Commercial Pillar of the AACUE. will enter into force and the three subsequent years of its validity (the Commercial Pillar of the Association Agreement between the EU and CA came into force in Panama on August 1, 2013) and the static and dynamic Shift-Share analysis methodology was applied.

#### 4. DATA ANALYSIS AND FINDINGS

This section presents the results obtained from the application of the static and dynamic Shift-Share analysis to evaluate the growth and rate of change of exports from Panama to the European Union from 2011 to 2016. At first, the behaviour of the countries of EU destination of the exports of Panama was analysed as a result of the decomposition of the three components: national component (NX)<sup>1</sup>, structural component (SX) and regional component (RX). And secondly, the behaviour of the main products exported from Panama to the European Union was analyzed in consequence also of the components mentioned above.

##### 4.1. Descriptive Analysis

At this point it is intended to analyse globally Panama exports to the EU. Table 1 presents the analysis of Panama's exports to the European Union. From 2011 to 2016, exports registered a growth of 9.23%, for the periods of 2011-2013 and 2014-2016 there was an average growth of 30.88% and 14.55%, respectively. The two periods of time studied showed a growth in the value of Panama's exports; however, they showed different growth rates.

Mean (Euro)	Median (Euro)	Standard Dev. (Euro)	Coefficient of Variation (%)	Maximum (Euro)	Minimum (Euro)	Mean Growth Rate (%)	Mean Growth Rate	
							2011-2013	2014-2016
511.080.991	509.173.883	110.327.274	21.59%	657.098.243	383.628.577	9.23%	30.88%	14.55%

*Table 1: Descriptive analysis of Panama's exports to the EU*

To identify the main countries destinations and products that Panama exports to the European Union, a first analysis of the database was carried out using the following criteria: select all countries and products (two-digit level) that represent 95% of exports of Panama and group the rest in a category with the name of other EU countries and other products. 12 countries and 11 products were selected, the rest of the countries and products were grouped. The selected countries were: Germany, Belgium, Cyprus, Denmark, Spain, France, Greece, Netherlands, Italy, Poland, United Kingdom and Sweden. On the other hand, the selected products were other vegetables, fresh or frozen, fresh fruit; beverages; stimulants and spices; perishable foodstuffs; animal feeding stuffs and foodstuff waste; oil seeds and oleaginous fruit and fats; Transport equipment; other machinery apparatus and appliances; leather, textiles and clothing; Other manufactured articles and miscellaneous articles.

##### 4.2. Application of Static and Dynamic Shift-Share analysis to EU countries Panama's export destinations

The Table 2 presents the results of the application of the static and dynamic Shift-Share analysis to the countries of the EU destinations of Panama's exports. It was observed that the total growth of the main countries of the EU destiny of the exports of Panama according to the results of the application of the two analyzes were approximated with the exception of Germany and the grouping of other countries of the EU. Likewise, it was observed that the Shift-Share analysis components (national component (NX), structural component (SX) and regional component (RX)) for the countries of the EU destinations of the exports of Panama obtained different results in each of the analysis.

*Table following on the next page*

<sup>1</sup> The term "national" in this context refers to the EU as a whole, with different countries being considered as "regions"



Shift-share Analysis	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic
Countries	Total Growth	Total Growth	National Component (NX)	National Component (NX)	Structural Component (SX)	Structural Component (SX)	Regional Component (RX)	Regional Component (RX)
BE - Belgium	-5.626.204	-11.630.097	15.268.830	35.863.212	-7.951.384	-29.421.015	-12.943.650	-18.072.295
CY - Cyprus	67.294.481	34.167.156	4.424	4.945.804	54.020	14.961.760	67.236.037	14.259.592
DE - Germany	5.193.632	-32.805.261	12.941.373	15.855.977	-9.331.964	-14.446.983	1.584.223	-34.214.254
DK - Denmark	165.896.786	165.840.500	2.007.869	4.153.181	-5.335.767	994.483	169.224.684	160.692.836
ES - Spain	-10.029.403	-7.678.864	17.221.328	39.655.608	4.131.562	-2.628.107	-31.382.293	-44.706.365
FR - France	11.303.203	10.232.094	2.353.036	4.424.327	7.703.538	7.290.909	1.246.629	-1.483.142
GB - United Kingdom	7.490.239	14.404.515	8.342.652	9.583.008	1.182.354	-888.574	-2.034.767	5.710.081
GR - Greece	-132.721.887	-11.586.176	24.949.704	43.409.250	-35.371.377	94.917.846	-122.300.214	-149.913.272
IT - Italy	-18.894.133	-17.056.542	10.377.672	22.589.513	4.906.479	-15.361.491	-34.178.284	-24.284.564
NL - Netherlands	281.021.106	158.772.441	19.199.339	544.865.423	101.960.693	29.976.355	159.861.073	74.309.543
PL - Poland	-139.576.566	-77.142.835	34.403.043	-34.709.368	-51.864.031	-63.708.833	-122.115.577	21.275.366
SE - Sweden	-30.640.423	-22.256.308	7.898.326	20.459.745	-5.988.204	-17.310.751	-32.550.544	-25.405.301
Other countries	-37.566.342	9.578.251	8.176.893	-7.877.925	-4.095.919	-4.375.599	-41.647.317	21.831.775

*Table 2: Application of static and dynamic Shift-Share analysis to the destination countries of Panama exports (values in Euros).*

The static analysis shows that the destination countries of Panama's exports that registered growth were: Germany, Cyprus, Denmark, France, Holland and the United Kingdom. While, the countries that recorded decreases were: Belgium, Spain, Greece, Italy, Poland, Sweden and other EU countries. The dynamic analysis shows that the countries that registered growth were: Cyprus, Denmark, France, Holland, other countries of the EU and the United Kingdom. For Belgium, Germany, Spain, Greece, Italy, Poland and Sweden there was a decrease. The results of the two analyzes were different, significantly, for Germany and the grouping of the other countries of the European Union that represent less than 4% of Panama's exports. For Germany, the difference between the two analyzes was due to the decrease in the regional component that registered the dynamic analysis. For the grouping of other countries, the difference between the two analyzes was due to the variation of the national component and the regional component registered in the dynamic analysis (annual changes).

#### **4.3. Static and Dynamic Shift-Share analysis applied to products exported by Panama to the EU**

The Table 3 presents the results of the application of the static and dynamic Shift-Share analysis to the products exported by Panama to the EU. It was observed, as well as the analysis of the destination countries, that the total growth of the products exported by Panama to the EU presented approximate results for the two analyzes with expression of other vegetables, fresh or frozen, fresh fruit; Oil seeds and oleaginous fruit and fats; Transport equipment; Miscellaneous articles and other articles. It was also observed that the national component (NX) and the structural component (SX) of the Shift-Share analysis for the products exported by Panama obtained different results in each of the analyses.

*Table following on the next page*

Shift-share Analysis		Static	Dynamic	Static	Dynamic	Static	Dynamic
Eurostat Code	Products	Total Growth	Total Growth	National Component (NX)	National Component (NX)	Structural Component (SX)	Structural Component (SX)
3	Other vegetables, fresh or frozen, fresh fruit	10.096.738	-7.026.393	48.471.277	99.658.889	-38.374.539	-106.685.283
12	Beverages	7.509.530	12.453.401	6.590.634	16.454.254	918.896	-4.000.853
13	Stimulants and spices	2.252.317	983	1.759.655	3.812.066	492.662	-2.829.010
14	Perishable foodstuffs	16.970.574	7.511.253	13.287.541	30.311.607	3.683.033	-22.800.354
17	Animal feedingstuffs and foodstuff waste	3.841.820	2.391.808	1.261.635	5.036.625	2.580.185	-2.644.817
18	Oil seeds and oleaginous fruit and fats	-8.201.474	6.274.177	3.686.285	4.498.121	-11.887.759	1.776.056
91	Transport equipment	-33.155.763	66.138.119	65.118.314	22.734.271	-98.274.077	43.403.848
93	Other machinery apparatus and appliances, engines, parts thereof	14.609.221	19.806.795	4.246.593	3.966.612	10.362.628	15.840.183
96	Leather, textiles and clothing	13.417.147	1.616.586	2.444.907	7.098.145	10.972.240	-5.481.559
97	Other manufactured articles	151.600.396	81.497.852	5.381.983	14.830.783	146.218.413	66.667.069
99	Miscellaneous articles	-6.360.776	3.392.639	2.077.463	5.768.896	-8.438.239	-2.376.257
-	Other product	-9.435.241	17.799.581	8.818.202	-1.331.394	-18.253.443	19.130.975

*Table 3: Application of static and dynamic Shift-Share analysis to products exported by Panama to the EU (Values in Euros).*

For the products, the static analysis shows that the products exported by Panama that registered a growth were: other vegetables, fresh or frozen, fresh fruit; beverages; stimulants and spices; perishable foodstuffs; animal feeding stuffs and foodstuff waste; other machinery apparatus and appliances; leather, textiles and clothing and other manufactured articles. The products that registered decrease were: oil seeds and oleaginous fruit and fats; Transport equipment; miscellaneous articles and other articles. However, the dynamic analysis shows that the products that registered growth were: beverages; stimulants and spices; perishable foodstuffs; animal feeding stuffs and foodstuff waste; oil seeds and oleaginous fruit and fats; Transport equipment; other machinery apparatus and appliances; leather, textiles and clothing; other manufactured articles and miscellaneous articles and only the product other fresh vegetables and frozen, fresh fruit registered a decrease. The results of the two analyzes were different, in a more evident or significant way, for other fresh and frozen vegetables, fresh fruits; oilseeds and oleaginous fats; Transportation equipment; miscellaneous items and other products, which were due to the fluctuations of the national and structural components registered annually in the dynamic analysis. The Figure 2 and Figure 3 represent the comparison of the results of the total growth of the two analyses both for the countries of destination and for the exported products. In these figures it is observed that the results are approximate with some exceptions that were explained previously.

*Figure following on the next page*

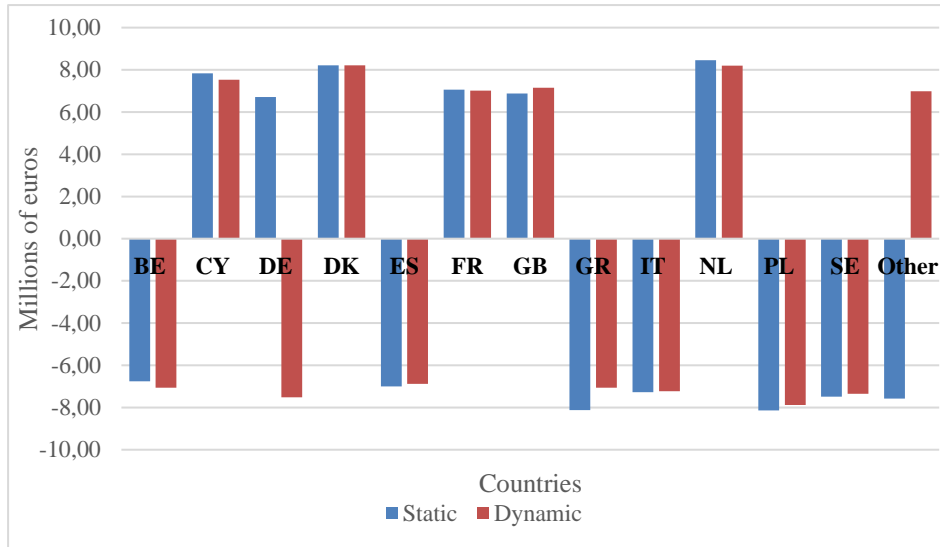


Figure 2: Comparison of the total growth between the results of the static and dynamic Shift-Share analysis for the destination countries (with logarithmic base scale 10)

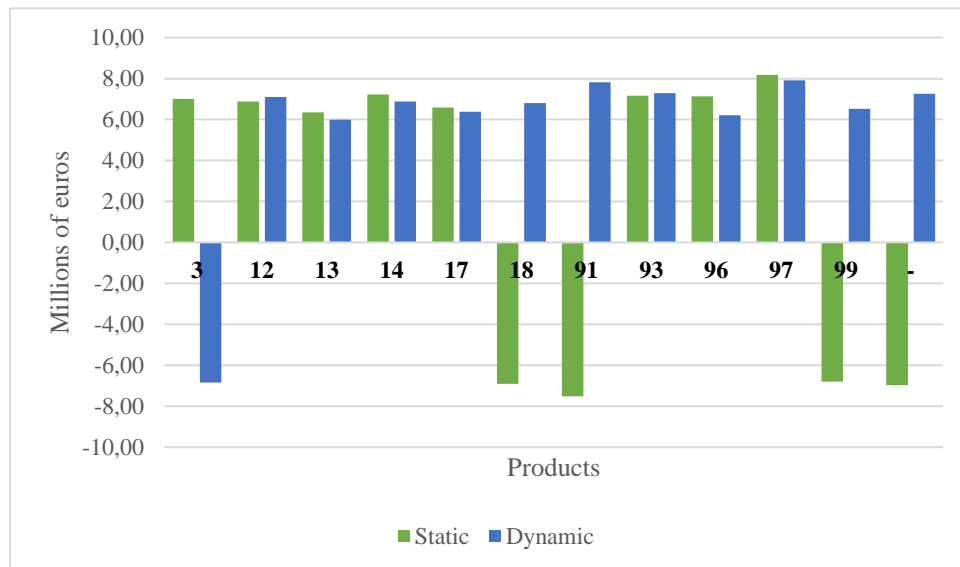


Figure 3: Comparison of the total growth between the results of the static and dynamic Shift-Share analysis for the exported products (with logarithmic base scale 10)

The Figure 4 shows the characterization, in terms of structural component and regional component, of the EU countries of Panama's export destinations in the Shift-Share analysis graph.

Figure following on the next page

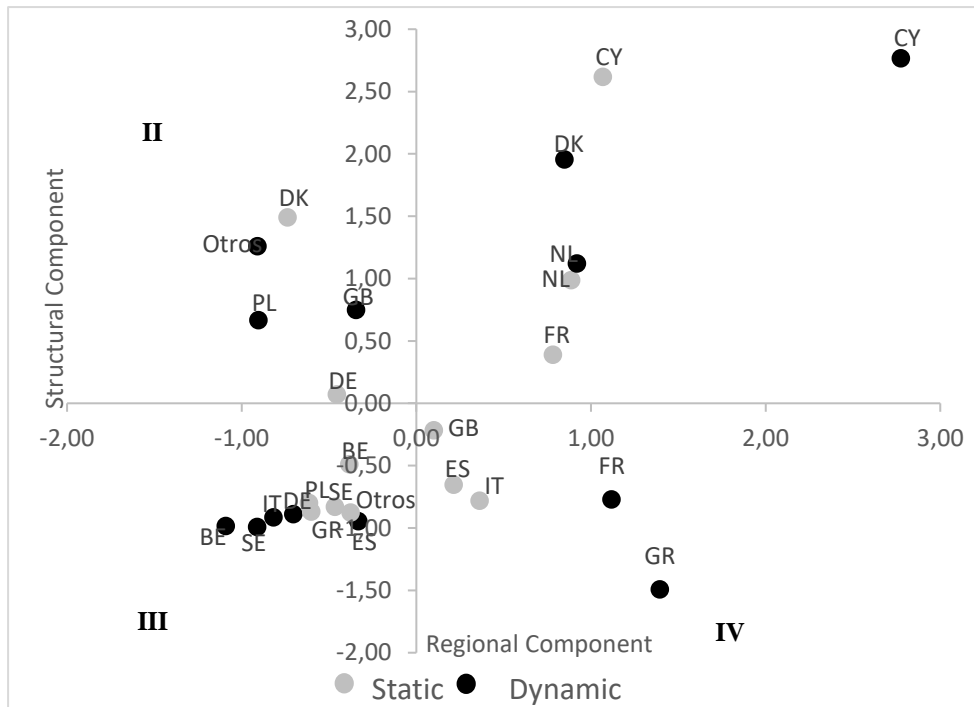


Figure 4: Graph of quadrants of static and dynamic shift-share analysis of the countries destined for exports of Panama (with logarithmic base 100 Scale)

It can be observed that in the first quadrant of the graph (the most favorable situation because it presents a positive contribution in the two components), Cyprus and Netherlands were located both for the static analysis and for the dynamic analysis. In quadrant IV (most unfavorable situation because it presents a negative contribution in the two components) Belgium, Sweden and Greece were located both for static analysis and for dynamic analysis. The rest of the countries were located in the II and III quadrants of the graph (intermediate situation) according to the results obtained from their structural and regional components in the two analyzes. The Figure 5 presents a representation of the contribution of the structural component of the static and dynamic Shift-Share analysis to the products exported by Panama to the EU.

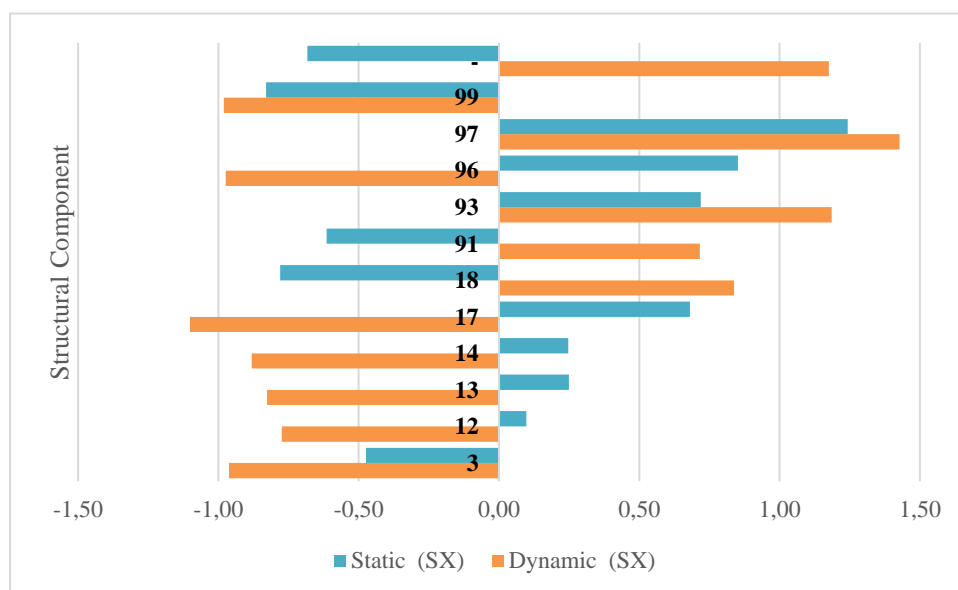


Figure 5: Structural component graph of the static and dynamic Shift-Share analysis for exported products (with logarithmic base 100 Scale)

It was observed that the products that present the same signs (positive or negative) of contribution of the structural component in the two analyzes were: Other vegetables, fresh or frozen, fresh fruit; Other machinery apparatus and appliances, engines, parts thereof; Other manufactured articles and Miscellaneous articles. And the products that presented a contribution of the structural component with opposite signs were: Transport equipment; Leather, textiles and clothing and other product.

## 5. DISCUSSION AND CONCLUSIONS

The main objective of this work was to characterize the evolution of trade relations between Panama and the EU after the Trade Pillar of the Association Agreement between Central America and the European Union (ACCUE), specifically analyzing Panama's exports to the EU. To achieve the objective, the static and dynamic Shift-Share analysis methodology was applied to the most recent data on Panama-European Union trade available in the Statistical Office of the European Communities (Eurostat), in the corresponding period between 2011 and the year 2016. From the results obtained from the descriptive analysis of exports in general from Panama to the European Union, it is concluded that, during the period from 2011 to 2016, exports registered an average annual growth rate of 9.23%. For the period of 2011-2013 (before the validity of the AACUE) an average growth rate of 30.88% was registered for the value of exports reached in 2014 and for the period of 2014-2016 (after the effective date of the AACUE) registered an average growth rate of 14.55%. In other words, Panama's exports to the EU fell after the validity of the AACUE. Panama has not taken advantage of the benefits of this agreement. On the other hand, it is concluded that the destinations countries that represent 96.48% of exports were: Germany, Belgium, Cyprus, Denmark, Spain, France, Greece, Holland, Italy, Poland, United Kingdom and Sweden. And the products that represent 95.19% of exports were: transport equipment; other fresh and frozen vegetables, fresh fruits; perishable food; other manufactured items; drinks; other machinery devices and appliances; oilseeds and oleaginous fats; leather, textiles and clothing; stimulants and species; miscellaneous items and animal feed and animal waste. In terms of static and dynamic Shift-Share analysis it is possible to express that the results obtained in each one were approximate excluding some exceptions. However, dynamic analysis eliminates errors presented by static analysis. Thus, the results of the dynamic analysis are more complete and robust. Relatively, to the dynamic Shift-Share analysis it was possible to know that, exports from Panama in the period from 2011 to 2016, to Denmark, the Netherlands and the United Kingdom registered growth due to the effects mainly of the regional component (growth of exports from Panama to that country); Cyprus and France recorded growth due to the effects of the structural component (growth in products exported by Panama). On the other hand, exports from Panama registered decreases in Germany, Spain, Greece, Italy and Sweden due to the effects of the regional component, Belgium and Poland registered a decrease due to the effect of the structural component. As for the products exported by Panama to the European Union, it can be stated that the beverages; stimulants and species; perishable foodstuffs; animal feeding stuffs and foodstuff waste; oil seeds and oleaginous fruit and fats; leather, textiles and clothing and miscellaneous articles registered growth due to the effects of the national component. The transport equipment; other machinery apparatus and appliances and other manufactured articles registered growth due to the effects of the structural component. Finally, only the other fresh and frozen vegetables, fresh fruits registered a decrease due to the effects of the structural component. In short, it can be expressed in accordance with the dynamic Shift Share analysis that Panama's exports to the European Union were affected by the decreases in exports to countries such as: Germany, Belgium, Spain, Greece, Italy, Poland and Sweden; and in the decrease of exports of the product other fresh and frozen vegetables, fresh fruits. Panama has very valuable means and resources to supply the national and international market demands, and an example of this is the European Union market that

procures products that are produced in Panama; in this measure it is suggested that the government, employer, etc. design innovative strategies and programs that promote exports and not only, but also the competitiveness of Panamanian production so that exports can be increased and the Association Agreement can be used to the maximum extent possible. Finally, this research is presented as a contribution to existing statistics on Panama's exports to the European Union. And it can be a useful tool for businessmen and politicians who wish to delineate corporate or national strategies to promote and boost trade between Panama and the European region.

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## DEVELOPMENT OF DENTAL TOURISM IN CROATIA

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### ABSTRACT

*Health tourism is a form of tourism in which an individual temporarily changes his or her place of residence to a more favourable climate or bathing location for preventive, curative or rehabilitative health care. There are three forms of health tourism: wellness, curative tourism and medical tourism. Medical tourism entails organised travelling for improvement of human health through certain medical interventions. It occurs mostly in medical offices, clinics and hospitals. Dental tourism is a form of medical tourism and it entails the travelling of a patient from the home country to obtain a dental health service. The analysis of all aspects related to the sector of dental tourism in Croatia reveals the direction of development of dental tourism in Croatia. This paper shows how dental tourism is involved in the marketing mix through its four main components. It considers ethical and safety issues which are very important in providing such services. Based on the analysis and the conducted research, one can conclude that Croatia has the necessary prerequisites for this kind of tourism. This paper presents the development of dental tourism, analysis of possibilities and factors which affect the development of dental tourism in Croatia.*

***Keywords:** health tourism, medical tourism, dental tourism, direction of development, marketing mix, ethics, safety, research*

### 1. INTRODUCTION

An increasingly popular and rapidly growing industry termed health tourism refers to travelling outside the country of residence for the purpose of receiving medical care (Peštek, A., Tihi B., 2009, p. 211.). Health tourism is a special type of tourism that comprises wellness, curative and medical tourism. Medical tourism services are provided at doctor's offices, clinics and specialised hospitals, and include surgical, cosmetic, psychiatric as well as dental care. Dental tourism is a type of medical tourism. VRIO analysis, Porter's model, SWOT analysis and the TOWS matrix are used to determine the direction of development of dental tourism in Croatia. Marketing, which includes the four key elements of the marketing mix, is a major factor in the development of dental tourism. The marketing mix in dental tourism is managed through coordination of the product, price, place (distribution channel) and promotion. The research aims to determine the level of development of dental tourism and the use of dental tourism services in Croatia.

### 2. DENTAL TOURISM

Dental tourism, a type of health tourism, refers to travelling of patients outside their country of residence for the purpose of receiving dental care. Dental tourism is driven by a number of factors, including high cost of care provided in a person's place of residence; long waiting periods and backlogs at local dentists' offices; cheaper air travel, and improved Internet communication that connects potential consumers and providers of dental tourism services



(<https://www.nature.com/articles/sj.bdj.2008.403> , 02.02.2018.). Croatia is a tourism-oriented country that has excellent dental services and great potential for further development of dental tourism, in particular due to the proximity of several wealthy countries. Dental tourists come to Croatia mainly from more developed countries in the Western world and Europe (Peštek, A., Tihi B., 2009, p. 218.). The majority of polyclinics in Croatia offering dental care are located in Zagreb, Rijeka, Split and other major cities. However, smaller towns also provide not only excellent dental care, but also peace and quiet in a serene environment for a relaxing holiday. Most commonly provided dental services include teeth repairs and treatment, dental prosthetics, i.e. removable and fixed teeth replacements, periodontal treatments and procedures, oral surgery, and the most common procedure in recent years - dental implant surgery (<http://www.stomatologija-vuckovic.hr/index.php/hr/dentalne-usluge>,20.09.2017.). Dental tourism is a growing trend and, as such, represents the future of health tourism in Croatia. An example of good practice in dental tourism is incorporating dental services into the hotel industry services, thereby integrating dental tourism with the hospitality industry.

### **3. THE DIRECTION OF DEVELOPMENT OF DENTAL TOURISM IN CROATIA**

Various aspects of the dental tourism sector in Croatia have been analysed using VRIO analysis, Porter's model, SWOT analysis and the TOWS matrix. The results of the analyses suggest that Croatia has great potential for further development of all segments of dental tourism. The analyses also show that existing and developed services should be used more effectively and that investments should be made into development of new services so as to expand the current offer. Croatia is an attractive travel destination that has ideal conditions for the development of dental tourism. Over the last several years, there has been a spurt in the dental tourism market and the sector has recorded excellent results. As to the direction of the future development of this sector, Croatia should take advantage of its proximity to strong and large outbound markets and its favourable geographic position. Moreover, it should take advantage of its wealth of cultural sights and use its organisational capacities, thereby increasing the attractiveness of tourist destinations so as to attract as many tourists as possible. An increasing number of private healthcare facilities providing high-quality services would help Croatia gain international recognition. As far as the future of dental tourism offer is concerned, the range of services needs to be expanded; the quality of service must be improved and competitive; the sector must be vertically integrated, and focused. Key requirements for successful development also include accreditation and international certification, partnership and strategic alliances, and market orientation. Demand should be generated by the quality of selected prestigious hospitals/clinics/polyclinics, the quality of the destination chain, and price acceptability ([http://www.mint.hr/UserDocsImages/150608\\_AP\\_zdravstveni.pdf](http://www.mint.hr/UserDocsImages/150608_AP_zdravstveni.pdf), 18.10.2017.).

### **4. MARKETING (MARKETING MIX) IN DENTAL TOURISM**

There are four elements involved in the marketing mix: product, price, place and promotion. Each of these elements is highly important for implementing the marketing mix. Each of them has to be carefully planned and implemented; they must be coordinated because they are interdependent, especially in the case of dental tourism services. Marketing mix management in international marketing entails creating and managing a material good or service, its price, sales and distribution channels and marketing communications that will best meet the needs and wishes of individual target consumer groups and segments of foreign markets (Previšić J., Ozretić Došen Đ., Krupka Z., 2012, p. 176.).

#### **4.1. Product/Service**

The product offered by dental tourism is dental care, i.e. a service. Dental tourism involves the provision of services by two sectors, the health sector and the hotel, i.e. accommodation services

sector. Thus, services are divided into basic (dental care) and additional services (accommodation, transportation). Dental care includes everything from diagnostic services that precede all other medical procedures, to prosthetic replacements and post-procedure care. Prosthetic services provided include prosthetic replacements (fixed or removable), orthodontic treatment, oral surgery, endodontic treatment, implants, periodontal treatment/procedures, etc. As for the transportation and accommodation of patients, it is usually free and includes additional tourist attractions and amenities (<https://www.dcd.hr/regija/dentalni-turizam-u-hrvatskoj>, 25.10.2017.).

#### **4.2. Price**

For this sector, Croatia should adopt a pricing strategy called penetration pricing, where the price is set lower relative to competitors' with an aim to tap into new markets. This approach is used when one wants to break into the target foreign market by attracting customers away from competitors. The main element to be used in this marketing strategy is the lower price (Previšić J., Ozretić Došen Đ., Krupka Z., 2012., p. 219.). Patients choose to take a dental trip to Croatia due to the lower costs of dental care there. Depending on the type of treatment/procedure required, the cost of dental treatment in Croatia may be 50-70% lower than in Western European countries (<http://monaxorganization.com/hr/index.php/dentalni-turizam>, 26.10.2017.). The reasons for this are mainly a lower standard of living, lower education costs, lower labour costs, lower real estate prices, different organisation of healthcare systems, different tax systems, lower margins charged by Croatian dentists, etc (<https://www.dr-mostarac.hr/hr/dentalni-turizam>, 25.10.2017.).

#### **4.3. Distribution**

Dental tourism uses distribution channels for tourism and healthcare services to attract the customer to the product. Services are intangible goods; they are commonly used and produced at the same time, and distributed through short distribution channels. Polyclinics are usually opened in convenient locations, and they engage agencies to make their services readily-accessible to users (<https://www.da-riva.hr/hr/dentalni-turizam/71>, 27.10.2017.). The development of electronic and communication systems has enabled dental tourism service providers to sell their services in a fast, simple and efficient way, and, as proven in recent years, an effective way. Many tourism agencies offer accommodation for tourists before their aesthetic surgery or post-surgery, i.e. during recuperation. Tourism agencies actively promote individual approach to the customer aiming to provide an all-inclusive service. In the context of health tourism, this includes a carefully selected network of top-quality health facilities, i.e. hospitals, clinics and polyclinics, internationally qualified professionals and specialists, post-procedure care, wellness facilities, as well as organising travel, transfers and accommodation (<http://www.croatia-medical-travel.com/Nasa-agencija>, 27.10.2017.). In addition to facilitation and accommodation services, it is important to mention transportation services. The link between tourism and transport is quite deep and complex. A major factor behind successful dental tourism is ensuring that tourists are safely transported from their home country to their destination, which makes the transportation service one of the most important services in this sector (Bartoluci M., Čavlek N., Kesar O., Prebežac D., 2011., p. 189.).

#### **4.4. Promotion**

There are five main promotional tools: direct marketing, public relations, sales promotion, personal sales and advertising (Kotler P., Wong V., Saundres J., Armstrong G., 2006., p. 759 – 807.). Internet marketing, i.e. Internet advertising, has become increasingly popular lately in the context of dental tourism advertising. The most commonly used media for Internet advertising are Google, i.e. websites, Facebook ads, and professional social networks such as

Medical Tourism City. Personal sales, sales promotion and public relations are also used to promote dental tourism services, but not to such an extent as advertising, especially Internet advertising.

## **5. RESEARCH**

### **5.1. Research objectives, respondent profiles and research methodology**

The main objectives of the research were to investigate the level of respondents' awareness of the service, their opinion of the service, motivations for using it, sources of information about the service, and the level of satisfaction of the respondents who have used the service before.

An online questionnaire survey has been carried out to collect primary data. Primary data are data collected by researchers from first-hand sources. The target sample consisted of no less than 100 randomly selected respondents. The survey was conducted online, from 12<sup>th</sup> to 20<sup>th</sup> December 2017. (Kustelega, L., 2018. p. 61-99). The final number of respondents who completed the questionnaire was 128. A questionnaire consisted of a total of 34 questions. All respondents were required to answer the first four questions. Depending on whether or not they have already used dental tourism services in Croatia, the respondents were then divided into two groups, each of which was given a different set of questions to answer. The respondents who have never used dental tourism services in Croatia were asked 13 questions, of which 3 were open-ended, while those who have already used dental services in Croatia were asked 17 questions, of which 3 were open-ended. The questionnaire included 8 Likert scale questions, where the respondents were asked to select a rating on a scale that ranges from 1 (I strongly disagree) to 5 (I strongly agree); 20 multiple choice questions, and 6 open-ended questions. The first three out of 4 mandatory questions relate to the demographic characteristics (gender, age, education level) while the last (fourth question) divides the respondents into two groups (depending on whether or not they have used dental services in Croatia). This question is very important because it decides which set of questions the respondents had to answer in the remaining part of the questionnaire. The respondents were asked to choose only one of several answers offered. If the answer to question 4 was negative, meaning that they had never used dental tourism services in Croatia, they had 13 questions to answer, of which nine were multiple-choice questions, three were open-ended questions, and one was a Likert scale question. If their answer to question 4 was positive, the respondents were asked to answer 17 questions, of which seven were multiple-choice questions, three were open-ended, and seven were Likert scale questions.

### **5.2. Hypotheses**

A research hypothesis is an unsupported statement that attempts to explain certain facts or phenomena. A hypothesis is an assumption that can be empirically tested and once the hypothesis has been proposed, the research goals can be defined more clearly. (Marušić M., Prebežac D., 2004., p. 67.)

Empirical research was conducted to test the following hypotheses:

- H0: Primary motivation for using dental tourism services are health issues.
- H1: Most respondents have not used dental tourism services in Croatia.
- H2: Respondents who have used dental tourism services in Croatia are satisfied with the services received.

### **5.3. Research results**

#### *5.3.1. Profile of the respondents*

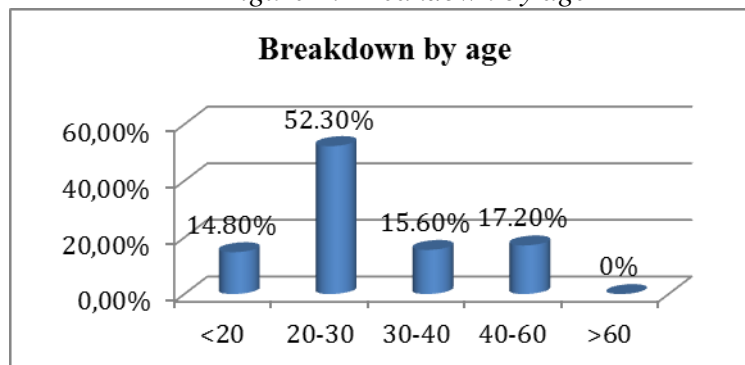
Questions 1 to 4 are aimed at identifying the demographic makeup of survey respondents and gaining some general information about the respondents.

*Table 1: Demographic characteristics of the respondents*

<i>1. Age</i>	
Under 20	14.8%
20 - 30	52.3%
30 - 40	15.6%
40 - 60	17.2%
60 and over	0%
<i>2. Gender</i>	
Male	39.1%
Female	60.9%
<i>3. Education level</i>	
Primary	1.6%
Secondary	53.9%
Higher	44.5%
<i>4. Already used dental tourism services in Croatia:</i>	
Yes	12.5%
No	87.5%

*Source: authors' own research*

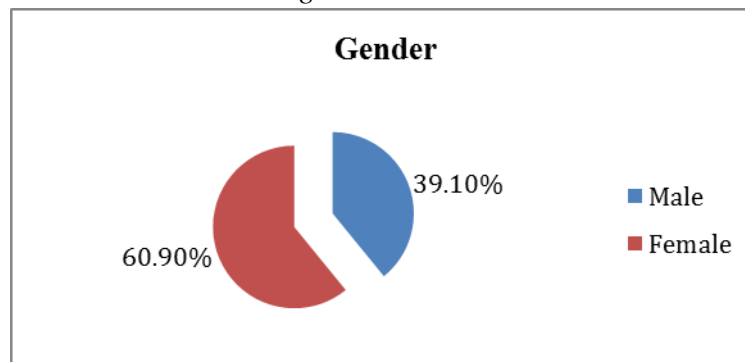
*Figure 1: Breakdown by age*



*Source: authors' own research*

The majority of the respondents (52.30%) are aged 20-30. The second largest group (17.20%) is composed of respondents aged 40-60. None of the respondents are aged 60 or over.

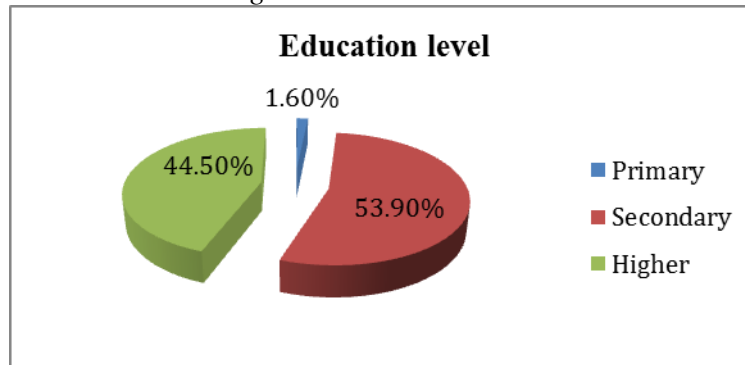
*Figure 2: Gender*



*Source: authors' own research*

The survey sample is comprised of 128 respondents of which 78 (60.90%) are women, and only 50 (39.10%) are men.

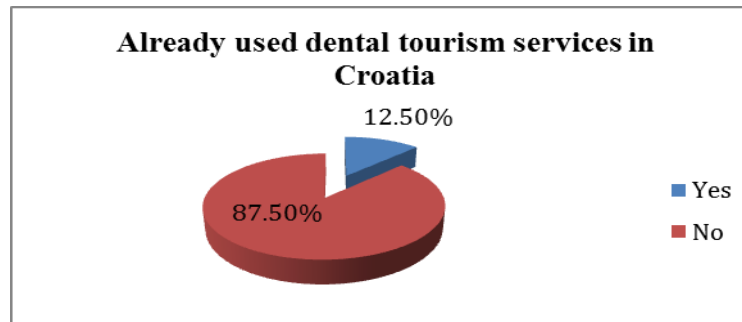
Figure 3: Education level



Source: authors' own research

Most of the respondents (69, 53.90%) have secondary education, followed by those with higher education who make up 44.50% (i.e. 57 individuals) of the sample. Finally, 2 respondents (1.60%) have primary education.

Figure 4: Breakdown of the respondents by whether or not they have used dental tourism services in Croatia

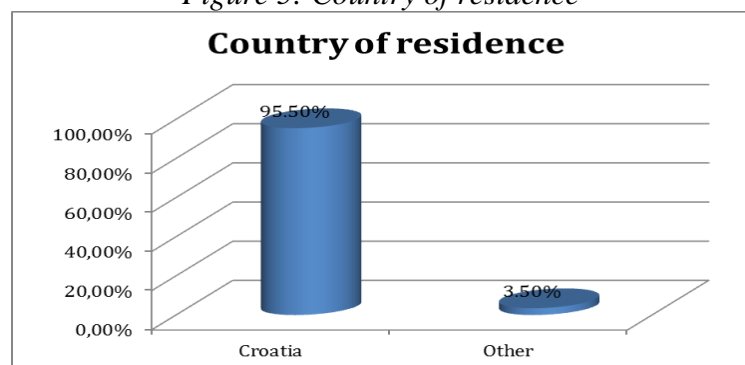


Source: authors' own research

Depending on whether or not they have used dental tourism services in Croatia, the respondents are divided into two groups. The survey shows that 87.50% of them (112) have never used dental tourism services in Croatia, while only 12.50% (16) have used them. The respondents' answers to this question validate HYPOTHESIS 1, which proposes that most respondents have not used dental tourism services in Croatia.

5.3.2. Only the respondents who have never used dental tourism services in Croatia were asked to respond to the following 13 questions

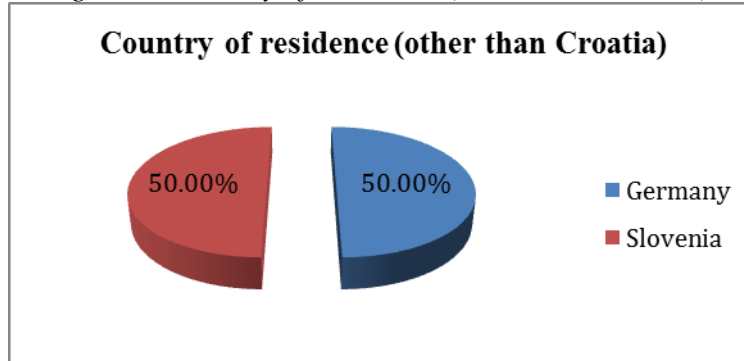
Figure 5: Country of residence



Source: authors' own research

95.50% (109) of the respondents who have never used dental tourism services in Croatia are resident in Croatia, while 3.50% (4) are not. It may be concluded that the vast majority of the respondents are resident in Croatia. Moreover, they have never used dental tourism services in Croatia.

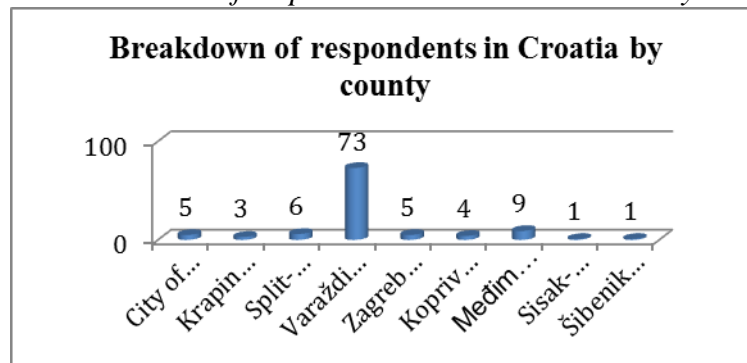
Figure 6: Country of residence (other than Croatia)



Source: authors' own research

When asked to indicate the country they have residence in if their country of residence is not Croatia, only two respondents answered. One wrote Germany and the other wrote Slovenia.

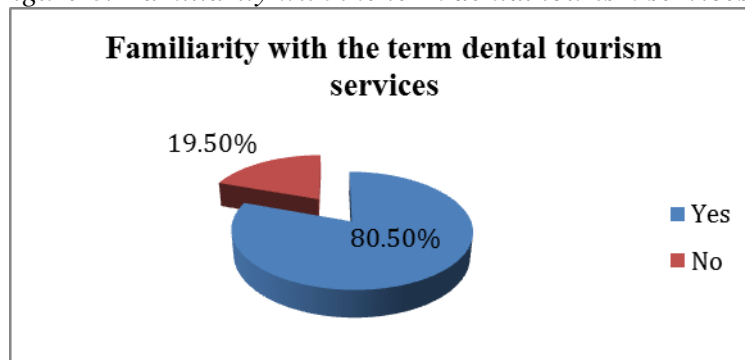
Figure 7: Breakdown of respondents resident in Croatia by county



Source: authors' own research

Of the respondents who have never used dental tourism services and are resident in Croatia, 73 live in Varaždin County, nine in Međimurje County, six in Split-Dalmatia County, five in the City of Zagreb, five in Zagreb County, four in Koprivnica-Križevci County, three in Krapina-Zagorje County, one in Sisak-Moslavina County, and one in Šibenik-Knin County.

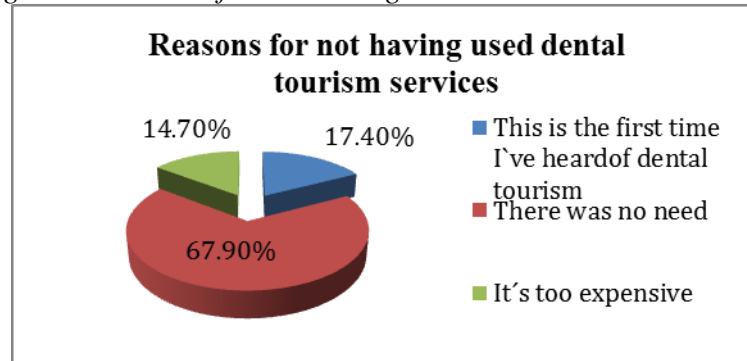
Figure 8: Familiarity with the term dental tourism services



Source: authors' own research

Interestingly, most of the respondents (as much 80.50%, i.e. 91) are familiar with the term dental tourism services, which is positive for the development of dental tourism. Only 19.50% (22) report not being familiar with the term.

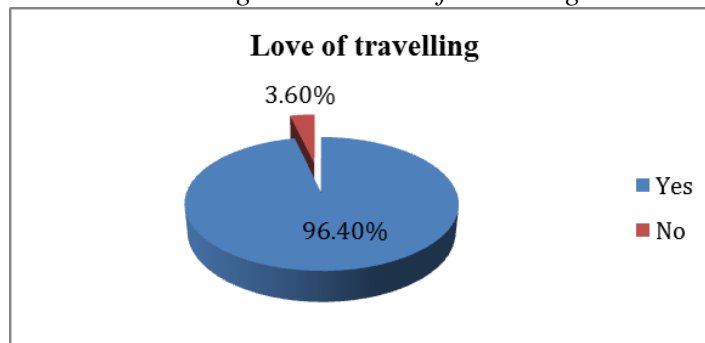
Figure 9: Reasons for not having used dental tourism services



Source: authors' own research

To the question why they have never used dental tourism services, 67.90% of the respondents (74) report that they have never felt the need; 17.40% (19) claim this is the first time they hear of dental tourism, while 14.70% (16) consider that dental tourism services are too expensive. It may be concluded that the main reason for not having used dental tourism services is the lack of need for such services.

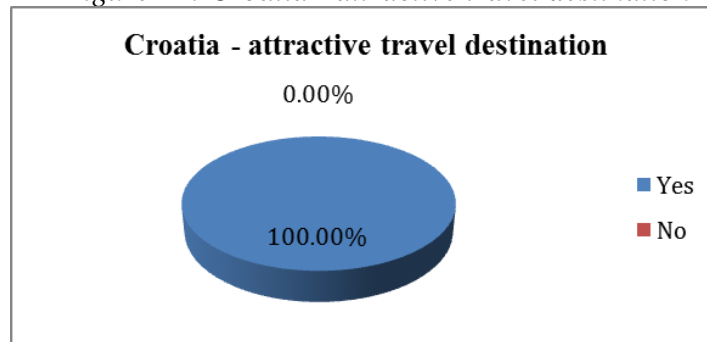
Figure 10: Love of travelling



Source: authors' own research

96.40% (108) of the respondents enjoy travelling, while 3.60% (4) do not. Overall, it may be said that the vast majority of the respondents enjoy travelling which is a big plus for the development of dental tourism.

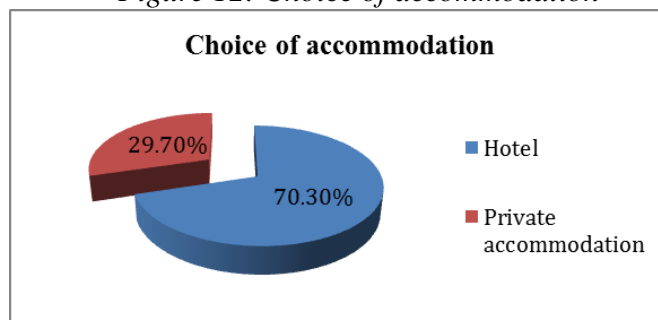
Figure 11: Croatia - attractive travel destination



Source: authors' own research

All 112 respondents (100%) who have never used dental tourism services in Croatia believe that Croatia is an attractive travel destination, which is a great potential driver of dental tourism development.

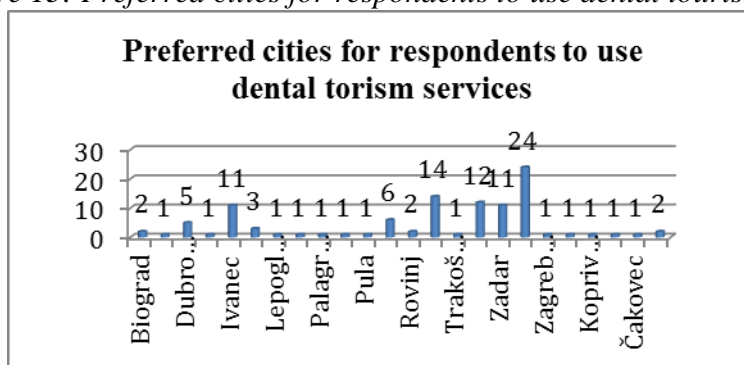
Figure 12: Choice of accommodation



Source: authors' own research

If they were to travel for dental treatment, most of the respondents (78, i.e. 70.30%) would choose hotel accommodation, while 29.70% (33) would prefer private accommodation. It may be concluded that coordination between the hotel industry and dental tourism is vital for the development of dental tourism.

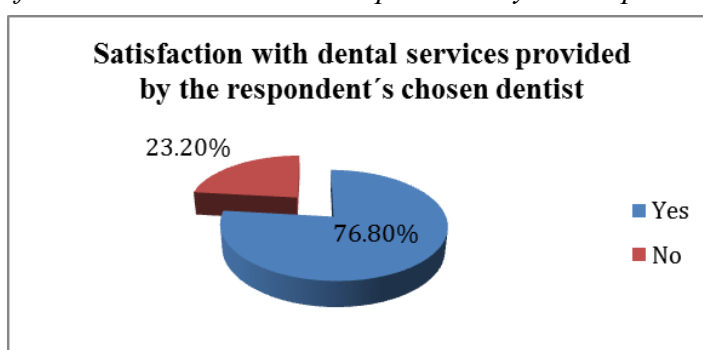
Figure 13: Preferred cities for respondents to use dental tourism services



Source: authors' own research

The cities in which the respondents would prefer to use dental tourism services are Zagreb (24), Split (14), Varaždin (12), Zadar (11), Ivanec (11), followed by Rijeka (6), Dubrovnik (5), Krk (3), Šibenik (2), Rovinj (2), Biograd (2), Čakovec (1), Krapina (1), Koprivnica (1), Trakošćan (1), Pula (1), Paris (1), London (1), Lepoglava (1), Brela (1), Hvar (1), etc.

Figure 14: Satisfaction with dental services provided by the respondent's chosen dentist

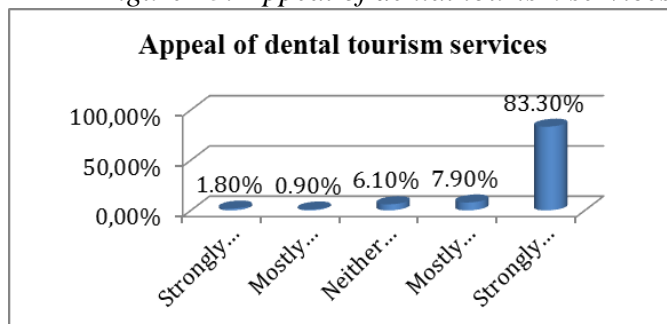


Source: authors' own research



76.80% (86) of the respondents are satisfied with the dental service provided by their chosen dentist in their place of residence, while 23.20% (26) are not. This leads to the conclusion that most of the respondents are satisfied with the dental service provided by their dentist and therefore have not felt the need to use dental tourism services. Thus, satisfaction with one's dental services is one of the reasons for not having used these services elsewhere.

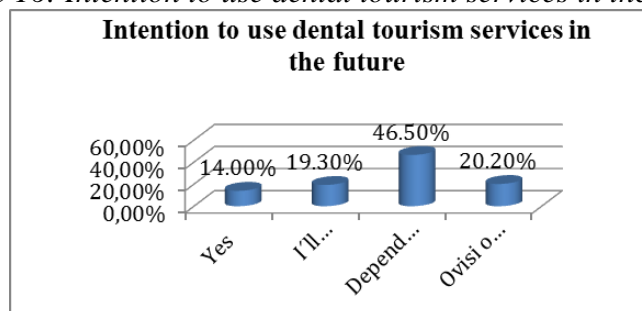
Figure 15: Appeal of dental tourism services



Source: authors' own research

The majority of the respondents (95, i.e. 83.30%) strongly agree that the idea of combining a dental trip with a holiday in an attractive travel destination is appealing; 7.90% (9) mostly agree, 6.10% (7) neither agree nor disagree, 0.90% (1) mostly disagree, while 1.80% (2) strongly disagree. It may be concluded that most of the respondents find appealing the idea of combining a holiday with getting their teeth fixed.

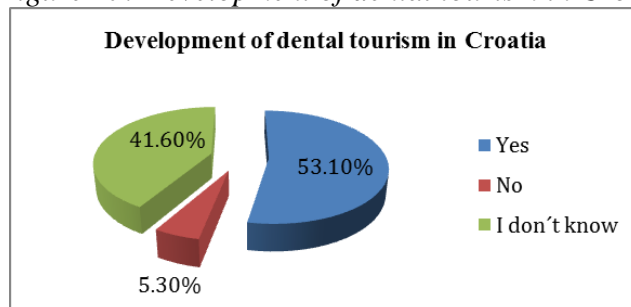
Figure 16: Intention to use dental tourism services in the future



Source: authors' own research

To the question whether they intend to use dental tourism services in the future, 46.50% (53) of the respondents answered that would depend on the need; 20.20% (23) said it would depend on the prices; 19.30% (22) said they would think it over; while 14% (16) intend to use dental tourism services in Croatia in the future.

Figure 17: Development of dental tourism in Croatia

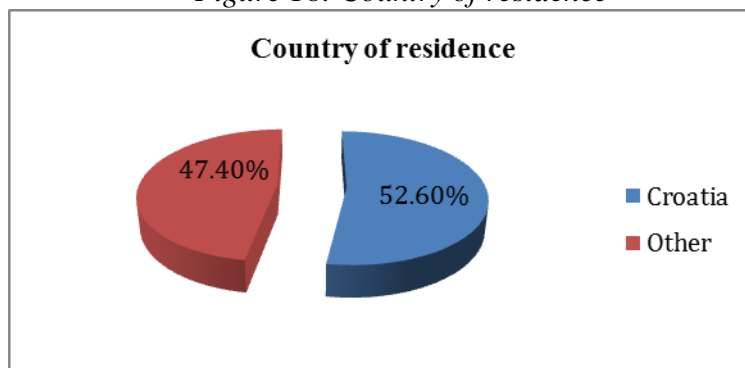


Source: authors' own research

53.10% (60) of the respondents believe that dental tourism is on the rise in Croatia; 41.60% (46) do not know, while 5.30% (6) believe that dental tourism is not growing in Croatia. It may be concluded that most of the respondents believe that dental tourism in Croatia is on the rise, which is very important for its further development.

5.3.3. Only the respondents who have used dental tourism services in Croatia were asked to respond to the following 17 questions

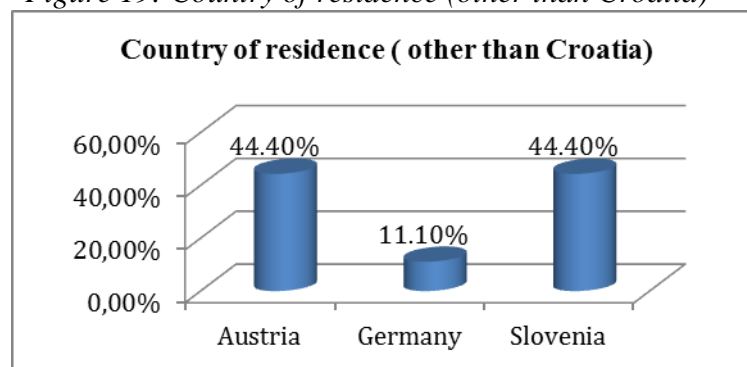
Figure 18: Country of residence



Source: authors' own research

52.60% (10) of the respondents who have used dental tourism services in Croatia are resident in Croatia, while 47.40% (9) come from abroad. It may be concluded that among the respondents who have used dental tourism services in Croatia there is almost the same percentage of those who are resident in Croatia and those who are not.

Figure 19: Country of residence (other than Croatia)

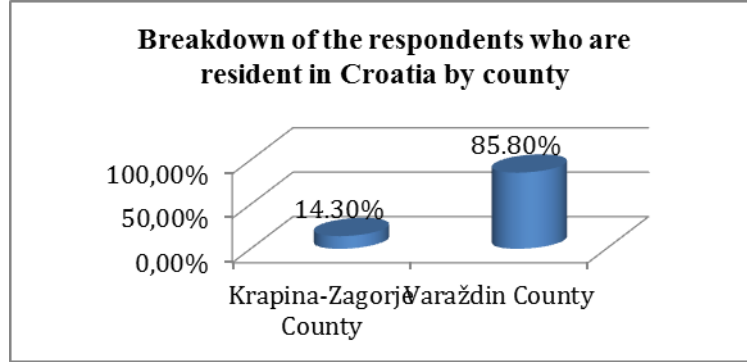


Source: authors' own research

Among the respondents who have used dental tourism services in Croatia, the percentage of those resident in Austria is the same as the percentage of those resident in Slovenia (44.40%, i.e. 4 persons), while 11.10% (1) are resident in Germany. The data indicate that a very small percentage of respondents are not resident in Croatia.

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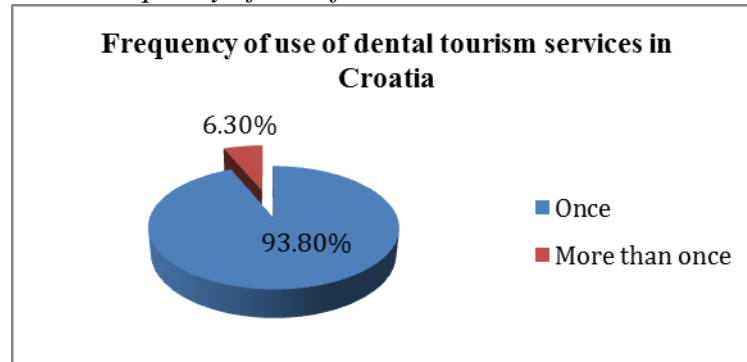
Figure 20: Breakdown of the respondents who are resident in Croatia by county



Source: authors' own research

The majority of the respondents who have used dental tourism services and are resident in Croatia come from Varaždin County (6, i.e. 85.80%), while 14.30% (1) live in Krapina-Zagorje County. The data indicate that a very small percentage of the respondents have used dental tourism service before and that most of them come from Varaždin County.

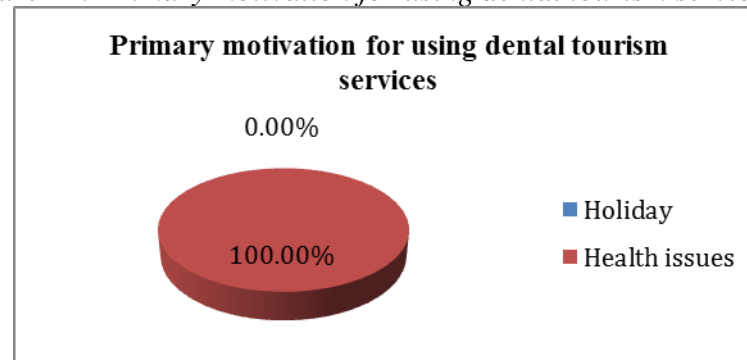
Figure 21: Frequency of use of dental tourism services in Croatia



Source: authors' own research

Figure 21 shows that 93.80% (15) of the respondents have used a dental tourism service only once, while 6.30% (1) have used it more than once. Dental services are special in that some of the more extensive and complicated procedures, such as implants, which, once installed, may last for years. As a result, patients do not require additional dental work in the future. The assumption is that this explains why the percentage of those who have used the service only once is so high.

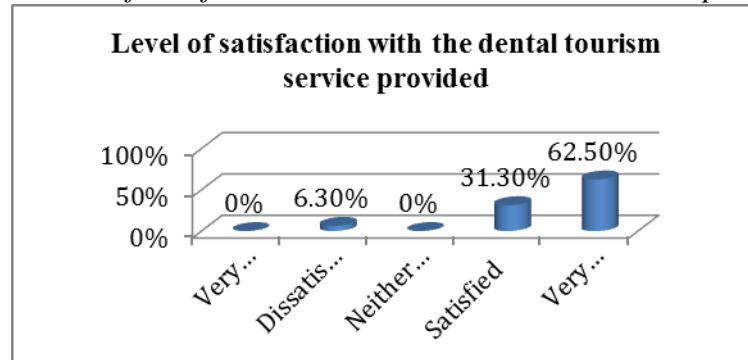
Figure 22: Primary motivation for using dental tourism services



Source: authors' own research

The data indicate that primary motivation for using dental tourism services in Croatia are dental health issues, rather than having a holiday. Figure 22 shows that 100% of the respondents (all 16 of them) have used dental tourism services in Croatia because of dental health issues. The answers to this question validate the research HYPOTHESIS 0, which proposes that primary motivations for using dental tourism services are health issues.

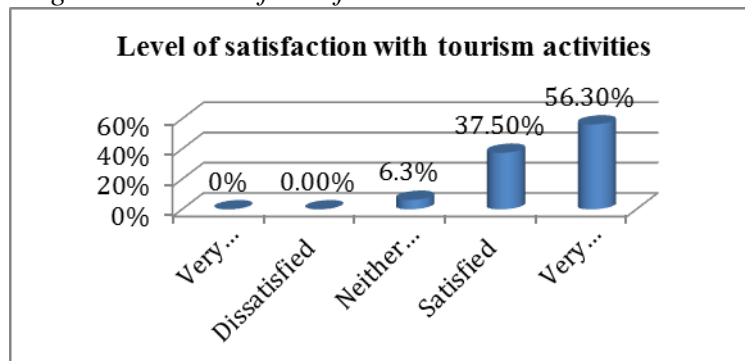
Figure 23: Level of satisfaction with the dental tourism service provided



Source: authors' own research

The data show that 62.50% (10) of the respondents are very satisfied with the dental tourism service provided; 31.30% (5) are satisfied, while 6.30% (1) are not satisfied. The answers to this question validate the research HYPOTHESIS 2, which proposes that the respondents who have used dental tourism services in Croatia are satisfied with the service they have received.

Figure 24: Level of satisfaction with tourism activities

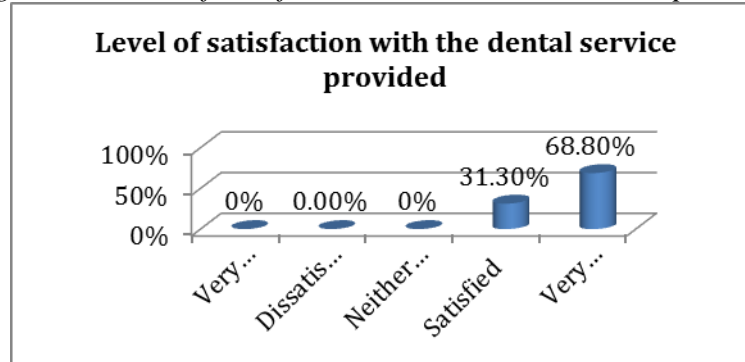


Source: authors' own research

56.30% (9) of the respondents are very satisfied with tourism activities offered during their stay; 37.50% (6) are satisfied; while 6.3% (1) are neither satisfied nor dissatisfied. It may be concluded that the respondents are mostly satisfied with tourism activities offered.

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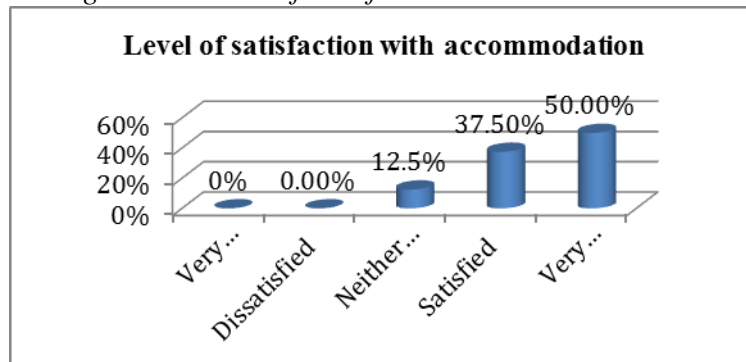
Figure 25: Level of satisfaction with the dental service provided



Source: authors' own research

68.80% (11) of the respondents surveyed are very satisfied with the dental service they have received, while 31.30% (5) are satisfied. Overall, it may be said that the respondents who have used dental tourism services are satisfied with the dental service they have received, which is quite important.

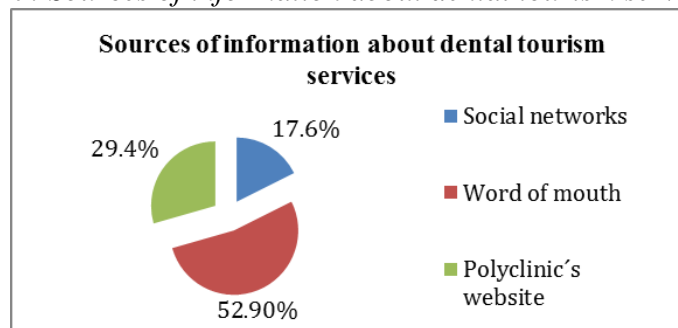
Figure 26: Level of satisfaction with accommodation



Source: authors' own research

50% (8) of the respondents report being very satisfied; 37.50% (6) are satisfied, while 12.5% (2) are neither satisfied nor dissatisfied with their accommodation. By and large, the respondents report being satisfied with their accommodation. Nevertheless, it is very important to ensure that dental tourists are provided with high-quality accommodation during their stay.

Figure 27: Sources of information about dental tourism services

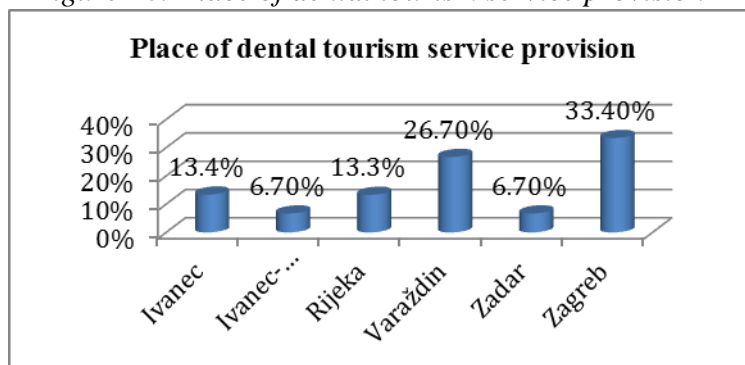


Source: authors' own research

The majority of those who have used dental tourism services (52.90%, 9) have learned that such services are provided in Croatia by word of mouth, which should be considered when designing

an advertising strategy. 29.4% (5) of the respondents learned of the services through the polyclinic's website and 17.6% (3) through social networks.

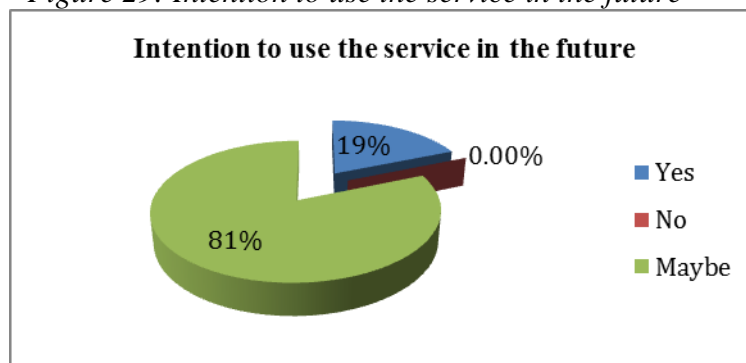
Figure 28: Place of dental tourism service provision



Source: authors' own research

Figure 28 shows that most dental tourism services were provided in the City of Zagreb (33.40%), followed by Varaždin (26.70%), Ivanec (13.4%), Rijeka (13.3%), Zadar and Ivanec-Trakošćan, each with 6.70%.

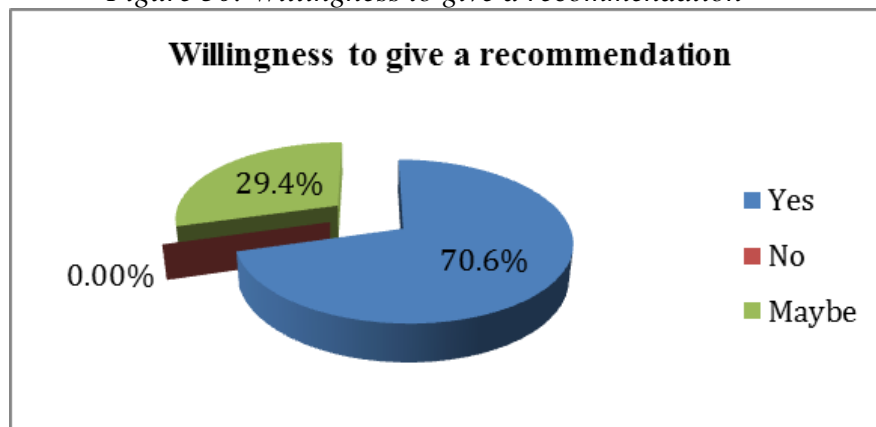
Figure 29: Intention to use the service in the future



Source: authors' own research

To the question whether they intend to use dental tourism services in the future, 81% (13) of the respondents answered 'maybe', while 19% (3) relied 'yes'. The data suggest that they are satisfied with the service they have received and would use it again in the future.

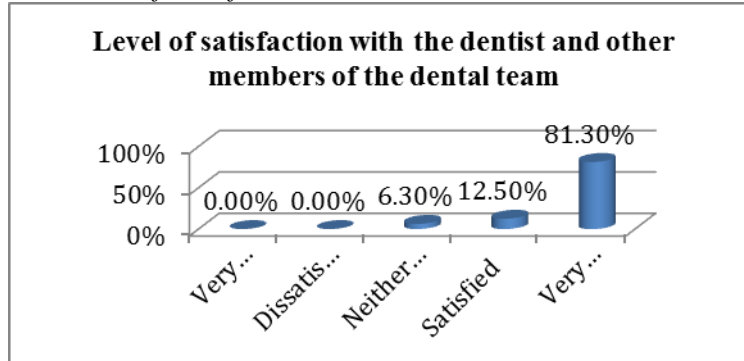
Figure 30: Willingness to give a recommendation



Source: authors' own research

70.6% (12) of the respondents who have used dental tourism services in Croatia before would recommend them to their relatives and friends, while 29.4% (5) would maybe recommend them. On the whole, most of the respondents who have used the services are satisfied with them and would recommend them to their friends and family.

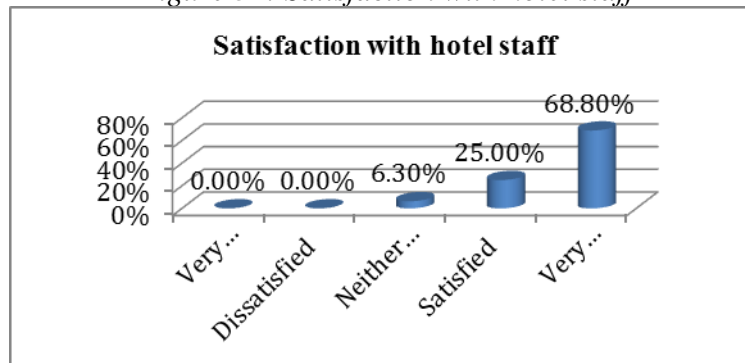
Figure 31: Level of satisfaction with the dentist and other members of the dental team



Source: authors' own research

81.30% (13) of the respondents are very satisfied with the professionalism and courtesy of the dentist and other members of the dental team; 12.50% (2) are satisfied, while 6.30% (1) are neither satisfied nor dissatisfied. It may be concluded that most of the respondents who have used dental tourism services in Croatia are very satisfied with the conduct of the dentist and other members of the dental team, which is a major factor in the development of dental tourism services.

Figure 32: Satisfaction with hotel staff

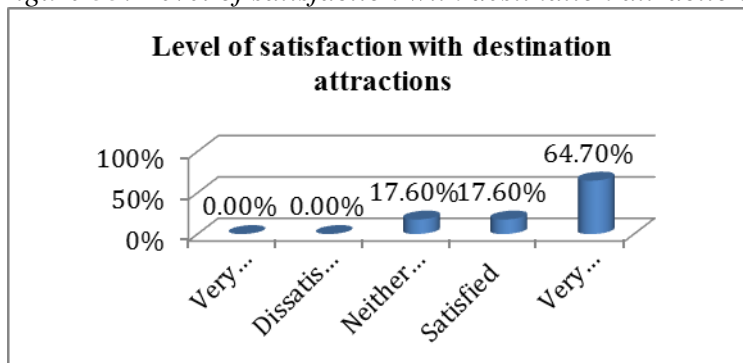


Source: authors' own research

68.80% (11) of the respondents were very satisfied with the hospitality of the hotel staff, 25% (4) were satisfied, while 6.30% (1) were neither satisfied nor dissatisfied. It may be concluded that the service staff was hospitable; however, additional staff training is needed to improve the quality of service.

Figure following on the next page

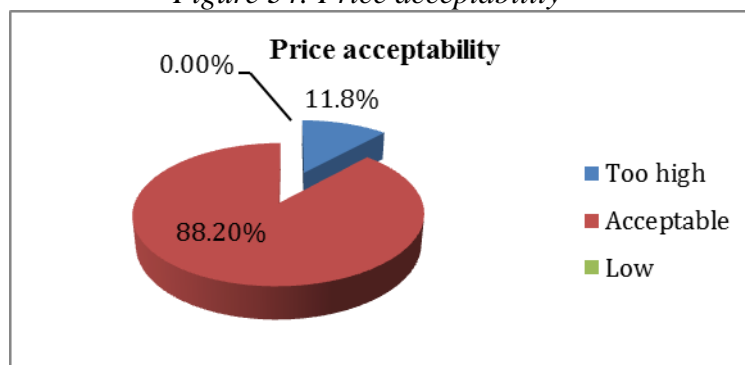
Figure 33: Level of satisfaction with destination attractions



Source: authors' own research

64.70% (11) of the respondents who have used the services of dental tourism are very satisfied with destination attractions; 17.60% (3) are satisfied, while 17.60% (3) are neither satisfied nor dissatisfied. It may be concluded that destination attractions, which Croatia has in abundance, are an important factor that contributes to the development of dental tourism in Croatia.

Figure 34: Price acceptability



Source: authors' own research

Among the respondents who have used dental tourism services in Croatia, 88.20% (15) consider their costs to be acceptable, while 11.8% (2) consider them to be too high. It may be concluded that the majority consider the costs to be acceptable, which has been the main reason for using dental tourism services in Croatia.

## 6. CONCLUSION

The research aims to determine the level of development of dental tourism and use of dental tourism services in Croatia. A survey was conducted to explore the level of respondents' awareness of the service, their opinion of the service, motivations for using it, and sources of information about the service, as well as the level of satisfaction of the respondents who have used the service before. Based on the results of the analyses, it may be concluded that the majority of the respondents (as much as 87.50%) have not used dental tourism services in Croatia. Most of the respondents in this group are resident in Croatia (mainly in Varaždin County). The rest come from Slovenia and Germany. The majority of the respondents are familiar with the concept of dental tourism, which is positive for the development of this sector. Lack of need for the services was reported as the main reason for not using them. Interestingly, it was found that most of the respondents enjoy travelling, which is another positive factor in the development of dental tourism. All respondents (100%) consider that Croatia is an attractive travel destination, which increases the potential for improved growth of dental tourism.



If they were to use dental tourism services, most of the respondents would prefer to be accommodated in a hotel and therefore integrating hotel accommodation services into dental tourism is of great importance for its development. When it comes to dental tourism services, the respondents chose Zagreb as their preferred destination. The results show that most of the respondents are satisfied with the dental service provided by their dentist and this is probably one of the reasons for not using dental tourism services. Most of the respondents find appealing the idea of receiving dental care while on a holiday in an attractive travel destination. When asked whether they intend to use dental tourism services in the future, most respondents answered that this would depend on the need. Most of the respondents believe that dental tourism is on the rise in Croatia, which is very important for its further development. The results of the survey show that among those who have used dental tourism services in Croatia before there is almost the same percentage of resident and non-resident respondents. The majority of non-resident respondents in this group come from Austria and Slovenia. The majority of the respondents who have used dental tourism services and are resident in Croatia come from Varaždin County. Most of the respondents have used the service only once. Primary motivation for using dental tourism services are dental health issues, as confirmed by all respondents. In general, the respondents are satisfied with the dental service provided, tourism attractions and activities offered, as well as accommodation. Most of the respondents who have used dental tourism services before have learned of them by word of mouth, which should be considered when designing an advertising strategy. The results also show that the majority of the respondents have used dental tourism services in the city of Zagreb. By and large, the respondents are satisfied with the service they have received; they intend to use it again in the future, and would gladly recommend it to their friends and family. Overall, the respondents are satisfied with the professionalism and courtesy of the dentist and other members of the dental team, the hospitality of the hotel staff; and the tourist attractions. They consider the costs of dental care to be acceptable, and this is the main reason for choosing Croatia as a dental tourism destination. The results of the empirical research have confirmed all three hypotheses:

- H0: Primary motivation for using dental tourism services are health issues.
- H1: Most respondents have not used dental tourism services in Croatia.
- H2: Respondents who have used dental tourism services in Croatia are satisfied with the services they have received.

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## RELATIONSHIP BETWEEN PROFITABILITY AND LIQUIDITY OF ENTERPRISES LISTED ON WARSAW STOCK EXCHANGE

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### ABSTRACT

*The most frequently mentioned goal of working capital management is increasing profitability maintaining financial liquidity at the same time. From this point of view, the relationship between profitability and liquidity is relatively often studied, but the theoretical model describing this particular relationship has not been developed yet. On the one hand, enterprises with high profitability generate a large free cash flow increasing liquidity (a positive relationship). On the other hand, enterprises with high liquidity have a lot of current assets. It generates high costs and reduces profitability (a negative relationship). The Gentry's hypothesis attempts to integrate both directions of this relationship: the direction is positive at low liquidity levels, but with an increase in the level of liquidity, it turns into a negative one. The aim of this paper is to recognize the relationship between profitability and liquidity of companies listed on the Warsaw Stock Exchange. The research material consisted of the reporting data of 345 companies in the years 1998-2016. The panel models based on 3793 observations were used to identify the sought relationship. The statistically significant positive relationship between the return on assets and the current liquidity ratio was found. As for the quick liquidity ratio, a similar relationship was diagnosed in a sample of 90% of observations (observations with the highest and lowest level of QR were excluded). This study did not confirm the liquidity and profitability substitution which was most frequently diagnosed in other empirical studies. A negative relationship was also not found with regard to high levels of the liquidity. It means that the Gentry's hypothesis was not confirmed, either. However, the study confirmed the positive relationship between profitability and the company's size. The negative relationship between profitability and the level of indebtedness was also confirmed.*

**Keywords:** *financial liquidity, profitability, profitability and liquidity trade-off, Warsaw Stock Exchange*

### 1. INTRODUCTION

The most frequently mentioned short-term financial goal of the company is to maximize profits. The company's ability to generate profits is commonly known as profitability. The second feature of the company that is important from the point of view of short-term financial policy is financial liquidity. It is defined as the company's ability to pay off its current liabilities. Loss of liquidity is the main reason for the bankruptcy of enterprises in the modern economy. The levels of profitability and financial liquidity of a company result from decisions regarding working capital management. These decisions include: shaping the relationship between current assets and current liabilities, determining the mark-up on products and/or goods sold assuming an appropriate asset turnover rate (Brealey, Myers 2016). The common decision-making area means that there is strong evidence for the existence of a specific relationship between profitability and liquidity of the company. So far, many authors (e.g. Smith, 1980; Raheman, Nasr, 2007; Awad, Jayyar 2013) have emphasized that the trade-off between the profitability and liquidity levels of a company is one of the most important determinants of its success.

For this reason, the relationship between profitability and liquidity is relatively often studied. Previous studies identified positive and negative relationships between profitability and financial liquidity. There are also studies indicating the lack of statistical significance of this relationship. In the corporate finance literature, the theory describing such a large variation in the scope of results of previous research has not yet been elaborated. This is the first premise underlying this study. The second premise is the state of the research on the relationship between profitability and financial liquidity of enterprises operating in the conditions of the Polish economy. Until now, these studies have not gone beyond the initial exploration phase. Their results do not allow for an unambiguous identification of the direction and strength of this relationship. The main objective of the article is to recognize the relationship between profitability and financial liquidity of companies listed on the Warsaw Stock Exchange and to attempt to pre-determine the factors shaping this dependence.

## **2. PROFITABILITY VS. LIQUIDITY - THEORETICAL BACKGROUND AND REVIEW OF EMPIRICAL STUDIES**

Smith (1980) started the discussion on the theoretical assumptions of the relationship between profitability and financial liquidity. He noticed that these categories often involve a negative relationship: the higher the company's profitability, the more difficult it is to keep the liquidity at the right level. At the same time he pointed out the necessary compromise in this respect. This thesis was further developed by Myers and Majluf (1984). The company usually invests free cash flows through implementing all projects leading to the highest possible rate of return. Therefore, it can be expected that enterprises with high profitability implement more investment projects and have lower liquidity than less profitable companies. It primarily concerns short-term view. A negative relationship between profitability and financial liquidity is most conspicuous in empirical research. It was diagnosed by, among others, Eljelly (2004), Bhunia (2013), Priya and Nimalathasan (2013), Reddy (2015). The first author investigated the relationship between the return on assets (ROA) and the current liquidity ratio (CR) and the cash conversion cycle (CCP) for 29 companies listed on the Saudi Arabia stock exchange in 1996-2000. The negative relationship between the quick liquidity ratio (QR) and return on capital employed (ROCE) was detected by Bhunia (2013) on the basis of financial data from 100 small and medium-sized private sector steel companies in India in the years 1997-2012. The negative affect of liquidity measured by the CR ratio on ROCE was also identified by Reddy (2015) among companies from Tata Steel Group Limited in the period 2009-2014. Priya and Nimalathasan (2013) examined 10 companies from the manufacturing sector of the Colombo Stock Exchange for the years 2008-2012. They identified a negative relationship between the return on assets and the operating (CCP) and cash conversion cycles (CCC). There was no statistically significant relationship between the return on equity and liquidity ratios. Opler et al. (1999) proposed a different perspective on the profitability and liquidity relationship. In the case of enterprises with low liquidity, each earned profit is invested in working capital. This increases the share in the working capital of components financed with equity and thus increases the level of liquidity. The authors indicated a positive relation between profitability and liquidity as characteristics for enterprises with limited access to external capital (entering a new market, highly innovative, characterised by high operational risk). It particularly concerns especially long-term relationship. Positive dependence between profitability and liquidity is relatively rarely diagnosed in empirical research than negative. It was diagnosed by, among others, Lazaridis and Tryfonidis (2006), Baser et al. (2016). The first study covered 131 companies listed on the Athens Stock Exchange in the period of 2001-2004. The authors showed a positive relationship between ROA and CCP. In turn, Baser et al. (2016) examined 187 companies listed on the National Market of Istanbul Stock Exchange in 2014. The negative relationship was found between the ROA and CR ratios.

An attempt to explain the existence of positive and negative relationships between profitability and financial liquidity was based on the Gentry curve (Figure 1).

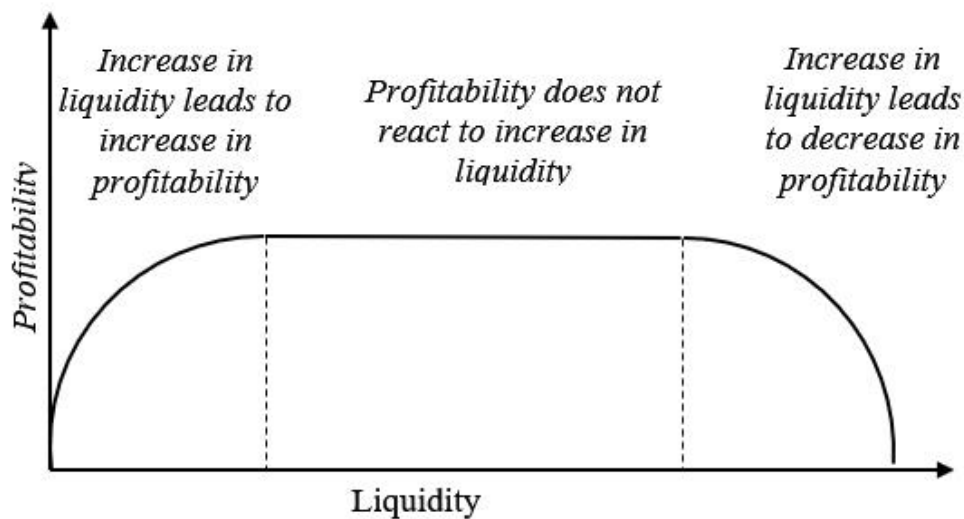


Figure 1: Gentry's curve (Gentry 1976)

The Gentry's curve links the direction and strength of relationship between profitability and liquidity with the level of the latter. Enterprises with low liquidity invest primarily in their payment capabilities (positive dependence). When a higher level of liquidity is obtained, its impact on profitability becomes difficult to identify (no obvious relationship). At high levels of liquidity, investments in working capital result in lower efficiency of its use. The increase in current assets financed with equity is the cause of high costs and decreasing profitability (negative dependence). The hypothesis based on the Gentry curve is also confirmed by empirical studies. Mitra and Nandi (2013) proved that for small liquidity values there is a positive impact on profitability by the example of an Indian coal company. On the other hand Eljelly's (2004) showed that for high liquidity values, this relationship is highly negative. Awad and Jayyar (2013) proved that for average levels of CCP and CR indices, their statistical impact on profitability is insignificant using the sample of 11 manufacturing firms listed in the Palestine Exchange (PEX) over the period from 2007 to 2012. The size of the enterprise and its indebtedness were used as control variables in most of the described empirical studies. The results indicate that profitability is positively correlated with the size of the company and negatively with its indebtedness. In addition, in the Eljelly's study (2004), the profitability depends on the industry or business sector. In Polish circumstances, an interesting study was conducted by Bolek and Wiliński (2012). The authors confirmed the negative impact of liquidity on profitability based on the analysis of financial data of construction companies listed on the Warsaw Stock Exchange in the period 2010-2012. This study included 44 observations. In other studies, a similar group of enterprises showed that together with decreasing liquidity the return on equity and the return on assets did not increase (Bolek, Wolski 2010). The widest research was conducted in the Polish food sector. The study of Zawadzka et al. (2011) should be pointed out. It concerned agricultural enterprises in the years 2007-2009. Increasing the return on assets resulted in an increase in the quick liquidity ratio. A similar relationship was detected by Pawlak and Paszko (2014) in fruit and vegetable processing enterprises. In agriculture (the sample based on FADN farms), Bereźnicka (2014) showed a statistically significant relationship between liquidity and profitability. However, due to low correlation rates it was not possible to clearly indicate the direction of this relationship.

Jaworski et al. (2018) conducted research in the food manufacturing enterprises. The authors did not detect a statistically significant relationship between the profitability and liquidity of 1046 entities from this industry in the period 2012-2015. They showed a positive relationship in the range of small liquidity values.

### 3. RESEARCH MATERIAL AND METHOD

Previous studies on the relationship between profitability and financial liquidity of enterprises in Poland have a sectoral nature (with the predominance of the food sector). They are characterised by a short time range and a small number of observations. Therefore, there is a clear need to expand the research in this area. We decided to answer the following research questions focusing on public companies:

- (P1) Is there a statistically significant relationship between the profitability and financial liquidity of companies listed on the Warsaw Stock Exchange?
- (P2) What is the direction of the diagnosed dependence?
- (P3) Can the relationship between profitability and liquidity be explained by the Gentry hypothesis for the studied enterprises?

Data for the required calculations was taken from the Notoria database (2017). Its source was the financial statements of companies listed on the Main Market of the Warsaw Stock Exchange in the years 1998-2016. Consolidated reports were used in the study. The Finance macrosector was excluded from the research sample, as well as companies with negative equity and companies with a limited range of available data. In total, 345 companies were included in the study, which resulted in a number of observations amounting to 3793. The return on assets at the level of operating profit (ROA) was assumed as a response variable. Explanatory variables in the basic model were selected as follows:

- 1. financial liquidity measured by the current liquidity ratio (CR),
- 2. debt ratio (LEV),
- 3. and the size of the enterprise (SIZE).

The second model used in the study was a model with financial liquidity measured by the quick liquidity ratio (QR). The control variables applied in this model remained unchanged. They were chosen analogously to the research of other authors. Table 1 presents the definitions and measures of individual variables.

*Table 1: Variables used in the study (own elaboration)*

Num.	Variable	Abbreviation	Definition
1.	Return on assets	ROA	$\frac{\text{operating profit} + \text{depreciation}}{\text{total assets}}$
2.	Financial liquidity	CR	$\frac{\text{current assets}}{\text{current liabilities}}$
		QR	$\frac{\text{current assets} - \text{inventory}}{\text{current liabilities}}$
3.	Size of the enterprise	SIZE	$\ln(\text{total revenue})$
4.	Financial leverage	LEV	$\frac{\text{total liabilities}}{\text{total assets}}$

The distribution of observation values for particular variables is presented in Table 2. The average ROA value is 10%. For the CR ratio, the arithmetic mean is 1.84 and the median is 1.42. For the QR liquidity ratio, the arithmetic mean is 1.27 and the median is 0.99. The average level of the SIZE variable is over 12, and the debt ratio (LEV) is over 47%.

Table 2: Descriptive statistics of the research sample (own elaboration)

Variable	Mean	Median	Std. deviation	Minimum	Maximum
ROA	0.1085	0.0999	0.1210	-1.0831	1.6878
CR	1.8424	1.4258	1.7675	0.0472	48.5836
QR	1.2740	0.9851	1.2574	0.0248	27.7581
SIZE	12.4081	12.1951	1.7310	4.5143	19.1954
LEV	0.4797	0.4733	0.1864	0.0392	0.9983

To exclude multicollinearity between explanatory variables, Pearson's linear correlation coefficients were calculated for each of their pairs (Table 3).

Table 3: Pearson correlation matrix for explanatory variables (critical value = 0.0242) (own elaboration)

CR	QR	SIZE	LEV	
1.0000	0.9261	-0.2154	-0.5072	CR
	1.0000	-0.1959	-0.5036	QR
		1.0000	0.1724	SIZE
			1.0000	LEV

Values of coefficients do not indicate the existence of strong or very strong interdependencies (except for CR and QR, which do not appear in one model). Explanatory variables can be a basis for the estimation of parameters of panel models (Greene 2003).

In order to identify and measure the relevance and impact of the explanatory variables on the response variable the econometric, linear panel models were applied. They are based on the following models:

1) regression model (Ordinary Least Squares Method):

$$ROA_{it} = \beta_0 + \beta_1 CR_{it} | QR_{it} + \beta_2 SIZE_{it} + \beta_2 LEV_{it} + \varepsilon_{it}$$

2) model with fixed effects (FE):

$$ROA_{it} = \beta_0 + \beta_1 CR_{it} | QR_{it} + \beta_2 SIZE_{it} + \beta_2 LEV_{it} + \mu_{it}$$

3) model with random effects (RE):

$$ROA_{it} = \beta_0 + \beta_1 CR_{it} | QR_{it} + \beta_2 SIZE_{it} + \beta_2 LEV_{it} + \varepsilon_{it} + \mu \varepsilon_{it}$$

The Ordinary Least Squares Method (OLS) is used for homogeneous samples. If the occurrences in the sample differ, it is appropriate to use a model with individual fixed effects. When individual effects are not the same in subsequent periods, a model with random effects should be adopted. In order to determine the existence of individual effects, the Breusch-Pagan test is applied. The Hausman test allows us to identify fixed or random individual effects (Greene 2003). As the next step, research samples below the 5th percentile of the response variable (CR and QR), above 95th and between the 5th and 95th percentiles were separated for the verification of the Gentry hypothesis.

In view of this hypothesis, the assumption was made that in the first interval between profitability and liquidity there should be a positive relationship and in the second one negative. For the sample between the 5th and 95th percentiles of the response variable, the relationship between liquidity and profitability should be statistically insignificant or ambiguous.

#### 4. RESEARCH OUTCOMES

Table 4 presents the estimated parameters of the basic model (with the response variable CR) and the values of the Breusch-Pagan and Hausman tests.

Table 4: Results of the panel model estimation – CR whole data sample (own elaboration)

Variable	OLS	FE	RE
Const.	0.0993***	0.1895***	0.1600***
CR	0.0058***	0.0028**	0.0037***
SIZE	0.0051***	-0.0025	0.0002
LEV	-0.1376***	-0.1192***	-0.1235***
Adjusted R2	0.07316		
Number of observations	3793		
Breusch-Pagan test	LM = 1701.54; p = 0		
Hausman test	H = 13.77; p = 0.0032		

\* - statistical significance at the level of 0.1

\*\* - statistical significance at the level of 0.05

\*\*\* - statistical significance at the level of 0.01

The test results indicate that the FE model is the most appropriate for the analyzed sample. It indicates that the relationship between ROA and CR is positive, while between ROA and LEV the relationship is negative. The impact of the SIZE variable is statistically insignificant.

Table 5 contains an analysis of truncated samples against the distribution of the CR variable.

Table 5: Results of the OLS estimation – CR truncated data samples (own elaboration)

Variable	CR<0.6489	CR>4.268	0.649<CR<4.268
Const	-0.0635	0.2151*	0.0748***
CR	-0.1143	-0.0005	0.0164***
SIZE	0.0249***	-0.0008	0.0039***
LEV	-0.2078***	-0.1057	-0.0896***
Number of observations	190	184	3419
Adjusted R2	0.1224	-0.0140	0.0546

\* - statistical significance at the level of 0.1

\*\* - statistical significance at the level of 0.05

\*\*\* - statistical significance at the level of 0.01

The analysis of both the lower and upper part of the research sample does not indicate any significant relationship between ROA and CR. For the part between the 5th and 95th percentile, as well as for the entire sample, there is a positive relationship between ROA and CR. The relationship between ROA and SIZE is positive, while for the LEV variable it is negative. Analogous study regarding the CR variable was carried out for the QR variable (Table 6).



Table 6: Results of the panel model estimation – QR whole data sample (own elaboration)

Variable	OLS	FE	RE
Const	0.0954***	0.2255***	0.1585***
QR	0.0051***	0.0002	0.0022
SIZE	0.0055***	-0.0045*	0.0008
LEV	-0.1374***	-0.1340***	-0.1326***
Adjusted R2	0.0750		
Number of observations	3684		
Breusch-Pagan test	LM = 1469.54; p = 0		
Hausman test	H = 18.45; p = 0.0004		

\* - statistical significance at the level of 0.1  
 \*\* - statistical significance at the level of 0.05  
 \*\*\* - statistical significance at the level of 0.01

The results of Breusch-Pagan and Hausman tests indicate that the FE model is the most appropriate model in this case. In this model, no statistically significant relationship between ROA and QR was found. The relationship between the ROA variable and the SIZE variable is positive, and for the LEV variable it is negative. Table 7 contains an analysis of truncated samples against the distribution of the QR variable.

Table 7: Results of the OLS estimation QR truncated data samples (own elaboration)

Variable	QR<0.355	QR>3.077	0.355<QR<3.077
Const	-0.2060**	-0.0266	0.0911***
QR	0.1774	0.0002	0.0136***
SIZE	0.0211***	0.0158*	0.0045***
LEV	-0.0579	0.0597	-0.1182***
Number of observations	186	181	3317
Adjusted R2	0.0816	0.0055	0.0617

\* - statistical significance at the level of 0.1  
 \*\* - statistical significance at the level of 0.05  
 \*\*\* - statistical significance at the level of 0.01

For the lower and upper part of the research sample, no significant relationship between ROA and QR was observed. However, for the part between the 5th and the 95th percentile a positive relationship was demonstrated. The relationship between ROA and SIZE is positive and between ROA and LEV negative.

## 5. CONCLUSIONS

The obtained results of the analysis allow us to answer the first research question unambiguously. There is a statistically significant relationship between the profitability and liquidity of companies listed on the Warsaw Stock Exchange. It was confirmed by the model based on a full research sample for the CR variable and a truncated sample for the QR variable (between the 5th and 95th percentile). These results are analogous to most previous studies, including those performed in Poland. The diagnosed relationship between profitability and liquidity of the analyzed companies turned out to be positive. This is the answer to the second research question. In this case, a negative relationship diagnosed most often in previous studies was not confirmed.

According to the hypothesis of Opler et al. (1999) this may mean that companies listed on the Warsaw Stock Exchange have limited access to capital and they finance the liquidity mainly by retained earnings. It has to be pointed out especially because of long-term nature of this research. However, an unambiguous confirmation of this hypothesis requires further research. The answer to the third research question is negative. The study did not reveal changes in the direction of the relationship between ROA and CR/QR for changing levels of explanatory variables. This means that in the case of the research sample, the relationship between profitability and liquidity cannot be described in terms of the Gentry curve. In addition, the study confirmed the previously diagnosed positive impact on the profitability of the enterprise's size and negative impact of debt. This means that the larger the company, the greater its profitability. In turn, the more indebted the company, the lower its profitability.

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## THE FACTORS INFLUENCING SATISFACTION OF GENERATION Y IN THE WORKPLACE IN THE CZECH REPUBLIC

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### **ABSTRACT**

*Managers of companies complain that young people do not want to work. Does Generation Y have a different view of employment, other priorities and expectations? Today's situation of Czech companies is not so critical, but gradually the lack of staff becomes a nationwide problem. Industry 4.0 basically changes the enterprise's business within Industry 4.0 and Work 4.0. They are Y generation people who are a great opportunity for business with their habits in using the Internet, social networks and modern technologies. If Generation Y and the upcoming generation Z allow the business to work as expected, these workers can help not only in innovative workflow solutions. It is already necessary for managers to properly motivate these employees and to know their specific needs within the work environment. In future, it will be important for executives to understand these young employees. The aim of this paper is to determine the level of Generation Y satisfaction with selected working environment factors and evaluate cooperation with previous Generation X, in the gender comparison. The methodology of this paper is based on a comparison of published international studies and questionnaire survey focusing on Generation Y. Discussion of this paper deals with the current changes in human resources management for Generation Y and Z. The paper seeks to highlight the need to monitor the requirements and preferences of all current generations on the labor market, especially the Generation Y and the forthcoming generation Z. Generation Y simply has other priorities and job expectations. This paper brings new insights into Generation Y and recommendations for managers.*

**Keywords:** *Generation Y, satisfaction, gender comparisons, Human Management Resources*

### **1. INTRODUCTION**

Differences between generations are deepening, and so the world is now sharing a number of fundamentally different generations, and it is necessary to address this issue by generations. Executives complain that young people do not want to work (Dlasková, 2017). Does Y generation have a different view of employment, other priorities and expectations? The current situation of Czech companies is not so critical, but gradually the lack of staff becomes a nationwide problem. Individual generations of people or employees can be chronologically defined on Generation Baby Boomers, Generation X, Generation Y, Generation Z, and Last Alpha Generation. The characteristics of each generation can be seen in the following Tab. 1.

*Table following on the next page*

*Table 1: Characteristics of individual generations (Modified by Horváthová, Bláha and Čopíková, 2016)*

<b>Generation name</b>	<b>Birth</b>	<b>Characteristics</b>
<b>Baby Boomers</b>	1946-1964	People of this generation grew up in times of security and in times of economic growth. Most of these people work and work even in retirement for financial security. As part of the work process, these people value personal growth and the need for their work. Businesses are loyal, rewarded to want to be for their work ethics or responsibility.
<b>X</b>	1965-1981	These people grew up at a time of financial and family uncertainty, at work they are loyal, they like to learn new skills and prefer an independent style of work. "Working and playing hard" is their motto. They prefer their security and do not like changes. Work is the most important aspect of life for them, but they often face burnout syndrome. They are not able to work with technologies as well as the younger generation. These people prefer long-term employment before frequent fluctuations.
<b>Y</b>	1982-1995	This genre was born into a period of relative peace and peace. Their characteristic features include ambition, freedom, relaxation. They are looking for more friends than colleagues, their workload must be full of challenges and news. They are based on their personal lives, their families and their friends, and their work is secondary. They work efficiently, flexibly and quickly. They come up with new ideas and innovations and they depend on their implementation. The greatest driving force for them is the work they enjoy and further develops them to achieve even better results. They strive for a balance of work and personal life, for a modern work environment and open communication.
<b>Z</b>	1996-2010	This generation was born already in the digital world, spending a lot of time on the Internet and social networks. They grow up in the era of multiculturalism and individualism, they are not so faithful, and state institutions are considered unnecessary. Their main entertainment is the internet and smart facilities. They grow faster, they are self-confident, impatient and inclined to self-esteem. They are able to effectively analyze information, values attach rather to speed than accuracy.
<b>Alfa</b>	2011-2025	These people have access to the Internet and the online world from early childhood, parents of Generation X and Y generation. These people want to quickly meet their needs, impatient and deeper thinking is difficult for them, the Internet is everything for them. They are likely to be more educated than generations Z, and they expect high job fluctuations if they are unhappy with the employer.

The center of these generations can be seen in both professional and private life. Every generation has some differences in their behavior. This contribution is dedicated to Generation Y, called the "Millennials". Czech companies are currently facing a major challenge, Industry 4.0. It basically changes the enterprise's business within Industry 4.0 and Work 4.0. They are Y generation people who are a great opportunity for business with their habits in using the Internet, social networks and modern technologies. If Generation Y and the upcoming generation Z allow the business to work as expected, these workers can help not only in innovative workflow solutions. Another key factor for different generational preferences is the process of rapid IT development that influences the world of business and management. An enterprise that demands prosperity in today's turbulent and globalizing environment should pay extraordinary attention to information technology in human resources management (Pitra, 2007). Therefore, many businesses reorganize their core business processes by investing in key technologies, such as cloud computing; business intelligence and social media (Oprescu & Eleodor, 2014). Generation Y - young people between the ages of 21 and 35, work in a variety of looks like the older generation.

For example, they prefer to work in the place of residence and are willing to commute a maximum of 30 minutes (Dlasková, Kramer, 2017). Horváthová, Bláha and Čopíková (2016) state that Generation X employees are motivated especially stability, responsibility and money to provide higher performance. For Generation Y is useful to provide development programs, flexibility, teamwork, non-financial benefits and diverse projects. Generation Y and the previous Generation X still have many in common. But there are fundamental differences between them that affect their motivation and attitude to work, which are shown in Tab. 2.

*Table 2: Differences between Generations X and Y (Modified by Hays: What workers want report, 2017)*

	<b>Generation X "Work and play hard"</b>	<b>Generation Y "Life begins after work"</b>
<b>Money</b>	value	means
<b>Working vs. personal life</b>	work life	personal life
<b>Using modern technologies</b>	with problems	seamlessly
<b>Willingness to change work</b>	no	yes
<b>Willingness to work overtime</b>	yes	no
<b>Willingness to move to work</b>	no	yes
<b>Motivation</b>	security, stability, responsibility, money	development programs, flexible working hours, teamwork, non-financial benefits, projects
<b>View of co-workers</b>	colleagues	friends
<b>Perseverance</b>	larger	smaller
<b>Relationship to authorities</b>	seamlessly	with problems

## 2. RESEARCH METHODOLOGY

The primary objective of the contribution is to find out the degree of satisfaction of the millennials with the selected factors of the work environment and to evaluate the cooperation with the older Generation X in the gender comparison. Methodology of the contribution is based on quantitative research, namely a questionnaire survey was carried out in November 2017. The sample surveyed was actively working employees of Generation Y, with a total of 137 employees belonging to this generation. Return on questionnaire survey was 71.7%. The following research questions have been identified:

- RQ1: Whether there is a difference between perceptions of the satisfaction of the working environment between women and men belonging to Generation Y.
- RQ2: Whether employees in Generation Y like to work with Generation X employees.

## 3. RESULTS OF THE RESEARCH

The following summary Tab. 3 shows the satisfaction of Generation Y men with selected work environment factors. The greatest satisfaction is expressed with the organization of working hours and relations with direct superiors. Respondents say they are happy with the work environment in terms of a friendly atmosphere. They also express a sense of job security.

*Table following on the next page*

*Table 3: Satisfaction of Generation Y with selected working environment factors – men  
 (Own calculation)*

<b>Selected factors of the work environment</b>	<b>Percentage of expression Men Gen. Y</b>
Organization of working hours (arrivals, departures, breaks, shifts)	94 %
Relationships with a direct superior	88 %
Friendly environment	76 %
Job security	76 %
Working conditions (light, heat, noise)	71 %
Length of working hours	71 %
Interesting work	71 %
Same options for men and women	65 %
Employees' benefits	65 %
Workload (amount of work)	53 %
Wage valuation	53 %
Awareness of the company's business	53 %
Possibilities of further education / dissemination of qualifications	53 %
Career growth potential	35 %

The following Tab. 4 shows the satisfaction of Generation Y women with selected work environment factors. The greatest satisfaction is expressed with the working environment in terms of a friendly atmosphere, with good relations with direct superiors and the organization of working hours.

*Table 4: Satisfaction of Generation Y with selected working environment factors – women  
 (Own calculation)*

<b>Selected factors of the work environment</b>	<b>Percentage of expression Women Gen. Y</b>
Friendly environment	87 %
Relationships with a direct superior	79 %
Organization of working hours (arrivals, departures, breaks, shifts)	74 %
Working conditions (light, heat, noise)	68 %
Same options for men and women	68 %
Length of working hours	66 %
Job security	64 %
Interesting work	64 %
Workload (amount of work)	53 %
Employees' benefits	53 %
Possibilities of further education / dissemination of qualifications	53 %
Wage valuation	45 %
Awareness of the company's business	40 %
Career growth potential	34 %

A comparison of the responses of men and women belonging to Generation Y was made. Fig. 1 shows the percentages of men and women responding on a similar basis in this research area. The biggest difference is seen in the organization of working time when women are less satisfied than men. There is a question of whether men can more organize their working hours, or the role of varying personal preferences. On the contrary, the feeling of a friendly atmosphere in a business is more satisfied with women than with men. Another difference can be seen in the satisfaction of the factor of job security, when men feel more secure at work. This may be related to women's fear of future job insecurity after maternity leave or low self-esteem and confidence in working ability. Businesses may be disturbing about the latest milestones of selected work environment factors. Both men and women in Generation Y express very low satisfaction with career growth opportunities and educational programs with low awareness and business information transfer. With wage valuation, respondents also do not express a great deal of satisfaction.

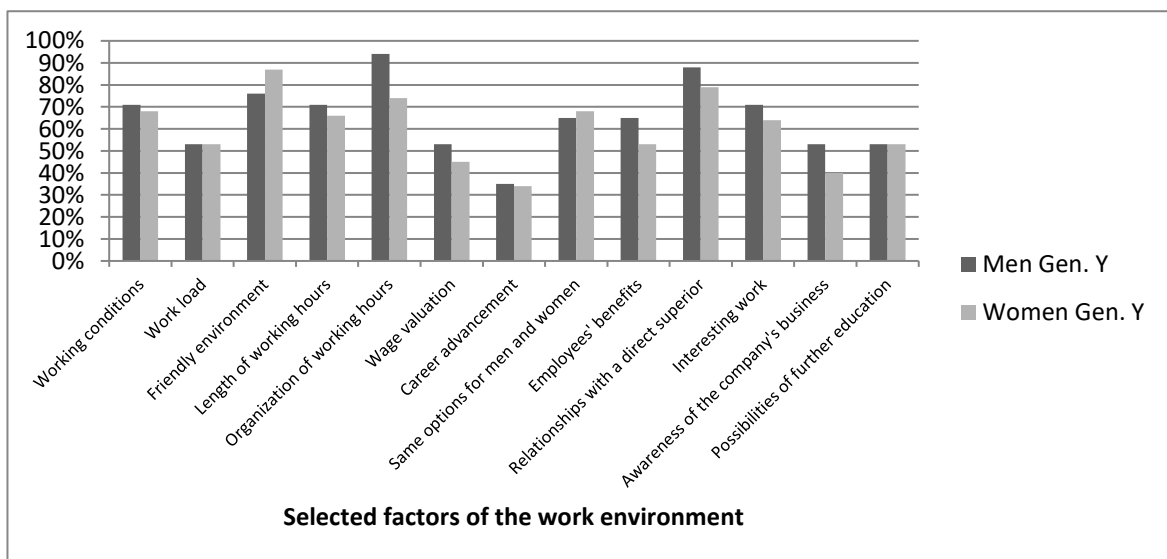


Figure 1: Satisfaction with selected work environment factors - Comparison of male and female responses belonging to Generation Y (Own calculation)

Another area of research was to find out whether Generation Y employees are happy to work with Generation X employees from the point of view of women and men. Generation Y women rate the relationship with older colleagues as very positive, none of the women rated relationships as bad, see Fig. 2.

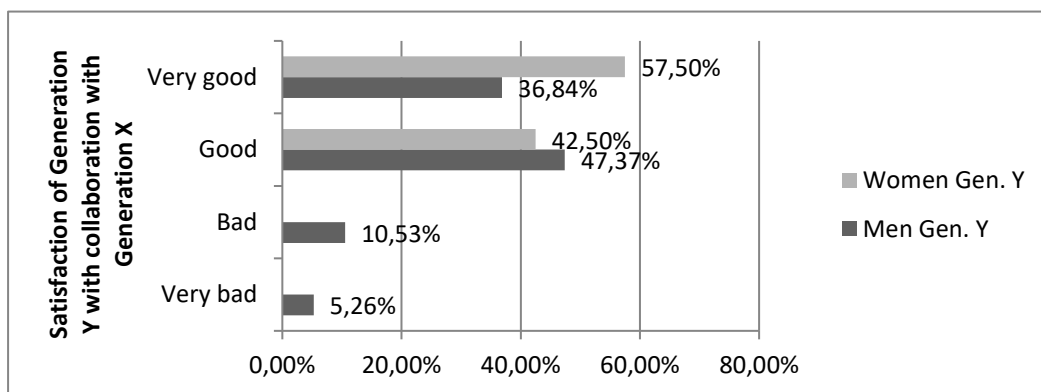


Figure 2: Satisfaction of Generation Y with collaboration with Generation X - Comparison of male and female responses belonging to Generation Y (Own calculation)



Generation Y's men predominantly assess the relationship with older colleagues as good, but 15% of respondents express a negative attitude with their colleagues belonging to Generation X. This comparison points out that women are more willing to work with the older Generation X.

#### **4. CONSLUSION AND DISCUSSION**

With the onset of Generation Y and the next Generation Z, there are changes in human management. It is already necessary for managers to properly motivate these employees and to know their specific needs within the work environment (Horvátová, 2016). In future, it will be important for managers to understand these new employees (D'Netto & Ahmed, 2012). Managers should respond to these changes and adapt their strategies and find suitable ways to recruit, develop, reward, educate, etc. These "digital employees" need to be integrated and socially adapted to previous generations of employees (Strohmeier & Stefan, 2014). The results of the research show that women are more open to communication and cooperation with the older Generation X. Therefore, the author of the paper recommends that the women belonging to Generation Y also be employed to set up work or project teams. Furthermore, the author of the paper considers Generation Y easier and quicker to accept new information technologies into the work process and can provide advice to employees who do not control such information technologies so easily. Businesses should also pay attention to the factors of the working environment, where the respondents express the least satisfaction, see Fig. 1. Therefore, the question of the ability of companies and executives to ensure an appropriate working environment, according to the preferences of the present generations on the labor market, will lead to further discussion. It is important to remember that in order for the employee to be motivated, it is necessary to create appropriate incentives and direct the worker to the working behavior that is desirable for the enterprise. Employees are motivated and have a better work performance and also contribute to the level of satisfaction with the work environment, which is influenced by a number of factors affecting employees at the workplace. (HR forum, 2017) The author agrees with the statements of the above-mentioned authors "A suitable work environment leads to satisfaction, job satisfaction leads to better work performance". If an employee feels comfortable in the work environment, he has some degree of motivation that can lead to loyalty and engagement in the long run. This can be one of the key factors for the sustainability of these young workers belonging to Generation Y. Employees of Generation Y on the labor market are dedicated to this contribution. Opinions from respondents belonging to Generation Y were obtained and the results from the research show that satisfaction with selected working conditions does not differ significantly between men and women see Fig. 1. Generation Y expresses the highest degree of satisfaction with relations with directs superiors, a friendly working environment and the organization of working time. Another research area was to find that women belonging to Generation Y are more open to co-operation with older Generation X. With the forthcoming growth of Generation Y and the next Generation Z on the labor market, more distinct working environment requirements will be more apparent. A key success factor will be the detailed requirements and preferences of these employees. Generation Y employees require diversity, creativity and new challenges at work Niedermeierová, 2017). The employer should provide the possibility of diverse work, for example on another project, department or foreign branch. Their talent to use technology is much higher than Generation X. Generation Y is convinced that education is the key to success, and therefore they are also willing to be a lifelong learner (HR forum, 2017). Ability to learn and share information makes them excellent team players. In the value ladder, responsibility, interest and recognition play an important role. But it is also important flexibility and freedom for them (The 2017 Deloitte Millennial Survey). They are looking for challenging work assignments and the ability to express them creatively.

Another research focus can be on Generation Z and answer a number of questions about the demands and preferences of this young generation on the working environment.

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## SPATIAL DIFFERENTIATION OF CROSS-BORDER COOPERATION

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### ABSTRACT

*Cross-border cooperation has over fifty years of history in the European Union. As more countries join the EU structures, they also establish cooperation at the cross-border level. The duration of cooperation is one of many factors proving its spatial diversity. The aim of the study is to show the spatial diversity of cross-border cooperation implemented within chosen operational programs in Europe. Using Perkal's natural indicator methods, the areas of EU support were ranked in terms of the best and worst level of cooperation. Harmonization of the implementation of individual indicators was also included in the study. The results coincide with the amount of financial help, and also show a general balance of the implementation.*

**Keywords:** *cooperation, cross-border, Perkal's natural indicator*

### 1. INTRODUCTION

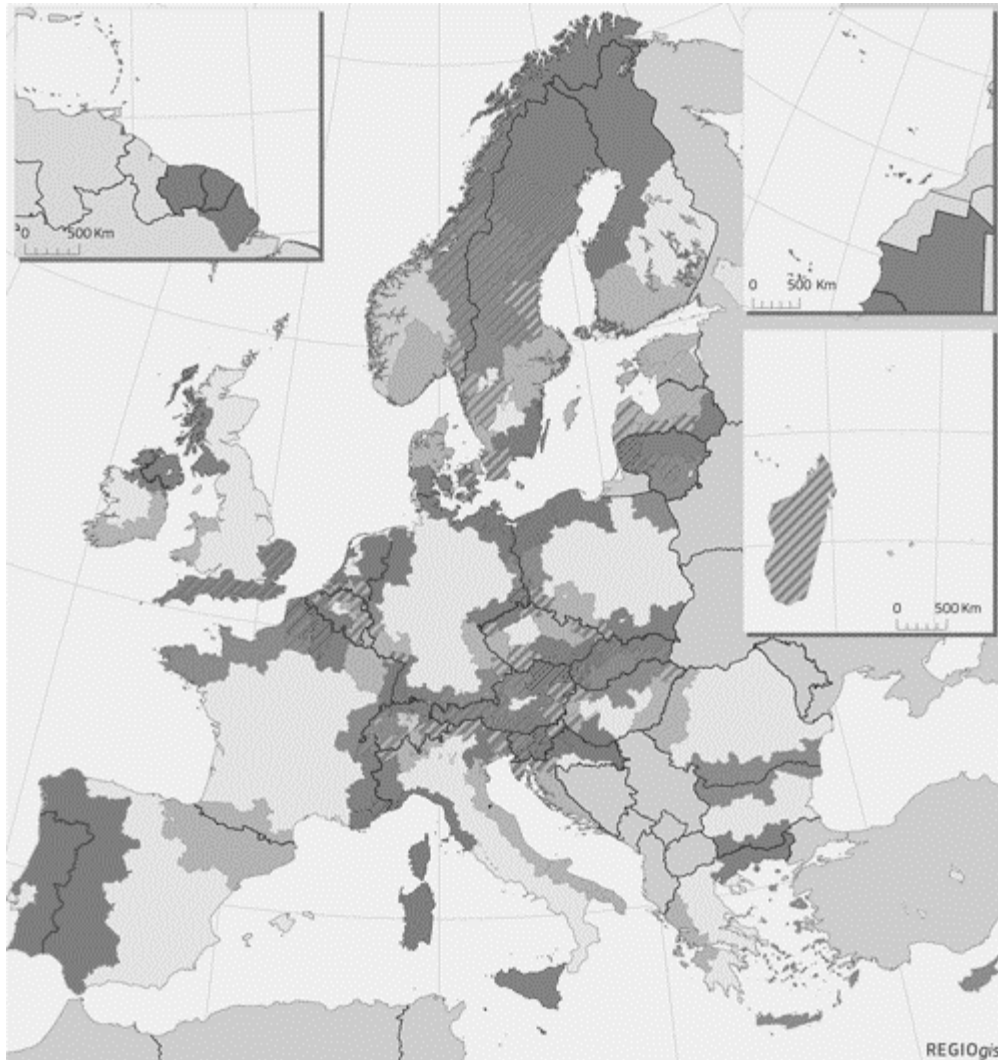
The beginnings of cross-border cooperation should be seen in the 1950s, when EU structures were created and the form of cooperation in the form of Euroregions of the regions was promoted. The more formalized form had its beginnings at the end of the 1980s as part of the first Delors packages, which, in an extended form, are now called EU programming periods. In connection with the spatial development of the European Union, cross-border cooperation within the EU structures is undertaken by other areas of the joining countries. These states most often cared for the socio-economic foreign contacts of their border regions before joining the Community, but the opening of borders associated with accession has changed the quality of these contacts. Another example of the legitimacy of the implementation of cross-border cooperation policy is the fact that more than one-third of EU citizens live and work in these areas [A. Raczyk, S. Dołzbłasz, 2017, p. 10]. The aim of the publication is to show spatial diversification of cross-border cooperation in terms of several selected indicators included in evaluation reports from the 2007-2013 programming period.

### 2. CROSS-BORDER COOPERATION IN EUROPEAN UNION

Cross-border cooperation in Europe is 53 programmes (Figure 1). The programmes are realised on border regions. Common characteristics of border regions are lower development level, less population and a lot of national minority groups as inhabitants, a far distance from growth centres and many other. The border areas are 30% of the whole EU and they produce 30% of EU's GDP (Communication of European Parliament..., p. 2). All in all, they are crucial areas of EU's funds and bring a big potential all together. Border regions gain the biggest advantage from the closeness of other local societies and local markets that usually share similar specifics. They share similar problems with the local society or local economy on the other side of the border and can cooperate to solve the problems easier. Cross-border regions are a very specific formation. However, recently one can observe a growing interest in border regions and their growth due to open border and EU funds that facilitate the contacts on that scale. The programmes might be divided into three groups. The first group consists of programmes with countries that are considered old European Union members. The key date established for the sake of the study is the year 2004. Any country that accessed EU in or after 2004 in considered to be a member of group 2 – new EU members. There is also group 3 that is created with programmes in which members are mixed. The group represents cooperation of new and old EU countries together.

In the study below, group 3 is not taken into consideration. The main reason is to keep the study clear to analyse, interpret and read.

*Figure 1: Cross-border cooperation programmes in 2007-2013 ([http://ec.europa.eu/regional\\_policy/archive/atlas2007/eu/crossborder/index\\_en.htm](http://ec.europa.eu/regional_policy/archive/atlas2007/eu/crossborder/index_en.htm))*



In the analysis programmes that are performed in maritime areas or not EU areas were also omitted from the study. In group one there are 16 programmes and in group 2 there are 12 programmes. 7 programmes could not be taken into the analysis due to the lack of data. All in all, the analysis constitutes of 28 programmes out of 53 what represents a little more than 50% of cross-border cooperation programmes in the programming of 2007-2013 (53%).

### **3. PERKAL'S NATURAL INDICATORS METHOD IN CROSS-BORDER COOPERATION ANALYSIS**

The most common method used to analyse cross-border cooperation is the survey. Surveys and other data concerning the measurement of regional development and its factors are usually supplemented with taxonomic analysis. (Mika, Miśkiewicz-Nawrocka (ed.), 2018), (Stec, 2017). A good review of the measurement of the implementation of EU projects regarding regional development was presented by Z. Forycki (Forycki, 2016). Another measurements of cross-border programmes implementation was introduced in an EU document "Ex Post Evaluation of Cohesion Policy Programmes 2007-2013..." (Ex Post..., 2015).

However, the method used was also the survey. To present the spatial differentiation of cross-border cooperation in Poland, the Perkal's natural indicator method was chosen. The method uses a simple indicator based on the arithmetic mean of selected observations of variables. It allows one to determine the size of the unit based on the given characteristics, and to rank them, as well as to examine the proportionality of the studied phenomenon and the harmoniousness of its development. The method has been used in many works on regional development, including: (Malkowska, 2015), (Namyślak, 2007) and (Perło, 2014). In this work, the method makes it possible to rank areas covered by territorial cooperation programmes in terms of the best results achieved, to examine the proportionality of selected features, as well as the harmoniousness of the cooperation. Although the programmes are implemented according to top-down guidelines of the European Commission, the collection and comparison of data is difficult. The programmes have adopted different objectives and therefore the results achieved are difficult to compare. In addition, the reporting of activities performed is not uniformly harmonised. Therefore, programme coordinators are not obliged to collect specific data. Initially, seven traits were proposed for the study, to which data were collected from the final reports of programs and program documents:

- X1 - allocation of EU funds per 10 000 inhabitants,
- X2 - number of project partners per km<sup>2</sup>,
- X3 - the number of projects per 10 000 inhabitants,
- X4 – the density of population,
- X5 - the number of tourist products per thousand km<sup>2</sup>
- X6 - activities supporting environmental protection in general,
- X7 - participants of seminars, conferences and other events for 10,000 residents.

The number of features that meet the methodological assumptions (Strahl, 2006, p. 25) and that are finally taken into account in the study is four (X1-X4). The variables have been standardised to allow comparison and summation. Next, the synthetic indicators (PNI) of the level of cooperation in the framework of cross-border cooperation programmes based on the formula have been calculated:

$$PNI = \frac{1}{n} \sum_{j=1}^n y'_{ij}$$

where: PNI – Perkal's natural indicator;  $y'_{ij}$  - standardised value of the j-th characteristic in the i-th object, after the exchange of destimulants; n - number of objects.

Areas of cooperation were ranked on the basis of the guidelines in Table 1.

*Table 1: Classification of Perkal's natural indicator results.*

Score	Interval	Level of cooperation
1	$PNI > \bar{x} + s$	very good
2	$\bar{x} < PNI < \bar{x} + s$	good
3	$\bar{x} - s < PNI < \bar{x}$	Medium
4	$PNI < \bar{x} - s$	poor

Results of the study are quite interesting (Table 2). Namely, in both cases there are two programmes with the first score, meaning that it represents a very high level of cooperation stage. Also, in both groups, the average score is close to 2,5. In group one it is 2,56 and in group 2 it is a bit higher and equals 2,67. In case of the lowest level of cooperation (4), there are more

programmes with a poor level of cooperation than in group 1. In the group of old EU countries (group 1), the score of the best programme is 1,67 and it belongs to OP Euroregio Maas Rhein. The second highest score is 0,70 and it is dramatically lower than the first position but still corresponds to the very good level of cooperation. However, it is very close to the interval border. Namely, not much was lacking for the programme to fall to the lower position. The discussed programme is OP Upper Rhein. In the group of new EU countries (group 2), the highest score is 1,24 and it belongs to the OP Hungary-Romania. The second highest score is also much lower, as it is 0,79 and it is also close to the interval borders. The group 2 has a narrower result range as it is from 1,24 to -0,79. While in group one, the range is from 2,67 to -0,72. Accordingly, it is clear to state that the old EU countries have more differentiated scale of cooperation than new EU countries. Also, it is worth emphasising that the lowest scores of the PNI are similar in both groups. Discussing the group of countries that joined EU in 2004, it is crucial to mention that they represent different level of development (country's GDP), and also different political and social situation. Those are both the countries that accessed the Union in 2004 such as Hungary, Slovakia or Poland and the countries that joined later such as Bulgaria or Romania. In contrast the group one countries are all old EU members that characterise in similar level of development, though they accessed the Union at different times.

*Table 2: Cross-border cooperation – Perkal's natural indicator.*

NAME OF THE PROGRAMME – GROUP 1	PNI	SCORE	NAME OF THE PROGRAMME – GROUP 2	PNI	SCORE
OP 'Alpenrhein - Bodensee - Hochrhein'	-0,28	3	OP 'Slovenia - Hungary'	0,79	1
OP 'Belgium - France'	-0,16	3	OP 'Estonia - Latvia'	-0,79	4
OP 'Belgium - Netherlands'	0,51	2	OP 'Hungary - Romania'	1,24	1
OP 'Euregio Maas-Rhein'	1,63	1	OP 'Hungary - Slovak Republic'	0,26	2
OP 'Fehmarnbelt Region'	-0,24	3	OP 'Latvia - Lithuania'	-0,62	4
OP 'France - Spain - Andorra'	0,11	2	OP 'Lithuania - Poland'	-0,85	4
OP 'France (Channel) – England'	-0,70	4	OP 'Poland - Czech Republic'	0,32	2
OP 'Germany (Bavaria) - Austria'	-0,72	4	OP 'Poland - Slovakia'	-0,08	3
OP 'Grande Région'	-0,41	3	OP 'Romania-Bulgaria'	-0,04	3
OP 'Greece-Italy'	-0,50	3	OP 'Slovakia - Czech Republic'	0,12	2
OP 'INTERREG IV Upper Rhine'	0,73	1	Hungary Croatia IPA	-0,03	3
OP 'Italy - Austria'	0,10	2	Slovenia-Croatia IPA	-0,32	3
OP 'Italy - France (Alps - ALCOTRA)'	0,30	2			
OP 'Italy – Maritime France'	-0,26	3			
OP 'Netherlands - Germany'	0,31	2			
OP 'Two Seas'	-0,41	3			

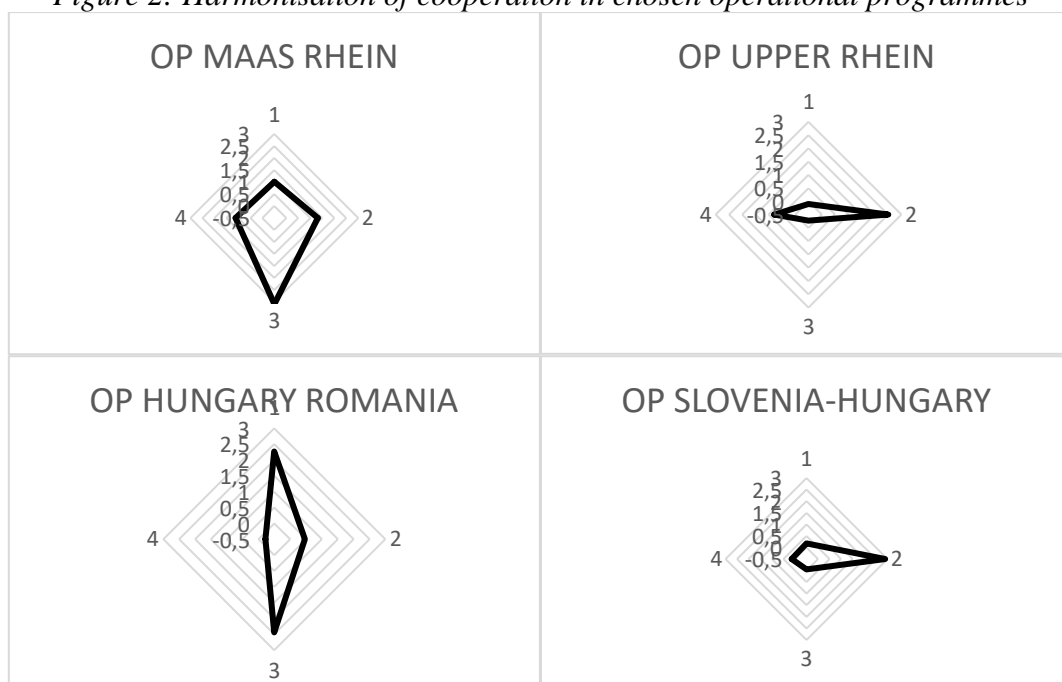
One last thing that has to be emphasised when summing up the results is the generally similar achievements of both groups. Group 1 characterises with the highest level one score. However, basing on the average score, group 2 achieves better results. One might claim that the result is due to the fact that group 2 countries get more funds for the development cause. When looking at the cross-border funds, the statistics do not confirm that fact. The average budget of a group one programmes is 174 million EUR, whereas in group two it is 137 million EUR. Therefore, the budget might not be the cause. Another reason could be the good practices that the new EU countries take from the more experienced old EU members while implementing programme tasks. Next reason is the bigger need of new countries to cooperate that is the so called “catching-up effect”. On the one hand the countries did not have the opportunity to cooperate

through borders and now explore new cross-border possibilities. The borders are open and the funds are distributed what makes the cooperation easier. On the other hand, they feel the pressure or feel the race to “catch up” with the higher development countries, in the meantime using their good practices. Additionally, another comment on the disparities of the results is that the old EU countries might have exhausted the possibilities to cooperate. There are less projects realised (156 per programme; for the new EU countries the result is 168) and just a bit more partners engaged (615 per programme; for the new EU countries the result is 539). Commenting on the fact, one might say that most of the programmes in group one have over 20 years of cooperation history, whereas the new EU countries have just started and the numbers of partners is not so dramatically different. In other words old EU had more time to work on connections with partners, whereas new countries start from no linkages with possible partners. Most likely, it is more difficult to find or persuade a project partner to cooperate in the case of exhaustion of possibilities to cooperate. Analysing the documents on cross-border cooperation, the author is obliged to emphasise the fact that it is much more difficult to possess the documents in case of group 1. The main reasons why are: the basic documents are missing or they are not homogeneous (they lack some basic information that the others have), the webpages are not working or there are no official documents attached, or if they are, they all give different data impossible to compare with other programmes’ results. The case of lacking documents is also present in group 2. However, it is rare and concerns rather annual reports than the main operational programme documents. The author reckons that the fact stated above might reflect the study results, in other words – the approach to implemented projects. The new EU countries try to fulfil their administrative duties much better than the other group what could spread on the overall effectiveness of their projects.

#### 4. PRESENTATION OF TOP-SCORE PROGRAMMES

As well as in old border regions, also in new border regions there are two programmes each that gained first places basing on analysed indicators concerning cross-border cooperation. Each of them presents the best level of cooperation in comparison with the other programmes. The programmes were ranked from the best to the worst level of cooperation basing on four indicators.

Figure 2: Harmonisation of cooperation in chosen operational programmes



In each of the highlighted programmes there is no harmonisation of its implementation (Figure 2). The variables 1-4 that represent the components of the PNI X1-X2 have uneven distribution. Probably the closest programme to achieve harmonisation is OP Hungary-Romania and the furthest is OP Slovenia-Hungary as one can observe the biggest differences in each variable distribution. 3 of 4 programmes have only one variable that gained a lower score. In case of OP Hungary-Romania, there is only one variable that did not gain a higher score. The perfect implementation of a programme would be if each variable had a similar value. Then it would be called harmonious – sustainable budget spending together with programme achievements. The cross-border cooperation programme that gained the highest score in the analysis is the OP Euroregio Maas Rhine between Belgium, Germany and Netherlands. It's fourth time any cooperation activity has been organised in this area. Beginning from INTERREG I, the terrain was engaged in cross-border cooperation initiative since then. It is the first programme among not only the old border countries but also among both groups analysed. The main categories of the realisation of the projects are scientific cooperation, institutional cooperation and cooperation networks. The programme's characteristics are the highest number of budget per 10 000 inhabitants (354 996 EUR) and also second highest number of projects per 10 000 inhabitants (0,99). 43% of the EU budget of the programme is allocated in RDTI, 10% - in environment, and 2% - in capacity (Inception report..., p. 16). The programme's objectives are strengthening the economic structure, promotion of knowledge, innovation, and creation of more and better quality jobs; nature and environment, energy, natural resources and mobility; and quality of life. Though it is problematic to find information about any achievements concerning this programme, a few interesting projects can be named to present at least the qualitative aspect of the results. For example, "ASTE" project concerned the automotive industry. It was realised by 9 partners from the region in the field of clean engines, arising public awareness and training offer. Another interesting project was "Creative Drive". It introduced a cross-border platform of business cooperation to exploit economic and creative potential of the region. "Towards top technology cluster", the last project presented aimed at promoting cross-border activity to foster development of economic and technological potential of the region and improving the institutional context of the cooperation (Keep.eu...). The second programme that gained the first place is slightly different as in engages a non-EU member to the cooperation. This is Switzerland. It is slightly difficult to compare this programme with others as in the case of non-EU member, Switzerland also adds their funds to the programme budget. The programmes introduces 115 projects with 769 partners what is a very high score. Its main priorities are joint use of the potential of the area, making the area an integrated region in terms of training and work and ensuring sustainable development. 33% of the EU budget is allocated in RDTI, 10 % - in environment, and 7% - in capacity (Ex-post... p. 16). The first programme distinguished in the analysis of new border regions is OP Hungary Romania. It is a programme with the highest budget per 10 000 inhabitants (687 950 EUR) and also the highest indicator of the number of projects (455) and number of projects per 10 000 inhabitants (1,14). Those data highly determine the programme's top position in the analysis. The two main axes of the programme are improvement of the key conditions of joint, sustainable development and strengthen social and economic cohesion in border area. There were also five specific goals introduced: improved transport infrastructure to facilitate better access within the border area, better flow of information on joint opportunities within the border area, common natural resources efficiently used, natural values protected, economic connections reinforced in the border area to boost sustainable economic development building on comparative advantages and social and cultural coherence strengthened among people and communities (Annual report..., p. 11). 26% of EU budget was allocated to RDTI projects, 15% - to the environment, and 1% - to the capacity. Out of 455 programmes, 101 were realised in education and training area.



Another popular themes of cooperation were institutional cooperation and cooperation networks (73 programmes), tourism (67) and ICT and digital society (58) (Keep.eu...). One of the most interesting projects was called "Business incubator for cross-border cooperation in the development of tourism". Its main achievements were construction works, acquisition of equipment, entrepreneurship training, database development, joint marketing tools development. Operational Programme Slovenia-Hungary, the second programme highlighted in the analysis of new border regions, originates in the pre-accession period through the trilateral Slovenia-Hungary-Austria Programme (1995, 1996) and Slovenia-Hungary PHARE Programme in 2000-2003. Later, there was also the Neighbourhood Programme Slovenia-Hungary-Croatia of 2004-2006. The two countries finally decided on bilateral cooperation due to many similarities that they share. Those are mainly: similar socio-economic context and shared problems. OP Slovenia-Hungary is not a programme having the biggest EU fund, the biggest number of participants or any other superlative characteristic. It is the programme of the smallest area analysed. Though, when comparing the data with the number of people and the size of the eligible area, the programme results gain first places. 2/3rds of the programme area belong to Hungary and only 1/3 – to Slovenia. The common border is only 102 km long. Most of the regions are predominantly rural and most of the population concentrates in a few important urban areas. Tourism is a crucial sector due to Lake Balaton, many thermal water resorts, ski resorts and agro-tourism that is gaining more and more popularity recently. The Programme has got two objectives. The first one is to increase the attractiveness of the cooperation area and the second is a sustainable development. Under those two goals there were 43 projects completed and 580 partners involved. 2% of the EU budget was allocated in projects concerning RTDI, 28% - in projects dedicated to environment, and the rest – to other priorities. Most of the projects were focused on community integration and common identity, cultural heritage and arts, and tourism.<sup>1</sup> There were 21 projects realised within the first objective and 22 – within the second (Compilation of cofinanced..., p. 16). For example, "Healthy food for a healthy life" project resulted in improvement of the quality of health in frontier regions, promoting healthy lifestyle and preservation of environment. A hygienic model was introduced among two cooperating hospitals involving five partners all together. Another interesting project "Wine culture without borders" contributed to the increase in the attractiveness of the area through: new tourist destination, infrastructure improvement and promotional campaigns. All of the programmes presented are definitely a source of some good practice. They base on their own achievements every new programming period. The possible explanation of very high results of new border countries group is the fact that they take advantage from the solution developed by countries which have more experience in cross-border cooperation, so called old border countries.

## 5. CONCLUSION

Cross-border cooperation idea is getting more and more popular. It does not have as big funds as other Cohesion Policy Programmes, but it is getting more and more importance being one of the main aims of regional policy of the EU. Presented analysis indicate a slight difference between new and old EU member' programmes results. The key feature that causes the difference is the experience of the countries that cooperate, own or borrowed. Usually, there is one more key aspect that determines cooperation no matter how high the budget is and how skilled the participants are. And this aspect is social relations between cross-border society, that is: political, historical and cultural conditions that may help or destroy cooperation. In case of programmes getting the highest scores in group two, one thing is surprising. A participant in the first case is Romania, a country that has recently entered EU and is considered to be rather low-developed. Hence, it achieved the highest position in the ranking.

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<sup>1</sup> Representative data of 19 out of 43 programmes gathered in KEEP – EU projects database.

The mentioned level of development is very general in the analysis above. It does not clearly reflect the level of economic development, rather the development and the quality of cooperation of a programme. That is why, author's future analysis will focus on gaining more variables and comparing the results with the actual level of economic development of those regions, as well as adding group 3 programmes that include mixed old and new members cooperation.

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## TECHNOLOGICAL COMPETITIVENESS AND EXPORT PERFORMANCE OF VISEGRAD GROUP COUNTRIES IN 2004-2016

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### **ABSTRACT**

*The aim of the paper is to evaluate the interdependencies between technological competitiveness and export performance of Visegrad Group countries in 2004-2016. Technological competitiveness is understood as ability to innovate and improve technological intensity of exported goods. The analysis covers assessment of the level of innovativeness of V-4 countries with the use of summary innovation index and innovation gap. Expenditures on R&D and employment in R&D sector are investigated as a driving sources of innovation, while number of patent applications and share of high-tech products in total exports determine innovative position. While RCA indices outline traditional competitive advantages based on prices and costs, the type of intra-industry specialisation will display export competitiveness dependent on country's innovative advantages.*

**Keywords:** *innovativeness, technological competitiveness, Visegrad Group*

### **1. INTRODUCTION**

Competitiveness has a multiplicity of definitions in economic literature, because of its complexity and multidimensional character. In terms of globalization and processes of regional integration - competition, competitiveness and competitive advantage represent three phenomena, that are discussed widely nowadays. The level of competition in open market economies has increased significantly, and competition occurs not only among companies, but also national economies (Kharlamova, Vertelieva, 2013, pp. 39-41). Many definitions stress, that competitiveness expresses country's ability to achieve economic growth and a good standard of living, without dealing with balance-of-payments difficulties (Fagerberg, 1988, pp. 355-356). Competitiveness can be perceived as country's international competitiveness (ability to compete and competitive advantage), as well as international competitive position (Molendowski, 2017, pp. 120). International competitive position is defined as a country's level of development in relation to other economies (Radło, 2008, pp. 94-97). It can be measured as a share in global product, trade or capital flows in the form of foreign direct investments (Mucha-Leszko, Kąkol, Białowas, 2009, pp. 19). International competitive position involves position of the national economy in international markets, especially in selling goods and services, but also country's position in technological market and financial market. Country's competitive position should be evaluated in comparison to entities, that display similar economic characteristics, especially similar level of development (Weresa, 2008, pp. 101-103). Competitive position in international trade relies on export competitiveness, that depends on the type of competitive advantage the country possesses. Determinants of export performance include price and cost competitiveness, as well as non-cost competitiveness, that comprises two components – technological and structural competitiveness. Technological competitiveness is the ability to innovate, improve the quality of products and increase the technological content of country's export, while structural competitiveness has a wider meaning (Bierut, Kuziemska-Pawlak, 2016, pp. 5). It encompasses many different factors, which include, on the country's side - legal and institutional framework, product market regulations, taxation, human capital, infrastructure, industry specialization, and on the enterprises' side - technological advantage, reputation and product quality, efficiency of selling networks, availability and reliability of after-sales services and characteristics of exporters (European Central Bank, 2012, pp. 20-21;

European Central Bank, 2005, pp. 51). National economy's capacity to sell products on international markets depends on differences in costs and prices between countries (Durand, Madaschi, Terribile, 1998, pp. 4). Though in the international trade increasing demand for luxurious, trendy and innovative products can be observed, changes of export's, import's and trade balance's value depend firstly on price competitiveness – changes in prices and customers' incomes, price elasticity of demand and the degree of substitutability between products (Armington, 1969, pp. 159-162). Moreover, according to classical trade theory countries should specialize in selling products, which can be produced with the highest labor efficiency, and this should ensure the most beneficial position in international division of labor. Also in terms of country's participation in international competition, increasing productivity leads to improvement of competitiveness and export performance (Białowas, 2012, pp. 15). On the other hand, J. Fagerberg argues, that in the long run non-price competitiveness proves to be influencing country's position in international trade (in terms of market share) more than changes in price/cost competitiveness. Especially technological competitiveness and ability to compete on delivery seem to be the crucial factors in competition for benefits resulting from country's participation in international division of labor (Fagerberg, 1988, pp. 355). The author recognizes and appreciates the importance of technological and structural competitiveness for international competitive position of a country, which prevail in recent economic discussion. Thus, the aim of this paper is to evaluate the technological competitiveness and export performance of Visegrad Group countries. The analyzed time period covers the dates after the accession of Czech Republic, Hungary, Poland and Slovakia to the European Union. The structure of the paper is as follows: firstly the measures of country's ability to innovate are presented, secondly results of innovative activities are assessed and thirdly changes in Visegrad Group countries' export performance are analyzed and evaluated. The author strives to answer two main research questions:

- Have Visegrad Group countries improved their innovative potential and innovative position after the accession to EU?
- Have Visegrad Group countries improved their competitive position in European value chains?

## **2. INNOVATIVE POTENTIAL OF VISEGRAD GROUP COUNTRIES**

Ability to innovate allows to define the resources the economy possess in order to create innovative solutions, while innovative performance demonstrates the effects of combining nation's creativity with financial resources in a given economic and institutional environment. Innovation potential plays a crucial role in fostering economic growth, because it influences the growth of total factor productivity and improvement of technological advancement of exported goods, and leads to strengthening country's position in the international trade (Weresa, 2012, pp. 32). Low level of innovativeness constitutes one of the major problems of Visegrad Group. According to the European Innovation Scoreboard 2018, Visegrad countries were classified as moderate innovators in the European Union with Summary Innovation Indexes (SII) far below the EU-28 average. In the group of V-4 Poland represents the least innovative economy. In 2017 Poland occupied 25<sup>th</sup> position in the ranking of innovativeness (SII relative to EU in 2017 - 53,6%), while Slovakia was 23<sup>rd</sup> (64%), Hungary – 21<sup>st</sup> (65,7%) and Czech Republic -13<sup>th</sup> (82,3%). Although Slovakia and Poland have improved their position by less than 5 p.p. in comparison to 2010 (respectively 4,8% and 3,2%), Hungary and Czech Republic have worsened it by less than 5 p.p. (respectively -0,1% and -2,9%), these changes had no significant impact on overall level of innovativeness of mentioned countries. The validity of this statement is evidenced by changes of innovation gap values. Innovation gap displays differences between countries' scientific and technical potentials, that result in different level of technological advancement of goods and production methods.

Calculated as a ratio between country's SII and EU-28 average SII, value below 1 indicates lower level of country's innovativeness in comparison to the European Union. The higher the value of innovation gap, the smaller the distance of particular country's innovativeness from the EU average (Weresa, 2012, pp. 63-64). In 2010-2017 Czech Republic and Hungary have increased the level of innovation gap, while Slovakia and Poland have managed to shorten the distance insignificantly. Table 1 presents the changes of SII and values of innovation gap for Visegrad Group countries in 2010-2017.

*Table 1: Summary Innovation Indexes and values of innovation gap of Visegrad Group countries in 2010-2017 (European Innovation Scoreboard, 2018, p. 98 and own calculations)*

Years	2010	2011	2012	2013	2014	2015	2016	2017
<b>Countries</b>	<b>SII</b>							
<b>EU-28</b>	0,477	0,478	0,471	0,476	0,476	0,485	0,498	0,504
<b>CZE</b>	0,429	0,422	0,394	0,401	0,399	0,408	0,403	0,415
<b>HUN</b>	0,332	0,327	0,311	0,312	0,315	0,318	0,323	0,332
<b>POL</b>	0,255	0,256	0,240	0,248	0,240	0,247	0,261	0,270
<b>SLK</b>	0,300	0,315	0,328	0,338	0,317	0,327	0,333	0,323
	<b>Innovation gap</b>							
<b>EU-28</b>	1	1	1	1	1	1	1	1
<b>CZE</b>	0,899	0,883	0,837	0,842	0,838	0,841	0,809	0,823
<b>HUN</b>	0,696	0,684	0,660	0,655	0,662	0,656	0,649	0,659
<b>POL</b>	0,535	0,536	0,510	0,521	0,504	0,509	0,524	0,536
<b>SLK</b>	0,629	0,659	0,696	0,710	0,666	0,674	0,669	0,641

European Innovation Scoreboard 2018 outlines, that Visegrad Group countries have achieved worse outcomes than the EU average in terms of attractive research systems, innovators and intellectual assets. General strengths of their innovative systems involve employment impacts, sales impacts and firm investments. In comparison to the EU average in 2017, Poland has presented the highest scores in non-R&D innovation expenditures, population with tertiary education, design applications and employment in fast growing companies. Employment in fast growing enterprises, sales of new-to-market/firm innovations and medium and high-tech product exports constituted main advantages of Slovakian economy. Relative to the EU in 2017 Hungary has gained the best outcomes in employment in fast growing enterprises and medium and high-tech product exports, while Czech Republic stood out for international scientific co-publications, employment in fast growing firms, non-R&D innovation expenditures, as well as medium and high-tech product exports (European Commission, 2018, pp. 13-25, 49-85). Summary Innovation Index combines measures of innovative potential and innovation outcomes. Innovative potential of a country can be evaluated by R&D expenditures, the structure of allocations for research and development and R&D personnel, that together represent country's ability to innovate (Wojtas, 2014, pp. 131-132). Table 2 presents intramural expenditures on R&D in Visegrad Group countries in chosen years of the period 2004-2016.

*Table 2: Visegrad Group countries' intramural expenditures on R&D in 2004-2016  
 (Eurostat, Intramural..., 20.10.2018)*

Measure	Year	2004	2007	2009	2011	2013	2015	2016
R&D expenditure as % of GDP	EU-28	1,75	1,77	1,93	1,97	2,02	2,04	2,03
	CZE	1,15	1,30	1,29	1,56	1,90	1,93	1,68
	HUN	0,86	0,96	1,13	1,19	1,39	1,36	1,21
	POL	0,55	0,56	0,66	0,75	0,87	1,00	0,97
	SLK	0,50	0,45	0,47	0,66	0,82	1,18	0,79
R&D expenditure in business sector as % of GDP	EU-28	1,11	1,12	1,19	1,24	1,28	1,31	1,32
	CZE	0,72	0,75	0,72	0,86	1,03	1,05	1,03
	HUN	0,35	0,48	0,65	0,74	0,96	1,00	0,89
	POL	0,16	0,17	0,19	0,22	0,38	0,47	0,63
	SLK	0,25	0,18	0,19	0,25	0,38	0,33	0,40
R&D expenditure in government sector as % of GDP	EU-28	0,23	0,23	0,26	0,25	0,25	0,24	0,23
	CZE	0,26	0,30	0,31	0,31	0,35	0,39	0,30
	HUN	0,25	0,23	0,23	0,19	0,21	0,18	0,16
	POL	0,22	0,20	0,23	0,26	0,23	0,24	0,02
	SLK	0,15	0,16	0,16	0,18	0,17	0,33	0,17
R&D expenditure in higher education sector as % of GDP	EU-28	0,39	0,40	0,46	0,46	0,47	0,47	0,47
	CZE	0,17	0,24	0,26	0,38	0,52	0,48	0,34
	HUN	0,21	0,22	0,24	0,24	0,20	0,17	0,13
	POL	0,18	0,19	0,25	0,26	0,25	0,29	0,30
	SLK	0,10	0,11	0,12	0,23	0,27	0,51	0,22

Allocation of research and development funds display economy's ability to innovate. In case of Visegrad Group countries intramural expenditures on R&D as a percentage of GDP were explicitly lower than the EU-28 average, that accounted for 2,03% in 2016. Once again, Czech Republic was characterized by the highest level of spending on research and development – 1,68% of GDP in 2016 (even 1,93% in 2015). On the other hand, Slovakia has recorded the highest growth of expenditures on the development of new technologies in 2004-2015, which amounted to 0,68 p.p. According to Europe 2020 Strategy most allocations for R&D should originate from private sources, because innovative activities of enterprises influence country's innovativeness mostly (European Commission, 2010, pp. 8-10). In the European Union business sector funds for research and development have increased from 1,11% of GDP in 2004 to 1,32% of GDP in 2016. Taking into account private funding for the development of new technologies it can be observed, that innovative position of V-4 countries was weak. Czech Republic has experienced the highest share of business sector's allocations for R&D activities as % of GDP in 2016, that accounted for 1,03% of GDP. Simultaneously BERD expenditures on research and development as % of GDP in Poland were two times lower and in Slovakia three times lower than on average in countries of the European Union. Still is noticeable, that Poland has increased four times the level of private funding for R&D as a percentage of GDP. Meanwhile the funding of higher education research and development activities in the European Union was about three times lower than private sector's allocation. Investments in the higher education sector in EU-28 have increased from 0,39% of GDP in 2004 to 0,47% of GDP in 2016. Similar tendencies can be observed in Poland (increase from 0,18% of GDP to 0,30% of GDP). Other Visegrad Group countries have experienced prior growth of higher education R&D expenditures and subsequent decline, but indexes were mostly below the EU-28 average (except Czech Republic in 2013 and 2015).

Allocation of public funds for research and development in European Union was small, but stable in 2004-2016 (about 0,23% of GDP). Only Czech Republic was characterized by higher indices of government funding for R&D (0,3% of GDP in 2016), and Polish indices were comparable to the EU-28 average. Three facts should be outlined. Firstly, the case of Poland is particularly interesting because of dominance of public R&D funding over private allocations until 2012. After 2012 the share of business enterprise R&D expenditures in GDP has exceeded other sources, while this tendency was characteristic for EU-28 in the whole period. Private investments were dominating in the structure of intramural R&D expenditure also in other V-4 countries. Secondly, on average in EU-28 government budget allocations were two times lower than the funding of research and development activities in higher education sector. In Visegrad Group countries, at the beginning of analyzed period public funds were exceeding higher education expenditures, and in the middle of the period we can observe an increase of funding in higher education sector as % of GDP (except Hungary, where the share of public sources was higher in 2013-2016). This can signify changes in the structure of intramural expenditures on R&D towards European Union's standards. Changes were proceeding at different rates, and Czech Republic experienced the fastest transition towards European model, yet the transformation is not completed. In Hungary, Poland and Slovakia higher efforts must be taken in order to approach to the EU-28 average shares in GDP of allocations for R&D in particular sectors (not to mention the innovation leaders). Thirdly, external investments play important role in financing research and development activities in Visegrad Group countries. In 2015 the average share of abroad in the structure of intramural R&D expenditures in EU-28 accounted for 10,8%. In Hungary and Poland the indices reached 15,0% and 16,7% respectively, while foreign sourced allocations in Czech Republic and Slovakia amounted to 32,5% and 39,4% of total R&D funds (data are estimated by Eurostat). In 2014 in Czech Republic 56% of business enterprise research and development (BERD) expenditures were made by foreign-owned companies or firms affiliated to foreign entities, nevertheless they were concentrated in low-value added segments of the global value chain with low R&D intensity (OECD, 2016, pp. 35). Technological competitiveness relies not only on investments in research and development, but also capacity to conduct these activities by skilled personnel. Table 3 presents statistics regarding population with tertiary education and R&D personnel in V-4 countries in chosen years of the period 2004-2016. Tertiary education attainment in European Union has experienced remarked growth in 2004-2016. The number of people aged 25-64 who completed different levels of tertiary education has increased from 21,9% to 30,7% (8,8 p.p.). Changes in Visegrad Group countries were similarly significant, though growth accounted for 13,1 p.p. (Poland), 10,7 p.p. (Czech Republic), 9,2 p.p. (Slovakia) and 7 p.p. (Hungary). The highest level of population aged 25-64 with tertiary education in 2016 can be found in Poland, and the percentage is lower than the EU-28 average by 2 p.p. (28,7%). V-4 countries have improved educational background of human resources, though they have not reached the average share of population with tertiary education in EU-28.

*Table following on the next page*

Table 3: Population with tertiary education and R&D personnel in Visegrad Group countries in 2004-2016 (Eurostat, Population ..., Total R&D personnel ..., 20.10.2018).

Measure	Year	2004	2007	2009	2011	2013	2015	2016
Population aged 25-64 with tertiary education as % of total	EU-28	21,9	23,5	25,1	26,8	28,6	30,1	30,7
	CZE	12,3	13,7	15,5	18,2	20,5	22,2	23,0
	HUN	16,7	18,1	19,8	21,0	22,6	24,2	23,7
	POL	15,6	18,7	21,2	23,3	25,8	27,7	28,7
	SLK	12,8	14,4	15,8	18,6	19,9	21,1	22,0
R+D personnel as % of total employment	EU-28	1,53*	1,59	1,70	1,87	1,97	2,03	-
	CZE	1,30	1,51	1,56	1,72	1,91	2,03	-
	HUN	1,28	1,28	1,41	1,49	1,51	1,35	-
	POL	0,94	0,81	0,77	0,88	0,95	1,00	-
	SLK	1,03	1,00	1,08	1,24	1,20	1,20	-
Researchers in business sector as % of total employment	EU-28	0,34*	0,35	0,38	0,44	0,50	0,53	-
	CZE	0,25	0,28	0,29	0,33	0,39	0,46	-
	HUN	0,14	0,22	0,29	0,37	0,41	0,39	-
	POL	0,08	0,08	0,08	0,09	0,16	0,20	-
	SLK	0,10	0,09	0,09	0,12	0,14	0,16	-
Researchers in government sector as % of total employment	EU-28	0,10	0,11	0,11	0,12	0,13	0,13	-
	CZE	0,18	0,20	0,18	0,19	0,19	0,20	-
	HUN	0,15	0,15	0,16	0,17	0,15	0,15	-
	POL	0,11	0,10	0,10	0,11	0,10	0,10	-
	SLK	0,13	0,14	0,14	0,15	0,14	0,16	-
Researchers in higher education sector as % of total employment	EU-28	0,50	0,53	0,58	0,62	0,65	0,66	-
	CZE	0,30	0,40	0,41	0,43	0,47	0,49	-
	HUN	0,49	0,48	0,49	0,46	0,42	0,37	-
	POL	0,53	0,47	0,45	0,46	0,45	0,45	-
	SLK	0,57	0,59	0,70	0,80	0,77	0,69	-

\* data for 2005.

Visegrad Group countries mostly represent weak innovative potential in terms of personnel performing research and development activities. Within the period of 2005-2015 countries of the European Union have increased the share of R&D personnel in total employment from 1,53% to 2,03% (0,5 p.p.). Only Czech Republic have reached the same index in 2015, which suggests quite strong innovative potential in human capital area. The structure of R&D personnel's employment in EU-28 and Czech Republic reveal much similarity. In 2015 most researchers were performing R&D activities in higher education sector (respectively 0,66% and 0,49% of employed persons), but also employment in business sector was remarkable (respectively 0,53% and 0,46%). Only in case of persons employed in R&D activities in government sector the indices in Czech Republic were exceeding indices in EU-28 (in 2015: 0,2% and 0,13% of total employment). The tendencies of changes were also similar. In EU-28 the share of researchers in higher education sector has increased by 0,16 p.p., in business sector by 0,19 p.p. and in government sector by 0,03 p.p., while in Czech Republic the changes accounted for respectively: 0,19 p.p., 0,21 p.p. and 0,02 p.p. Other V-4 countries have improved to a lesser extent the share of research and development personnel in total employment, and the percentages were far below the EU-28 average. In 2015 there were only 1,35% in Hungary, 1,20% in Slovakia and 1,0% in Poland of researchers performing R&D activities (EU-28:



2,03%). Regarding employment of R&D personnel in private enterprises, exceptionally weak indices can be found in Slovakia (0,16%) and Poland (0,20%). Only Hungary has improved the share of R&D personnel from business sector in total employment significantly - by 0,25 p.p. to 0,39%. In Hungary, Poland and Slovakia most researchers perform research and development activities in higher education sector (in 2015: 0,37%, 0,45% and 0,69% of total employment). The case of Slovakia must be highlighted because of exceptionally high shares of R&D personnel in this sector, that have exceeded EU-28 indices even. But the shares of researchers employed in higher education sector to perform research and development activities were slightly decreasing in Visegrad Group countries (except Czech Republic, as already mentioned).

### 3. INNOVATIVE PERFORMANCE OF VISEGRAD GROUP COUNTRIES

To evaluate the level of technological competitiveness it is crucial to assess how innovative potential transforms into effects of innovative activities. The most common measure of country's innovative performance is its activity in patenting new inventions (Wojtas, 2014, pp. 137-138). Table 4 presents the number of patent applications to European Patent Office in chosen years of period 2004-2016.

*Table 4: Patent applications to European Patent Office per million inhabitants in 2004-2016 (Eurostat, Patent applications to the EPO by priority year [pat\_ep\_ntot], 20.10.2018)*

Year	2004	2007	2009	2011	2013	2015	2016
EU-28	112,64	117,56	113,16	113,87	112,03	112,55	109,71
CZE	11,01	18,46	16,89	21,25	23,83	28,03	30,19
HUN	15,17	18,99	18,38	22,19	21,76	20,82	20,47
POL	3,26	5,29	7,65	10,11	14,38	15,22	16,52
SLK	3,84	7,24	5,36	10,17	9,19	7,73	9,99

\* Estimated data for 2013-2016.

In the European Union the number of patent applications to EPO was stable and varied across 112-118 per million inhabitants in 2004-2015. After 2007 patenting activity in EU-28 have declined, which is evidenced by almost 110 patent applications to European Patent Office per million inhabitants in 2016. Meanwhile a growth of V-4 countries' patenting activity can be observed. Especially Czech Republic has strengthened its innovative position, though the number of patent applications to EPO has increased threefold to 30 applications per million inhabitants in 2016. Also a growth of Poland's patenting activity is visible, because the number of patent applications has increased over five times, from 3,26 to 16,52 in years 2004-2016. Slovakia has experienced the same tendency (more than twofold growth). Unfortunately, in Czech Republic, Hungary, Poland and Slovakia patent applications to European Patent Office per million inhabitants were respectively 3, 5, 6 and 11 times lower than the EU average, which proves their weak innovative position. B. K. Bierut and K. Kuziemska-Pawlak found a significant impact of technological competitiveness on export performance of EU-10 countries. Patent applications proved to contribute to higher export market shares to a greater extent than expenditures on R&D (Bierut, Kuziemska-Pawlak, 2016, pp. 36). The effects of country's innovative activity can be measured also by the level of technological intensity of exported goods. The ability to create innovative solutions should go together with the capacity of economy and enterprises to sell innovative commodities on international markets. The higher technology the exported goods have, the higher competitive advantage in trade, but the source of this advantage generates from the research and development sector, especially allocations on

R&D as % of GDP and the quality of human capital (Białowas, 2013, pp. 5). Table 5 presents the shares of high-tech goods<sup>1</sup> in total exports of V-4 countries in 2007-2016.

*Table 4: The share of high-tech trade in total exports of EU countries in 2007-2016  
 (Eurostat, High-tech exports, 20.10.2018)*

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU-28	16,1	15,4	17,1	16,1	15,4	15,7	15,3	15,6	17,0	17,9
CZE	14,1	14,1	15,2	16,1	16,4	16,1	15,1	15,3	15,5	15,0
HUN	21,3	20,2	22,2	21,8	20,9	17,3	16,3i	14,5	15,4	15,9
POL	3,0	4,3	5,7	6,0	5,1	6,0	6,7	7,9	8,5	8,4
SLK	5,0	5,2	5,9	6,6	6,6	8,2	9,6	9,9	10,0	9,7

Visegrad Group countries have increased technological advancement of exported products (only Hungary has experienced a considerable decline). In the last analyzed year the share of high-tech goods in total exports varied among mentioned countries. Hungary and Czech Republic have reported the highest technological intensity of exported goods, that constituted respectively 15,9% and 15,0% of their total exports. Although Poland and Slovakia have managed to increase significantly the share of most innovative products in total exports (by 5,4 p.p. and 4,7 p.p.), the indices were visibly lower than the average share of high-tech products in total exports of EU-28 (8,4% and 9,7% opposed to 17,9%). V-4 countries present high level of economic openness, attractiveness for foreign direct investments and integration into global supply chains, which together have lead up to an increased export dynamics and rapid growth of share in the EU market. Financial and economic crisis affected also the technological intensity of products exported by Visegrad Group countries, the level of innovativeness of sold goods decreased due to economic slowdown on the markets of main trade partners from the European Union (OECD, 2017a, pp. 30-31; OECD, 2017b, pp. 21). The case of Hungary is particularly interesting, because of significant deterioration of technological intensity of exported products. In 1999-2007 Czech Republic and Hungary have seen the biggest cumulative inflow of FDI per capita (among V-4), which was correlated with improvement of their trade position in EU (Domesova, 2011, pp. 58). After 2004 the share of most innovative commodities in Hungarian exports has decreased by 15 p.p., that was caused by smaller inflows of FDI, closure of big international companies in electronic equipment subsector and smaller spill-over effects. Political tensions, but above all economic factors (introduction of new barriers and sector specific taxation, high legal barriers to entry, least transparent policy-making in Visegrad Group) may have deteriorated investment attractiveness of Hungarian economy (European Commission, 2014, pp. 21; European Commission, 2015, pp. 15-17).

#### **4. EXPORT PERFORMANCE OF VISEGRAD GROUP COUNTRIES**

Regarding mostly weak innovative potential, relatively high shares of innovative products in total exports of V-4 countries can point to substantial export activity of companies with foreign capital participation. FDI inflows enable the transfer of technology from abroad and contribute to spill-over effects in the economy. Inflow of foreign direct investments increases production capacity and economic growth of a host country, and when it is concentrated in branches with high technological intensity of production it strengthens international competitive advantage. To measure technological progress in the economy growth accounting can be used. In Solow's growth model the part of productivity growth that cannot be explained by capital accumulation or increased labor input is attributed to technological progress.

<sup>1</sup> High-tech industries according to SITC rev. 4 include: aerospace, computers-office machines, electronics-telecommunications, pharmacy, scientific instruments, electrical machinery, chemistry, non-electrical machinery, armament.

Solow residual, called also Total Factor Productivity (TFP) or Multi-factor Productivity (MFP), embody technological change affecting the production function (Wölfl, Hajkova, 2007, pp. 7). Changes of Total Factor Productivity can express pure technological change, spill-over effects, improvement of managerial practices or knowledge intensive type of production, but can also be ascribed to scale economy, imperfect competition, changes in input prices, brand image or measurement error (OECD, 2015, pp. 30). Total Factor Productivity measures indirectly technology transfer to the economy, and foreign direct investments are considered the main channel of technology inflow. Many researches have confirmed the positive relation between foreign capital presence in particular industry (in form of joint venture or foreign direct investment) and growth of Total Factor Productivity. Companies without participation of foreign capital display the lowest growth rates of TFP (Djankov, Hoekman, 2006, pp. 161-162). Table 5 presents changes of average growth rates of Total Factor Productivity in V-4 countries in 2007-2016.

*Table 5: Average growth rate of TFP in Visegrad Group countries in 2007-2016  
 (source: M. Próchniak, 2017, s. 188)*

Country	2007-2016	2007-2009	2010-2012	2013-2015	2016
<b>CZE</b>	-0,4	-1,6	-0,3	0,6	0,1
<b>HUN</b>	-0,9	-2,5	-0,8	0,5	-0,6
<b>POL</b>	1,4	1,5	2,0	0,7	0,9
<b>SLK</b>	1,0	0,7	1,8	0,6	0,3

Within the new member states of the European Union, Poland and Slovakia were characterized by the highest growth rates of Total Factor Productivity in 2007-2016, which accounted for 1,4% and 1,0% on average. Three countries have experienced lower growth of TFP (Lithuania, Romania and Bulgaria), while other countries have noted negative average growth rates. In Hungary and Czech Republic Total Factor Productivity contributed negatively to economic growth, especially in the period of the financial crisis and few years after (2007-2012). OECD analyses confirm, that multi-factor productivity outcomes have driven Poland's economic growth. Productivity growth can be attributed to technology transfer from abroad, partly through increased trade openness and integration into global value chains (OECD, 2014, pp. 100). E. Fifeková and E. Nemcová state, that strong contribution of TFP to economic growth in Slovakia (in years 2004-2014) and Czech Republic (in years 2004-2008) was caused by an inflow of foreign direct investments. FDI have enabled transfer of know-how, managerial and marketing skills, knowledge capital and innovations, which supported the growth of Total Factor Productivity (Fifeková, Nemcová, 2015, pp. 12). Negative average TFP growth rates in case of Hungary, that have appeared after 2007, can be associated with smaller inflows of foreign direct investments and weaker spill-over linkages between transnational companies and domestic enterprises (European Commission, 2014, pp. 21; European Commission, 2015, pp. 15-17). Deepened analysis of Visegrad Group countries export performance should include changes in the structure of intra-industry specialisation. Increase of share of horizontal trade and vertical high-quality trade in total intra-industry trade signify improvement of country's competitiveness in international trade due to better position in global value chains. Table 6 presents indices of IIT broken by the type of intra-industry trade with different groups of trading partners in 2003-2014.

Table 6: Shares of IIT in the total trade of Visegrad Group countries in 2003-2014 (source: E. Kawecka-Wyrzykowska, L. Ambroziak, E. Molendowski, W. Polan, 2017, p. 79-80)

Country	Year	Low-quality VIIT in trade with			High-quality VIIT in trade with			HIIT in trade with		
		EU-15	EU-10	Other	EU-15	EU-10	Other	EU-15	EU-10	Other
CZE	2003	25,4	11,5	5,6	17,5	14,5	5,3	6,7	11,8	0,8
	2014	15,1	13,5	6,2	17,0	18,0	6,9	14,4	14,4	1,9
HUN	2003	15,5	7,9	3,7	11,4	14,0	4,2	7,4	7,3	1,7
	2014	14,4	12,8	5,4	19,7	13,0	8,5	8,6	12,1	2,0
POL	2003	18,6	12,3	3,6	5,8	8,2	7,3	10,8	9,0	1,6
	2014	20,7	13,3	5,1	10,5	10,9	5,0	12,5	13,0	4,5
SLK	2003	13,3	14,8	1,9	16,2	10,8	2,8	5,5	9,9	0,7
	2014	11,1	10,8	2,9	17,5	14,5	2,7	6,3	17,1	1,7
EU-10	2003	17,6	11,0	3,6	10,6	10,7	4,8	7,1	8,7	1,4
	2014	15,6	12,6	4,6	14,4	13,6	5,5	10,1	12,9	2,6

Horizontal intra-industry trade refers to the exchange of products with similar qualities and various features, including goods identical in terms of production technology, but viewed as different by customers. Countries with similar patterns of economic structures and similar factor endowments are more likely to develop trade in horizontally differentiated products. Therefore high share of HIIT in trade with the EU-15 will reflect structural convergence of the economy and country's better trade position (E. Kawecka-Wyrzykowska, L. Ambroziak, E. Molendowski, W. Polan, 2017, pp. 19-20). In 2003-2014 Poland, Hungary and Slovakia have increased modestly the share of horizontal intra-industry specialisation in trade with the EU-15 (0,8-1,7 p.p.), but in 2014 the HIIT indices were visibly lower than in trade with the EU-10. Only in case of Czech Republic the shares of horizontally differentiated products in trade with the EU-15 and with the EU-10 were equal. In comparison to other V-4 countries Czech Republic has faced the highest growth of HIIT (7,7 p.p.) and the highest share of horizontal intra-industry specialisation in trade with the EU-15 at the end of analyzed period (14,4%). Meanwhile, Slovakia recorded the lowest share of horizontally differentiated products in trade with the EU-15 (6,3% in 2014). Vertical intra-industry trade includes exchange of final goods with different qualities and prices, as well as exchange of intermediate and final goods from the same industry. It occurs between countries representing various levels of economic development and different factor endowments, technology and income distribution (E. Kawecka-Wyrzykowska, L. Ambroziak, E. Molendowski, W. Polan, 2017, pp. 21-22). Growth of share of high-quality vertically differentiated products at the expense of low-quality goods reflected improved competitiveness of Visegrad Group's trade. Despite Poland has increased the share of high-quality VIIT in trade with the EU-15 the most significantly (almost twofold), in 2014 the index was lower than the average share of vertically differentiated products of high quality in trade of the whole EU-10 group with the EU-15 (respectively 10,5% and 14,4%). Hungary, Slovakia and Czech Republic have developed specialisation in vertical intra-industry trade in high quality products to a greater extent than Poland (19,7% ; 17,5% ; 17,0% in 2014). While these countries have witnessed a fall in low-quality VIIT, Poland has experienced a minor increase in the share of low-quality vertically differentiated goods in its total trade. Moreover, in 2014 Poland was the only country among V-4, where the share of low-quality VIIT exceeded high-quality VIIT with the share of the first one as twice as high as the second one (20,7% and 10,5% respectively).

## 5. CONCLUSION

Visegrad Group countries reveal much similarities regarding their technological competitiveness, with Czech Republic presenting slightly higher level of innovativeness and

export performance. These modest innovators have achieved similar results concerning innovative potential and innovative position, and accession to the European Union has fostered positive changes in their economies. Despite visible improvements, Visegrad Group countries still present weak innovation potential in terms of R&D expenditures as a percentage of GDP and R&D personnel's share in total employment in comparison to the EU average. It corresponds to weak effects of innovation activity measured by country's patenting activity and technological advancement of exported products. Among Visegrad Group, Czech Republic showed the highest level of spending on research and development activities, the highest share of BERD expenditures as a % of GDP and the highest share of personnel performing research and development activities in private sector, while the highest educational background of human capital was found in Poland. Czech Republic reported the highest number of patent applications to EPO and Hungary experienced the highest shares of innovative products in total exports. Visegrad Group countries have improved their position in European value chains. Czech Republic and Poland achieved relatively high shares of horizontally differentiated products in trade with the EU-15, which reflects ongoing convergence towards more developed economies. Nevertheless, vertical intra-industry trade proved to be of greater importance for all V-4 countries. In 2014 VIIT high-quality indices exceeded VIIT low-quality indices in trade of Czech Republic, Hungary and Slovakia with the EU-15. Only Poland reported significantly higher share of vertically differentiated low-quality products in trade with old member states. High average growth rates of Total Factor Productivity in case of Poland and Slovakia regarded their weaker innovative potential and seem to signify technological progress in the economy due to technology transfer from abroad and spill-over effects. Czech Republic and Hungary noted negative average TFP growth rates in 2007-2016, but stood out for high shares of high-tech goods in total exports and high indices of high-quality VIIT in trade with EU-15. Weak patenting activity opposed to growth of high-tech products' share in total exports and general improvement of intra-industry specialisation patterns point to substantial role of foreign capital in Visegrad Group countries export performance.

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## THE IMPACT OF RELIGIOUS NEO-CHARISMATIC GROUPS IN SOCIAL AND ECONOMICAL SUSTAINABILITY

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### **ABSTRACT**

*In this traditionally catholic country, new groups started emerging in the religious field. These so called neo-charismatic started expressing themselves in the 80s. The Brazillian-born Igreja Universal do Reino de Deus (IURD) and Maná-Igreja Cristã, founded by a Portuguese man are two religious communities that have gained traction in their influence in the religious spectre. These groups adopted the Prosperity theology and introduced a new concept in the Portuguese religious sphere. They are oriented by a market sense, comparable to a business, assuming a highly competitive feature. This doctrine ends up being well accepted in the poverty-stricken sectors of the population, the socially frail and immigrants with difficulty integrating in society. The practical influence of these new religious communities' works as a temporary 'placebo' that ends in frustration, economical turmoil towards individuals and families, as well as monetary expenses due to the 'deviation' of considerable funds for religious organizations, that work as a multinational without subjecting to taxes. Thus, by not practicing good citizen standards of paying taxes in the name of a religious entity, they use their religious image merely as a façade. Given the evidence that we brought to light, the contributions given by the faithful are transferred to purchase personal goods for the heads of these organizations. It is time, in strict respect to the principle of religious freedom and secular vocation of democratic and civilized states, to learn how to deal with these social scourges that contribute nothing towards social, economic and psychological sustainability, and the well-being of the people.*

**Keywords:** *neo-charismatic, prosperity, sustainability*

### **1. INTRODUCTION**

In Portugal - a country with a secular catholic tradition - new religious groups emerged in the religious landscape, denominated as neo-Pentecostals in the eighties. These were the cases of the Brazillian-born Igreja Universal do Reino de Deus (IURD) and Maná-Igreja Cristã, founded by a Portuguese man are two religious communities that have gained traction in their influence in the religious spectre. These groups adopted the Prosperity Theology and introduced a novelty in the Portuguese religious field, being guided by a clear market logic, of an entrepreneurial type, thus assuming a strongly competitive characteristic.

### **2. NEO-CHARISMATIC MOVEMENT**

A variety of religious groups that emerged in Brazil in the late seventies were globally classified by researchers as neo-charismatic (or neo-Pentecostals), despite constituting a multifaceted and decentralized religious movement, sometimes with diverse theological beliefs, practices and particularities. Neopentecostals were influenced by the thinking of E. W. Kenyon (1867-1948) and Kenneth Hagin (1917-2003), who promoted the Prosperity Theology or Gospel of Health and Prosperity, which focuses on the key words: Faith, Health, Wealth, and Victory. Faith is understood by them as a power that triggers spiritual forces capable of converting the spoken word into reality (doctrine of Positive Confession). This emerging religious current says that God intends for all believers to amount a materially prosperous life, full of health and success in everything at that exact moment, which seems to explain their greater prevalence among the poorer sections of the population of underdeveloped countries in Latin America, Africa and Asia. According to PROENÇA (1999): "Until very recently, a respectable slice of the Christian



church pushed all the beatitudes into heaven and into eternity. It was said then that it was necessary to patiently endure present suffering ... The Theology of Prosperity is bringing the heavenly future to the earthly present. To eat the best food, to wear the best clothes, to drive the best cars, to have the best of everything, to acquire many riches, to never get sick, not to suffer any accident, to die between 70 and 80 years of age, to experience a good death." In addition to advocating material and physical success for all who believe, the Prosperity Theology, regards poverty as a curse because it understands that Jesus Christ became poor so that all people would be rich. To justify the cyclical crises and suffering of much of humanity, they redirect the guilt to Satan. Thus, being blessed does not depend on God, but on human action, through financial offerings, which function as a seed. The leader of the IURD theorizes the Theology of Prosperity as such: "The Catholic Church has always impregnated in the minds of people that wealth is evil and poverty is good. Do they want me to preach the "theology of misery"? [...] The objective (of building cathedrals) is to open the head of the poor that offers the little he has. In his house, he sits on the torn sofa or even on the floor. In the Church he is honoured. He has the right to sit in an upholstered chair, in an air-conditioned room and use a clean bathroom. He receives an exemplary service. I want to show that he is able to conquer great things, a better life. Such as saying: 'See the greatness of God. Your house is a shack. Look what God can do. The Igreja Universal also had its genesis in a shack, but look how it is today. You need to invest in this God "(TAVOLARO, LEMOS, 2007, p.208, 211). The financial offerings of the faithful to the church are seen as self-help and not for the church. It is clearly an 'Scratch my back and I will scratch yours' deal. If we bring offerings to God, we have the right to demand the fulfilment of His promises, because if "someone makes a financial sacrifice, God is left with no choice. He (God) has an obligation to respond, because it is His promise "(TAVOLARO, LEMOS, 2007, 207). It is the principle of "cash and carry". If one is faithful in the giving of tithes and offerings he has every right to demand God for blessings and prosperity, unlike the Christian theology of Grace, which is "an undeserved favour. The grace of God is extended to a sinful humanity by providing salvation and forgiveness through Jesus Christ who is not deserved and retaining the judgment that it is deserved "(MCKIM, 1996: 120). This doctrine ends up attracting the most deprived, socially fragile and immigrant sectors with integration difficulties. According to CAMPOS (1997, p. 162), in a study that sought to trace the profile of the faithful of the IURD, it was found that this group attracted mainly those who declared themselves dissatisfied with the current job or salary, and some were making "chains of prayers "(Neo-Pentecostal practice), demanding their rights as children of God.

### **3. THE PORTUGUESE REALITY**

In the Portuguese case, a country traditionally Catholic until the revolution of 25th April 1974, when democracy was restored and in part religious freedom, so-called Protestant and historical Pentecostal churches had been in place for decades. But it was not until the 1980s that neo-charismatic churches began to emerge, such as the Mana Church (1984), the Universal Church of the Kingdom of God (1989), the National Church of the Lord Jesus Christ (1994), International Grace of God Church ), the Comunidade Sara Nossa Terra (2001) Worldwide Church of God's Power (2008). The strong economic growth caused by the country's admission to the European Union in 1985 allowed the entry of large contingents of emigrants who began to arrive, a large part of which came from Brazil which led to the rapid establishment and expansion of various neo-charismatic groups in the country. According to RODRIGUES (2014), these groups target the segments of society that suffer most from social exclusion, such as middle-aged women, domestic women, the poor and uneducated, the retired, unemployed and Brazilian and Afro-Portuguese, many of them in an illegal situation. In a survey published by the newspaper "Expresso" in November 2013, 67% of those surveyed said that being

believers in God contributed to their happiness.<sup>1</sup> Another study (from IPAM - The Marketing School) reveals that the majority of Portuguese claim to be Catholic by family tradition and not by conviction, 45.8% say that they do it once a week.<sup>2</sup> BORGES (2016) argues that what people seek in religion is "Happiness, the ultimate Sense, salvation, full realization of their desires, in an eternally happy life" but also says that "religion is also a mix of good and evil, of grace and disgrace, of happiness and unhappiness, of goodness without limits", and that "religions and religious people have often contributed and still contribute to happiness in the fight for justice, in respect for human rights" (p. 230).

### 3.1. Social perspective

Since the Enlightenment (18th century), European churches have lost influence in societies in the face of secularization. In Portugal, where more than 80% of the population confess to Catholicism<sup>2</sup>, only the 1976 Constitution recognizes the liberty of religious freedom. By joining the European Community (1986), the country registers a significant migratory flow from Brazil and Portuguese ex-colonies, which contributed to the emergence of new churches or expansion of those already established, namely charismatic/neo-Pentecostal, a phenomenon that has given rise to a plurality of new beliefs. In the case of Brazilian immigration, one of the largest foreign communities in Portugal, the churches played an important role in enabling these immigrants to maintain their ethnic-religious identity. Most were young unskilled workers, many of whom were in an illegal situation, with low level of schooling and working in the informal economy (construction, domestic service, cleaning, catering and coffee shops). This migratory flow included Neo-Pentecostal missionaries who also arrived here, with the aim of developing proselytizing actions among their compatriots, but also with Africans and Portuguese.

### 3.2. Psychological perspective

The relationship between mental health and religion has almost always been difficult throughout history. Freud described religion as a universal obsessional neurosis, by requiring the individual to sacrifice his pleasures to the deity. But more recent research has shown that "individuals with deep religious faith in reality seemed to cope better with life's stresses, recover more quickly from depression, and exhibit less anxiety and other negative emotions than less religious people" (BRISSOS, 2015). In fact, studies show that people who regularly attend religious services and actively participate in them are more satisfied with life, as the social experiences of religious communities promote a sense of happiness and satisfaction. As such, there seems to be a strong correlation between religion, happiness, and physical/psychological health. Perhaps this is why it is possible to understand that the neo-charismatic proposals of quick and almost magical solution to all problems of life, be it health, possessions, personal or business relations, constitute an irresistible attraction for those who are in a state of physical, emotional and psychic fragility, and affirm themselves as a reason for hope of achieving happiness and well-being. What we mean by happiness is the satisfaction of the having good health, the normalization of troubled personal, conjugal and family relationships as well as material goods. The greater and faster the pleasure, the more one affirms to experience feelings of well-being and peace. Unlike some Christian churches, the relation of Neo-Pentecostalism to the economy is much more secularized. Money and wealth are not demonized since people's happiness also engages with the possession of material goods. However, many who hope to be financially successful will sooner or later find that the reality is quite different. The gospel of prosperity deceives many people, extorting them from their scarce resources and alienating

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<sup>1</sup>EXPRESSO - Afinal somos felizes. [Em linha]. 20-03-2014. [consult. 2017-06-01]. Disponível em:  
<URL:<http://expresso.sapo.pt/multimedia/afinal-somos-felizes=f861622>>

<sup>2</sup> INSTITUTO NACIONAL DE ESTATÍSTICA – Censos 2011. [Em linha]. [consult. 2017-06-04]. Disponível em:  
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them. For those facing unemployment, precarious work and debts, a plan of financial sacrifice is prescribed as a solution, presented with aggressiveness, persuasiveness and insistence on the part of these religious leaders. However, in research conducted at the Universidade Lusófona in 2017 (RAFAEL, p. 117), few believers in the neo-Pentecostal groups say they are happy and at peace (21% of participants). Leaders insist on the idea that health and prosperity can only be achieved through a system of exchanges with God by offering cash offers to these religious institutions. If it does not turn out within expectations, then the burden falls exclusively on the faithful, for God never fails his promise to bless those who are faithful to him, and lack of faith is seen objectively as an offense against Him. If these groups sell illusions, it is also true that many who resort to these religious services do so out of greed and are enticed by consumerism and a certain idea of ease, without much effort or work. However, the paradise idealized in heaven, now brought to earth through the Prosperity Theology and neoliberalism, proves to be utopian and impossible to attain.

#### **4. RELIGION, ECONOMY AND THEOLOGY**

Since the fall of the Berlin wall, we have witnessed a process of rapid propagation of neoliberalism: a doctrine that proposes a set of political and economic ideas that defend the State's non-participation in the economy and the lifting of all trade restrictions in order to promote economic growth and social development. These policies result in labour market flexibility and privatization of public enterprises, as well as the end of economic protectionism and a drastic reduction of taxes. It is curious to note that the development of globalization and neoliberalism is coupled with the growth of the Prosperity Theology, occurring since the 1980s in Latin America while its countries were under pressure from the International Monetary Fund (IMF) and of the World Trade Organization (WTO) to adopt neoliberal economic policies. According to RAFAEL (2017): "Jesus' message about riches and money, as told in the Gospels, is quite clear. Although he had been involved in the use of money and allowed others to support him monetarily (Luke 8:3), his warnings about becoming a slave to riches are known: "No man can serve two masters: for either he will hate the one, and love the other; or else he will hold to the one, and despise the other. Ye cannot serve God and mammon." (Matthew 6:24). Luke even accuses the Pharisees, one of the Jewish religious groups, as "friends of money" (Luke 16:14). In the Gospel of Mark we see Jesus sending his disciples without money (Mark 6: 8) and even expelling those who engaged in the money trading activity with the prophetic sense of "cleansing" the sanctuary of God (Mark 11:15 -19). There are also other passages in which Jesus confronts those who had possessions, saying of how difficult it would be for a rich person to enter the Kingdom of Heaven (Luke 18:24, Mark 10: 17-27) " (p.57-58). In the famous Lord's Prayer taught by Jesus to the disciples, basic human needs are supplied from a communitarian or collective perspective, and never for personal gains (the Father is "our" and not "my") but also solidary (bread is "our" and not "my") and daily: "Give us this day our daily bread." (Matthew 6:9-13), leading us to depend on God at every moment. And Jesus also warns those who accumulate riches and forget the fragility of life (Luke 12:16-21). Neo-Pentecostals work according to a market sense, putting the focus on the present, on the "here and now". "They sell" happiness and well-being in all dimensions of physical, mental or emotional life, against the passive acceptance of the suffering assumed by traditional theology.

#### **5. CONCLUSION**

But perhaps, the secret of personal well-being lies in the other and not in the satisfaction of one's own ego. REAL (2013) believes that: "In the future, THE OTHER, , will be established as the first, as a central ethical point and the ultimate criterion of personal happiness. In this sense, they are equally rescued in peace (it is the only way of doing so without the radically challenging Nietzsche, Freud and Foucault), without violent revolutions, only following the

social changes provoked by the third industrial revolution (information technologies), the old ethical values (without a religious charge, but rather only a human one) that have made Europe the most important continent of the last 3,000 years: the value of solidarity, fellowship, unconditional friendship, cooperation among peers, loyalty and fidelity, the ancient and ever-present Christian humanist values of mercy, charity and piety, now more properly referred to as social assistance, solidarity and cooperation, vicarious community values of brotherhood and inter-faith, Confucian values of respect and veneration for ancestors and hierarchy not imposed on merit and competence, and the Buddhist values attached to the compassion as a commotion for the other's fate "(p. 25). In early Christianity we find the first communities of shared community life in which each one's interest was that of the neighbour and of the community in general, never the individual<sup>3</sup>. It is undeniable that the proposal of Jesus Christ has been adulterated throughout history, but especially in these times when savage neoliberalism and super-individualism have been schooling in various religious groups, including in neo-Pentecostals. The practical influence of neo-Pentecostal groups functions in society as a temporary "placebo effect," which ends in frustration, economic disorganization of individuals and families, and economic costs, given the "deviation" of large sums of money to organizations operating as uncontested multinationals without taxation. That is, without contributing to the common effort of citizenship that is the payment of taxes in the name of a religious activity, they are only of facade, given the clear evidences that we have shown, since the contributions of the faithful are transferred to the acquisition of assets that are acquired in the personal name of the managers of such organizations. In the case of immigrants, such a religious practice serves them as a medium of temporary hope, in transit to other European countries that offer a more attractive labour market, not contributing to social or economic sustainability. It is time, in strict respect to the principle of religious freedom and secular vocation of democratic and civilized states, to learn how to deal with these social scourges that contribute nothing towards social, economic and psychological sustainability, and the well-being of the people.

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<sup>3</sup>Acts 2:42-45; 4:32-35. "And all that believed were together, and had all things common;," "And the multitude of them that believed were of one heart and of one soul: neither said any of them that ought of the things which he possessed was his own; but they had all things common.," "Neither was there any among them that lacked: for as many as were possessors of lands or houses sold them, and brought the prices of the things that were sold, And laid them down at the apostles' feet: and distribution was made unto every man according as he had need.

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## ACTIVE LABOUR MARKET POLICIES IN SLOVAKIA IN 2007–2017

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### ABSTRACT

*The research analyses the performance of active labour market policies (ALMP) in Slovakia in 2007–2017. We found limited evidence of the economic efficiency of the ALMP in Slovakia. We quantify the relative importance of the ALMP compared to other factors for the employability of job seekers. ALMP performance relates to a host of external factors, such as business cycles, the number of local job vacancies, discrimination towards some ethnic minorities, and levels of regional development. We examined the success of the ALMP via logistic regression. The regression analysis concentrated on job seekers' rate of repeated registration with the Central Office for Labour, Social Affairs and Family (COLSAF). Males were less likely to re-register with the COLSAF. Older job seekers were more likely to re-register. Education was an extremely important factor of employability. The negative coefficient for the educational level indicates that job seekers with the lowest level of education had the highest chance of re-registering. The positive coefficient for the length of instruments implies that job seekers with long stays in the ALMP instrument(s) were more likely to re-register. As for the specific ALMP, education, age, regional development levels and the situation in regional labour markets were important predictors of repeated registration with the COLSAF. The highest beta values for the GDP growth rates were associated with instruments aimed and retraining. These instruments operated in a period of an economic boom (2014–2016). The business cycle was important for ALMP performance. Future ALMP will have to address challenges different from those in the 1990s and 2000s. The policies oriented towards labour supply would rise in importance. The future application of ALMP will be subject to (1) their economic and social efficiency, (2) demographic developments in the labour market, and (3) structural changes in the Slovak economy.*

**Keywords:** *active labour market policies, business cycle, regional labour markets*

## 1. INTRODUCTION

### 1.1. Determinants of ALMP performance: Literature review

The active labour market policies (ALMP) are public interventions with the aim of increasing the 'ability and willingness of the unemployed to take jobs' (Nickell et al., 2001). The ALMP try to address labour market failures. Some failures may originate in the imperfect matching of supply and demand in the labour market. There can also be mismatches between skills and competences possessed by workers and those demanded by employers. Occupational and geographical barriers may prevent workers from finding suitable jobs.

Well-designed ALMP instruments may help overcome the abovementioned market failures and improve the efficiency of the labour market. Advanced OECD and EU member countries have implemented hundreds of ALMP instruments over the last six decades (Bonoli, 2010; Calmfors et al., 2002). Holding down unemployment, in general, in recessions became the ALMP's main common theme. Its average annual expenditure amounted to 1.86% GDP in the EU 28 in 2007-2012 (Eurostat, 2018a). Evidence of the ALMP's effect on unemployment, however, is inconclusive (Escudero, 2018; Vooren et al., 2018). Some EU member countries cope with persistently high unemployment rates. The high costs of the ALMP provoke debate about what works (Brown & Koettl, 2015; McKenzie, 2017). Several large-scale meta-analyses pointed to certain factors regarding ALMP performance. These relate to ALMP design, target groups, duration of public intervention and form of financial support. The best results were found for ALMP targeting the accumulation of human capital (classroom and on-the-job training programmes) (Kluve, 2010; Card et al., 2010). The ALMP assisting job search and matching the labour supply with demand had the most positive impacts in the short-term perspective (up to 1 year). Subsidised jobs within the public sector had poor results in the short-term perspective (Card et al., 2010) but somewhat better outcomes in the long-term perspective (Vooren et al., 2018). High rates of youth unemployment prompt policy makers to design ALMP instruments for graduates. There is little evidence of the success of these ALMP instruments. ALMP designed for younger people tended to be less effective than untargeted programmes (Kluve, 2010; Caliendo & Schmidl (2016). The ALMP also performed poorly for job seekers with physical and mental health conditions (Martin, 2015). Business cycles seem important for the ALMP performance. The best results were found where participants were 'enrolled in a program during a downturn and exited the program during a period of favourable economic conditions' (Card et al., 2017, p.34).

## 1.2. Research hypotheses and data sources

This paper analyses the performance of the key ALMP instruments in the Slovak Republic. We employ a unique database with 4.7 million registrations and 1.9 million job seekers. We firstly use the literature review to identify the main correlations of the ALMP performance in the EU and OECD countries. The ALPM performance in Slovakia is analysed via the logistic regression. Finally, the measures of variability are used to identify key patterns of ALMP performance on the regional levels. The concluding part of the paper deliberates on the main findings and formulates some policy recommendations. The paper makes some original contributions:

- We use the largest dataset so far to analyse ALMP performance over 10 years in Slovakia
- We aim at complex assessment of the ALMP performance. Except for the standard socio-demographic variables, the role of external factors (business cycle) is taken into account in the analysis
- We analyse the structure of regional labour markets and examine its impact on success or failure of specific ALMP.

Three hypotheses are proposed:

H1: the ALMP performance depends on the socio-demographic attributes of ALMP participants

H2: the ALMP performance varies with each business cycle

H3: the ALMP performance strongly depends on the structure of the regional labour markets.

## 2. ACTIVE LABOUR MARKET POLICIES IN SLOVAKIA

There was substantial financial support to ALMP in Slovakia. There, the total expenditure on 32 ALMP instruments amounted to €1,151.71m in 2010–2017 (Figure 1). Yet, access to ALMP was limited to Slovak job seekers.

Some 20% of the total unemployed participated in the ALMP in 2007-2017 in Slovakia. Some population groups (e.g. members of marginalised Romani communities) had quite limited access to the ALMP. It follows that the majority of jobs were created by market forces, while ALMP had only a complementary role in Slovakia's job creation. Over time, the structure of ALMP spending has changed in Slovakia (Figure 1). Instruments promoting self-employment and subsidies for traineeships after graduation decreased in importance. Support was channelled to job subsidies: training, re-training, courses and job matching became prominent in the total spending in the late 2010s. Modification of ALMP structure reflected change in business cycles, structural changes on labour markets and legislative changes suggested by the European Commission. The ALMP instruments promoting self-employment were widely supported in a period of economic crisis (2010-2012). The European Commission drew attention to young people's high unemployment rate and invited member countries to implement instruments targeting jobs for graduates. In Slovakia, the ALMP instruments targeted two broader categories of job market: A) the increase in employment and employability (85.4% of the total job seekers and 74.9% of the total spending) and B) supporting job retention (14.6% of job seekers and 25.1% of ALMP spending). The first category aimed at the open labour market, while the second concentrated on support to the protected labour market. The ALMP in category B, for example, supported protected workshops for handicapped people. The ALMP in this category resembled social programmes more than interventions in the labour market. These ALMP, therefore, were excluded from further analysis. The Slovak ALMP instruments are labelled according to specific Sections of the 5/2004 Law on Employment Services. We analysed eight major ALMP instruments category (A): (i) Sec. 49 Promotion of self-employment, start-ups; (ii) Sec. 50i-j Subsidised jobs with local governments; (iii) Sec. 51 Subsidised traineeships after graduation; (iv) Sec. 52 Public works; (v) Sec. 52a Public works based on voluntarism; (vi) Sec. 54 National projects, mostly on job subsidy; (vii) Sec. 54 REPAS Retraining and courses; and (viii) Sec. 54 BAZ Matching and training. The abovementioned eight ALMP instruments accounted for 81.8% of the total spending on the ALMP in category (A) in the period 2010–2017. Data for the analysis was provided by the Central Office for Labour, Social Affairs and Family of the Slovak Republic (COLSAF). The COLSAF databases provided (1) individual data on 4,701,446 registrations by 1,857,616, job seekers for 2007-2017; and (2) data on 1,576,080 registrations by 658,110 job seekers allocated to ALMP. A job seeker could have multiple registrations with the COLSAF. Some job seekers were assigned to one or more ALMP. We performed logical and formal checks on the COLSAF database. Data on parallel registrations, registrations with 0 days spent in the ALMP instruments, and/or registrations where the age of the job seeker was lower than 15 years and higher than 62 years, was excluded from the analysis. Data on 3.2 million registrations was used for further analysis.

*Figure following on the next page*



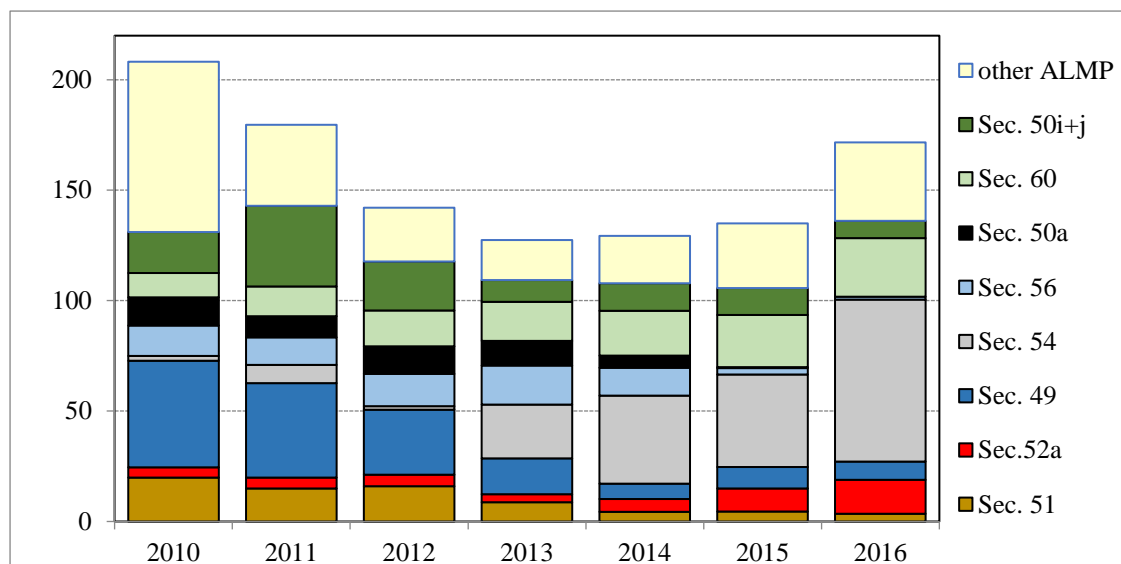


Figure 1: Structure of financial support to the major ALMP instruments in Slovakia (€m) (The COLSAF and authors' computations source)

### 3. PERFORMANCE OF ALMP AT A NATIONAL LEVEL

The performance of the ALMP was examined via logistic regression. In an ideal case, the ALMP success or failure would be measured via a job seeker's ability to find a job. The COLSAF database does not indicate whether or not a job seeker found a job after participating in the ALMP. The database indicates only whether or not the job seeker re-registered with a regional COLSAF office after a specific period of time. A repeated registration indicates that a job seeker failed to find employment<sup>1</sup>. The dependent variable, therefore, was the repeated registration by a job seeker after one year of participation in one of the eight ALMP (0 = no, 1 = yes). The choice of independent variables was guided by findings from major international studies. The following predictors were chosen to explain patterns of repeated registration (Table 1):

- Standard socio-demographic predictors: gender (male = 0, female = 1); education (ISCED levels 0-5); and age (years)
- Number of days spent in an ALMP instrument
- GDP growth rate of annual change in per cent (proxy for the business cycle)
- Structure of regional job markets: (a) regional unemployment rates; (b) regional ratios of job vacancies per one unemployed; (c) number of firms per 1,000 population (proxy for economic development); (d) share of Roma population in total population (proxy for the potential discrimination on labour market); all regional variables were computed on the level of 79 Slovak districts
- Dummy variables for participation in one of the eight ALMP instruments (Sec. 49, Sec. 50ij, Sec. 51, Sec. 52; Sec. 52a; Sec. 54; Sec. 54 BAZ and Sec 54 REPAS).

We performed pairwise correlation analysis for independent predictors, to avoid potential problems with multicollinearity. The Pearson correlation coefficient for regional unemployment rates and share of Roma population in the total population was 0.784. We excluded the variable on the Roma population from further analysis.

<sup>1</sup> Dropping out of the COLSAF database does not necessarily mean that a job seeker found a job. S/he may have dropped out of the database either because of natural causes (death, retirement, pregnancy) or because of non-co-operation and non-compliance with the provisions of the 5/2004 Law on Employment Services. The COLSAF annual reports state that finding a job was behind 63.8 – 67.2% of the total dropouts in 2010-2017. Other job seekers dropped out of the COLSAF database for natural and legal causes. Source: COLSAF.

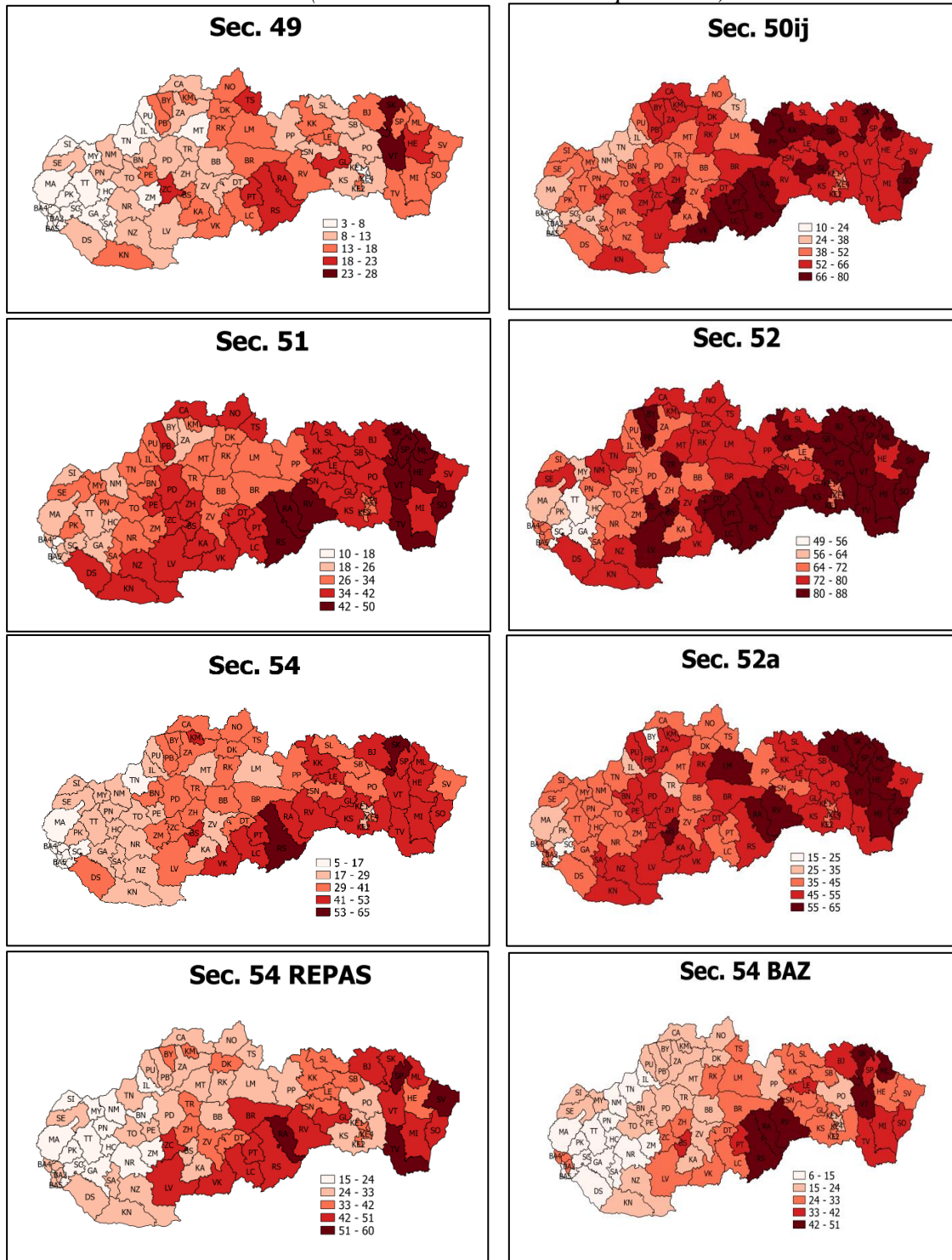
*Table 1: Logistic regression for ALMP performance (authors' computations)*

	<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	<i>Exp(B)</i>
APTP length in days	0.002	0.000	102276.27	1	0.000	1.002
gender	0.071	0.003	595.54	1	0.000	1.074
education	-0.170	0.001	13024.09	1	0.000	0.844
age	0.001	0.000	18.59	1	0.000	1.001
GDP growth rate	-0.009	0.001	289.86	1	0.000	0.991
Sec. 49 promotion of self-employment	-1.238	0.016	5999.60	1	0.000	0.290
Sec. 50i+j subsidised jobs, local govt.	0.387	0.010	1633.63	1	0.000	1.472
Sec. 51 traineeships after graduation	0.168	0.006	822.86	1	0.000	1.182
Sec. 52 public works	0.641	0.005	16570.65	1	0.000	1.899
Sec. 52a public works and voluntarism	0.258	0.007	1204.06	1	0.000	1.294
Sec. 54 job subsidy	0.027	0.010	6.96	1	0.008	1.028
Sec. 54 BAZ matching and training	0.019	0.014	1.98	1	0.159	1.020
Sec. 54 REPAS retraining and courses	-0.073	0.019	14.37	1	0.000	0.930
unemployment rate	0.030	0.000	15788.41	1	0.000	1.030
businesses per 1000 population	-0.003	0.001	24.89	1	0.000	0.997
job vacancy per unemployed ratio	-0.164	0.006	833.76	1	0.000	0.849
constant	-1.610	0.008	42596.40	1	0.000	0.200
N = 3,264,814	Nagelkerke R Square = 0.273					

*Notes: Model summary: Chi-square 671,977.62; -2 Log likelihood = 3,070,666.32*

*Figure following on the next page*

Figure 2: Performance of the ALMP on regional level. Percentages of re-registrations.  
 (COLSAF and authors' computations)



Notes: period averages of 2007-2017

The repeated registration with the COLSAF was associated with job seekers' participation in six out of eight ALMP instruments (Sec. 50ij, Sec. 51, Sec. 52 and Sec. 52a; Sec. 54 and Sec. 54 BAZ). It means that job seekers assigned to the ALMP instruments for regional employment, public works, job subsidies, job matching & training and traineeships for graduates were more likely to fail in the labour market than job seekers with no history of ALMP participation. Only two ALMP instruments were negatively associated with repeated registration with the

COLSAF: Sec. 49 (promotion of self-employment) and Sec. 54 REPAS retraining and courses. The former instrument forced the unemployed to establish their own personal businesses. Most participants probably succeeded in their businesses and earned enough money to not claim unemployment benefits. The success of the latter instrument is probably explained by pre-arranged jobs that the job seekers had with their prospective employers. The employers simply benefitted from state-sponsored training courses. The rather poor performance by most ALMP instruments is not so surprising. The majority of job seekers found their jobs on the open labour market. Job seekers assigned to the ALMP instruments usually failed to find a job through their own efforts. It means there was a negative self-selection for participation in the ALMP. A job seeker had to wait for several months to apply for participation in an ALMP instrument in Slovakia. The socio-demographic attributes of participants were important for the ALMP performance (Hypothesis 1). The COLSAF database indicated that the ALMP participants accounted for lower levels of education than the rest of the job seekers. A negative sign and high values of the  $B$  and Wald coefficients indicate that education ranked as the most important predictor of repeated registration with the COLSAF: the higher the level of education, the lower probability of repeated registration. A positive sign of the  $B$  coefficient for gender implies that males found it easier not to return to the COLSAF office. The  $\text{Exp}(B)$  coefficient implies that females had a 7.4 per cent higher chance to re-register than males. Age was positively related to the repeated registration but the value of the  $B$  coefficient was low. The negative sign for the GDP growth suggests that the business cycle is important for the ALMP performance. The higher growth rate, the lower the probability of repeated registration (Hypothesis 2). As for the structure of regional labour markets, high unemployment rates were positive, while business density and ratio of job vacancies per one unemployed were negatively associated with repeated registration (Hypothesis 3). Values of the  $B$  and Wald statistics indicate that regional unemployment rates and scarcity of job opportunities were much more important for repeated registration than the business density.

#### **4. PERFORMANCE OF ALMP ON REGIONAL LEVEL**

The ALMP impact on regional levels was measured via the repeated registration rate with regional branches of the COLSAF. The repeated registration by ALMP participants indicates the failure to find a job. Figure 2 presents regional rates of repeated registration for each of the eight ALMP. Table 2 specifies regional variability in 'failure rates' for eight ALMP instruments. Measures of variability indicate how expansive of the group of scores is. We use average, median, standard deviation, minimum, maximum and coefficient of variation to measure variability in 'failure rates' in 79 Slovak districts.

*Table following on the next page*

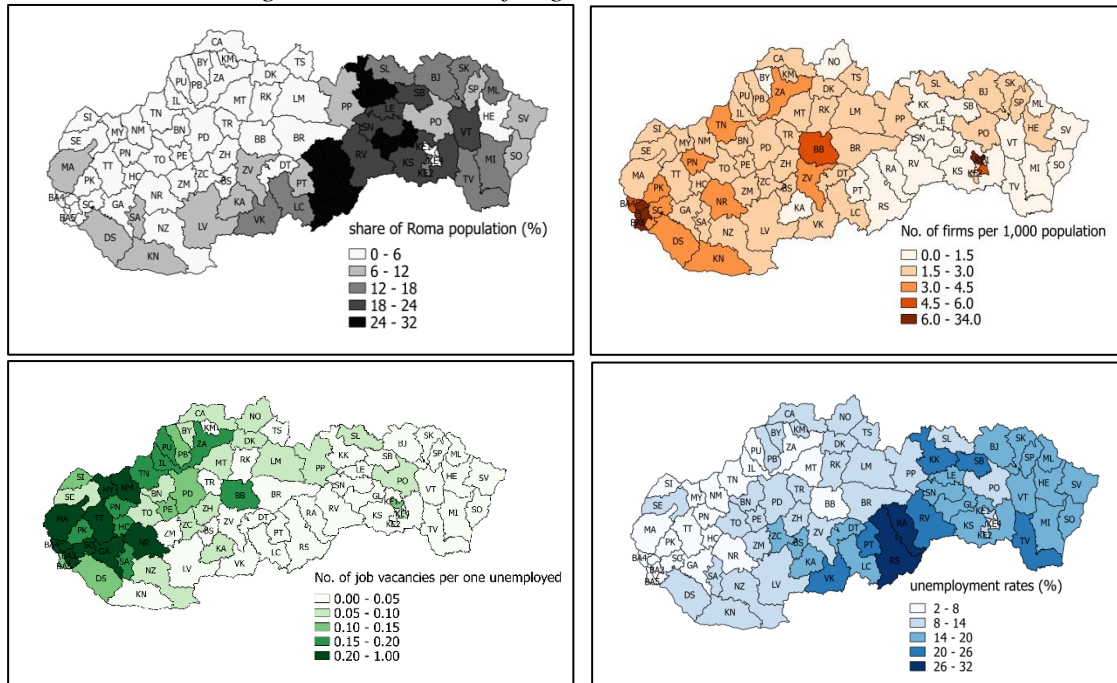
*Table 2: Regional measures of variation for repeated registrations by participants in ALMP instruments (Authors' computations, based on the COLSAF database)*

ALMP instrument	average	median	st. dev	coefficient of variation	min	max
Sec. 49 Promotion of self-employment, start-ups	12.08	11.55	4.96	41.09	4.85	25.42
Sec. 50i+j Subsidised jobs with local governments	50.93	53.58	15.80	31.02	10.00	79.92
Sec. 51 Subsidised traineeships after graduation	32.73	33.84	8.03	24.54	12.74	48.40
Sec. 52 Public works	74.66	75.75	7.89	10.57	49.48	86.70
Sec. 52a Public works based on voluntarism	45.87	46.12	9.24	20.15	16.67	64.81
Sec. 54 National projects, mostly on job subsidy	32.05	30.94	11.50	35.87	8.05	61.48
Sec. 54 REPAS Retraining and courses	33.75	32.38	9.98	29.56	15.79	58.33
Sec. 54 BAZ Matching and training	24.60	23.16	9.55	38.82	6.84	50.63

The coefficient of variation is the ratio of the standard deviation ( $\sigma$ ) to the mean ( $\mu$ ). This standardised measure of the probability distribution is expressed as a percentage. High values of the coefficient of variation indicate high heterogeneity in ALMP performance among 79 districts. Low values of the coefficient imply that the ALMP performance was not particularly different between 79 districts. The highest values of the variation coefficient were found for ALMP instruments implemented under the sections 49, 50i+j, 54 and 54 BAZ of the 5/2004 Law on Employment Services. These four ALMP instruments accounted for generally low national rates of repeated registrations, but regional rates of the repeated registrations with the COLSAF offices varied significantly among 79 Slovak districts. The instrument implemented under the section 50i+j, for example, had low rates of repeated registrations in the western area of Slovakia, but high rates in the eastern and southern parts of the country. The ALMP instruments implemented under the sections 52 and 52a (public works) had generally high rates of repeated registrations in all Slovak districts. It means that job seekers participating in these two ALMP instruments had a more or less equal chance to re-register with regional branches of the COLSAF office. The regional rates of repeated registrations were impacted by (i) the composition of target groups in specific ALMP instruments and (ii) the structure of regional job markets. The generally poor performance of ALMP implemented under the sections 52 and 52a relates to their target groups. Both the Section 52 and Section 52a instruments had strong social components. The former instrument targeted job seekers with the lowest level of education and limited (if any) employment history. The low-threshold instrument was relatively easily accessible for members of the marginalised Romani communities. The latter measure frequently involved training handicapped people in the open labour market. Handicapped people found it quite difficult to find employment outside of protected workshops in Slovakia.

*Figure following on the next page*

Figure 1: Structure of regional labour markets in Slovakia



Notes: period averages of 2007-2017

Figure 3: Structure of regional labour markets in Slovakia (Statistical office of the Slovak Republic; COLSAF and authors' computations)

The structure of regional labour markets was determined by their geographical location, level of economic development, demographic developments and ethnic composition of job seekers. Many districts in southern and eastern parts of Slovakia suffered from peripheral location and poor transport connections with metropolitan areas. The peripheral districts attracted very low (or an absence of) foreign direct investment and low density of businesses (Figure 3). The supply of job vacancies was much lower in southern and eastern Slovakia than in the western part of the country (Figure 3). The same districts usually accounted for higher shares of the Romani population. The Romani job seekers frequently faced discrimination in the Slovakian labour market. Rates of repeated registration were therefore much higher in poor districts with a low supply of job vacancies than in rich districts with a high supply.

## 5. CONCLUSION

The performance of the ALMP policies was, at best, mixed in the period 2007-2017 in Slovakia. Two out of eight analysed ALMP instruments decreased the probability of repeated registration by job seekers with the COLSAF. To a large degree, the ALPM performance depended on (a) socio-demographic attributes of job seekers and (b) the structure of regional labour markets. The job seekers with secondary and higher education, and those living in the western part of the country, had the lowest probability of repeated registration. Participants in Section 52 had the highest probability of repeated registration with the COLSAF office. As noted by Vooren et al. (2018), repeated registration may result in the 'lock-in effect'; i.e. decreasing willingness to engage in active job searches. High rates of repeated registrations, however, do not necessarily mean that this ALMP instrument did not work at all. The instrument was designed for people with low levels of education, who found it very difficult to apply for any other form of employment. Programmes developed under Section 52 were very cheap. Average costs per participant were a mere €175, compared to €805 per participant in the Section 51 instrument

(traineeships) and €3.367 per participant in the Sec. 49 (self-employment)<sup>2</sup>. Also, work provided under Section 52 instrument was much cheaper than work commissioned on a contractual basis. Some ALMP instruments also had important non-economic benefits. Instruments implemented under Section 50i+j, Section 52 and Section 52a, for example, helped to create and/or sustain job seekers' working habits. The low-threshold ALMP instrument Section 52 promoted social and employment inclusion of the Romani community. The non-economic benefits should be kept in mind when assessing the efficiency of the ALMP instruments. There were some important differences in the structure of the ALMP instruments in Slovakia and developed EU member countries. In advanced economies, the ALMP instruments targeting human capital rank to the best performing labour market policies (Card et al., 2010). Slovakia had quite low shares of ALMP expenditure oriented on education and building human capital. There was a significant increase of expenditure on short-term courses, training and re-training (Sec. 54, Sec. 54 REPAS) in Slovakia in the late 2010s. However, there were no ALMP instruments targeting education and the long-term building of human capital. Slovakia also ranks in the EU member countries with the lowest levels of participation in life-long learning (LLL). The participation rates in LLL were 10.8% in the EU28, but 3.4% in Slovakia in 2017 (Eurostat, 2018b). Support to LLL and the long-term building of human capital is of special importance to Slovakia. The Slovak economy is heavily dependent on manufacturing industries and car exports. According to the OECD forecasts, Slovakia has the highest share of jobs endangered by the mass introduction of robots (33%) among the OECD member countries (Nedelkoska & Quintini, 2018). Rapid population ageing is another challenge for Slovakia's future economic and social development. The Slovak Republic faced low birth rates and high emigration rates in young people. The elderly population will rise at a greater pace in Slovakia than in the developed EU in the next decades (EC, 2018). By 2017, unemployment rates hit a record low in Slovakia. The country has already coped with a lack of workforce. The majority of the ALMP instruments have been aimed at job creation and/or employment retention in the past, in Slovakia. Future ALMP instruments will have to address completely different challenges: the mitigation of population ageing and lack of workforce. The next-generation ALMP instruments will have to aim at (1) increasing employment rates by specific socio-demographic groups (women, elderly workers) and (2) the social and employment inclusion of marginalised communities.

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## CREATIVITY OF THE MANAGERIAL STAFF – POLISH EXPERIENCES

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### ABSTRACT

*The article is of a theoretical and experimental nature and its aim is to identify the conditions of creativity of the managerial staff. It has been recognised that creativity constitutes a key element in development of innovative enterprises. Creativity is presented as a specific form of organizational capital. The main research problem manifests itself in the question: what are the conditions and manifestations of creative behaviours of Polish managers? The research has been conducted among 86 middle and top level managers representing enterprises from all over Poland. On this basis, the final conclusions have been formulated, from which the most important indicate that the age of managers and their seniority are negatively correlated with the self-assessment of their creativity level. The research has also shown that there is no statistical connection between the creativity of managers and the number of their subordinates. Creativity is mainly used in the areas of: work organisation, employee motivation and task planning. Creative behaviours in an organization most significantly depend on the level of job satisfaction, opportunities for improvement and development and interpersonal relations. The assessment of the conditions of creativity of the managerial staff is determined by their age, seniority and also their gender.*

**Keywords:** *Creativity, Management, Managerial staff*

### 1. INTRODUCTION

Employee creativity is one of the most important management problems (Girdauskiene, 2013, p. 176). Its research attractiveness results from many premises. First of all, employee creativity closely fits into a trend of economy based on knowledge whose distinguishing feature constitutes an aspiration of enterprises to recruit employees possessing a set of competencies which is essential from the point of view of an organization. The most important challenges of management include stimulating and developing the creative potential of employees focused on building competencies, which distinguish the company, what in turn increases its resilience to unfavourable changes in a turbulent environment and constitutes a source of competitive advantage and value (Richtnér, Löfsten, 2014, p. 137). Creativity is most often identified with creative thinking. In this aspect, it is mainly presented as a source of new thoughts, reformulating the existing knowledge and analyzing assumptions in order to formulate new theories and paradigms (Rodhause, 2009, p. 117). The aim of the article is to identify conditions of creativity of the managerial staff. This formulation of the aim of the article results from the fact that despite a number of studies conducted on this subject, the problem of factors affecting the activation of the creative potential of managers still remains open (Marjolein, De Stobbeleir, De Clippeleer, 2014, p. 107; Bissola, Imperatori, 2011, p. 86; Moczydlowska, 2012, pp. 142-158). Moreover, the problem whether creative behaviour requires special motivational influences or, as it is evident from the cognitive evaluation theory (Moczydlowska, 2008, pp. 118-119), providing employees external motivators to strengthen actions taken initially under the influence of internal factors causes rejection or weakening of motivation for creative

behaviour is also still open. In this theory, the basic driving force of human behaviour is the confirmation of self-subjectivity, independence, autonomy and value. The article presents the following research problem: What are the determinants and manifestations of creative behaviours of Polish managers? The research is based on the assumption that if creativity is to translate into the company's performance, innovative products, innovative organizational or marketing solutions, a "creative" organization characterized by a pro-innovative organizational culture and motivating system taking into account incentives for creative behaviour must be created.

## **2. CREATIVITY AS THE CAPITAL OF AN ORGANIZATION**

In English-language literature (Bajer, R.T. Leenders, G.R. Oldham, A.K. Vadera, 2010, pp. 827-845), the equivalent of the Polish word *kreatywność* is creativity, which means both creativity and creation. Should these two concepts be treated as identical? It is so in many publications. Creativity and creation are defined as a mental process whose result is the emergence of new ideas, solutions, goods, products considered as new and useful (Wojtczuk-Turek, 2010, p. 47). Creative activity is a deliberate action. However, the purpose of the creative process is often unclear and unstable. It means that the goal can change during the creative process and thanks to the results of this process. Moreover, there are not any ready-made methods to achieve the goal in the creative process, so they must be worked out (Zdonek, Zdonek, 2015, p. 340). Therefore, creative works need a long and intense mental activity. In the opinion of the authors, it is more accurate to assume that creativity is a mental predisposition, personality trait of an individual signifying a predisposition for widely understood creativity. The creative process includes revealing, selecting, exchanging and combining facts, ideas and skills (Moczydłowska, 2011, pp. 52-61). What differentiates creativity from creation is the result of an action. The expression of creativity is the action having a creative value, however, it is not necessarily the product itself since creativity constitutes the conditioning of creation in a potential meaning. Therefore, like any potentiality, creativity requires a number of conditions to translate into creative, prolific results. In the opinion of T. M. Amabile (2014, p. 104), this justifies treating creativity as the resultant of interaction of intellectual competencies, creative talents, personality traits of individuals and widely understood socio-cultural and economic environment. Examples of circumstances favourable to creativity are: pro-innovative organizational culture or motivational system encouraging employees to develop and manifest creativity. The building of a pro-creative culture of an organization is supported by:

- eliminating the excessive control,
- loosening the rigid hierarchical structures,
- free flow of information,
- accepting and encouraging to take the risk,
- resignation from the immediate effects in favour of the results achieved in the long term,
- shortening the process of analyzing new ideas by people deciding about their implementation,
- recognizing and rewarding even new small solutions,
- caring about a good atmosphere in the employee team (Czerw, 2017).

Adherence to the above principles increases the probability of arising new solutions originating from the ingenuity and imagination of their creators. Creativity in management sciences is most often analyzed in the context of innovation and entrepreneurship. "Creativity is one of the qualities describing the individual characteristic of every entrepreneur, and its level is an important determinant of its innovation" (Karpacz, 2011, pp. 8-9). Creativity together with knowledge is even treated as a prerequisite for entrepreneurship understood as perceiving,

evaluating and using opportunities (Lumpkin, B.B. Lichtenstein, 2005, pp. 307-315). Creativity, as any kind of ability, raises discussions concerning its sources. On the one hand, an egalitarian concept is promoted: anyone can be creative, creativity is a continuous feature, i.e. employees can be creative on a different level and creativity itself can be developed. On the other hand, it is indicated that creativity has the innate nature, and this means that creativity is a "good" reserved for a few, exceptional people who got it in the process of inheritance. They should be recruited to the company in the course of a professional recruitment and selection process, and then conditions for improving their creativity and expressing creative abilities ought to be created for them. It seems that the resolution of this dilemma can be achieved by the adoption of a compromise solution, i.e. recognition that sources of creativity are both innate and environmental, however, it has to be humbly accepted that creativity cannot be learned. It is possible, though, to look for ways to activate this potential in relation to people who already have it, but for various reasons neglect, underestimate and do not use it to the extent to which they could. In this context, it is important that creativity correlates with a high level of initiative, openness to change and risk, an internal sense of control as well as taking pride in own productivity (Frese, Fayad, 2001, pp. 133-187). The analysis of the written works from the field of management sciences (Siedel, 2009, p. 408; Skrzypek, 2014, p. 176; Romanowska, 2001) allows for formulating the conclusion that there is a direct relationship between employee creativity and innovativeness of a company. Creativity is perceived as a specific "motor" for creating new ideas and concepts, as a source of useful and valuable products, services, ideas and procedures used by individuals cooperating with each other (Woodman, J.E. Sawyer, Griffin, 1993, pp. 293-321). It entitles to treat employee creativity in terms of a valuable capital of an organization and a condition for building a creative organization (Collins, 2012, p. 54).

### **3. ORGANIZATION OF THE SURVEY**

The authors of this article carried out a survey to achieve its purpose. The main goal of the study was to identify the conditions of creativity of the managerial staff of Polish enterprises and diagnose factors that determine creative behaviours in the workplace. The content of the above goal corresponds with the following main research problem: What are the determinants and manifestations of creative behaviours of Polish managers? The following specific objectives have been formulated for the instance of the main research goal:

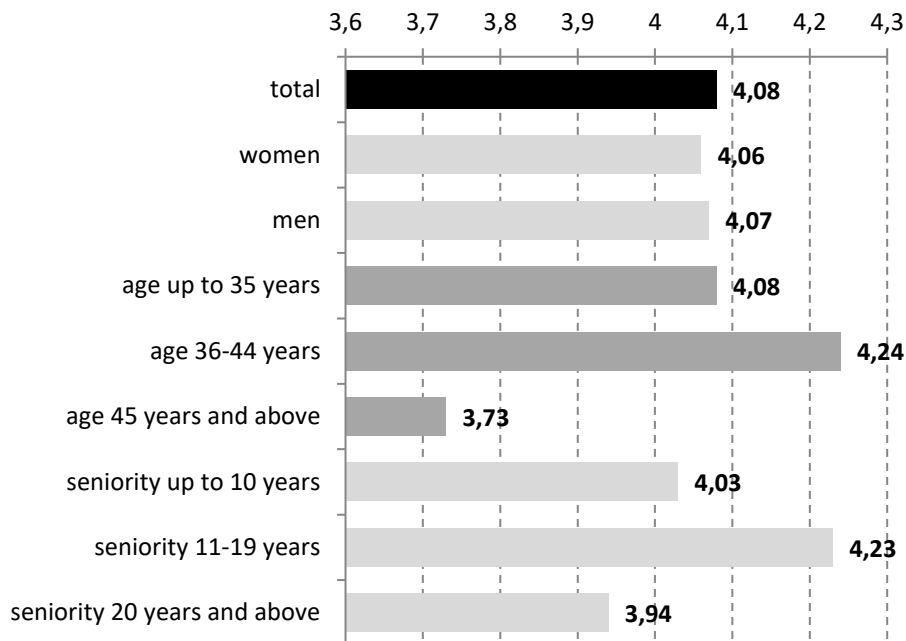
1. recognition of the self-assessment of the creativity level of the surveyed managers;
2. determining possibilities of using creativity in everyday professional activities;
3. identification of work areas in which managers exploit their creativity;
4. assessment of the impact of the distinguished factors on the possibility of developing creative behaviours.

Managers of the selected enterprises located in Poland constituted the research sample. In total, 86 managers participated in the study. The survey was conducted in April and May, 2017. The questionnaire consisted of four fundamental closed questions (including two evaluation scales from 1 to 5) and metrics. The majority of the respondents were men (61%) and people with higher education (88%). The average age of the respondents was 39.2, whereby the youngest surveyed manager was 24 years old and the oldest 53 years old. The seniority in a managerial position in the group of the respondents ranged between 2 and 35 years, with the arithmetic mean of 17 years.

### **4. PRESENTATION OF THE SURVEY RESULTS**

The first part of the survey determines, on the basis of nine supplementary statements, how highly the surveyed managers assess the level of their creativity. The arithmetic mean of all given marks constituted 4.08, on the scale from 1 to 5, which should be interpreted as quite a

high level of creativity. Figure 1 presents a detailed presentation of the self-assessment of creativity of the surveyed managers, including the division of the respondents into selected subgroups.



*Figure 1: Self-assessment of creativity of the managers, including the division into: gender, age and seniority in a managerial position (self-elaboration based on survey research)*

Referring to the data presented in Figure 1, it should be noted that in this case gender of the managers does not make any difference. A different conclusion should be formulated in the context of age and seniority of the surveyed managers. It turns out that the highest self-assessment of creativity characterizes staff aged 36-44 (mark 4.24) and moderately long seniority in a managerial position, between 11 and 19 years, (mark 4.23). On the other hand, the oldest managers and managers with the longest seniority in managerial positions assess their creativity relatively low (marks respectively: 3.73 and 3.94). On the basis of Figure 2, it can be stated that activity conditions of Polish enterprises do not limit creativity of the managerial staff. As many as 83% of the surveyed managers stated that they were able to use creativity in their daily professional duties. Only 3% of the respondents gave a negative answer (“rather not”), and none of them chose the answer “definitely not.” Analyzing the manifestations of creative attitudes of Polish managers, it can be noticed that they use creativity mainly in the area of work organization (67%) and motivating the subordinates (59%). Nearly every other surveyed manager has to be creative also during task planning (51%), resolving conflicts (49%) and building relationships within an organization (48%), as it is portrayed in Table 1. Thus, the issues related to employee management are the most frequently mentioned areas of work.

*Figure following on the next page*

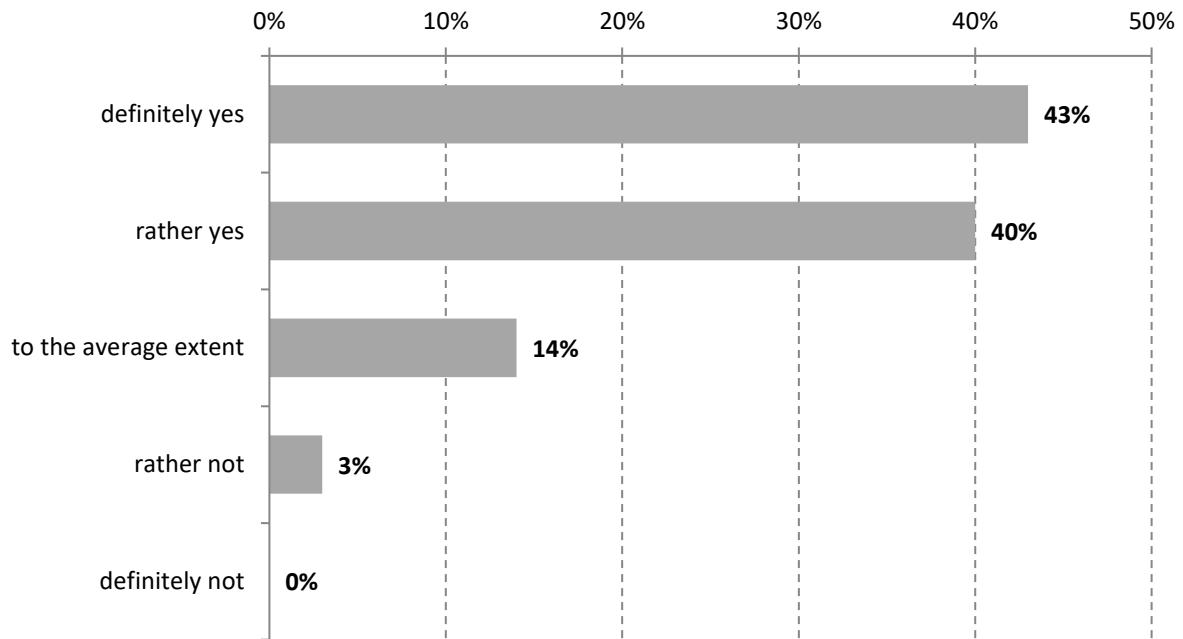


Figure 2: Assessment of the possibility of using creativity in the organization in which the manager is employed (self-elaboration based on survey research)

On the other hand, at the end of the profile in Table 1 there are the following work areas: production technology (10%), building relationships with suppliers (12%), acquiring staff (14%) and logistics (15%). It is difficult to consider the obtained results as surprising since they are the areas of management which, apart from the exceptional situations, should be formalized and based on proven procedures and schemes.

Table 1: Areas of work in which the surveyed managers use creativity (self-elaboration based on survey research)

o.n.	areas of work	number N=86	%
1	organization of work	58	67
2	motivating subordinates	51	59
3	task planning	44	51
4	resolving conflicts	42	49
5	building relationships in an organization	41	48
6	creating goals and development strategies	29	34
7	controlling and supervision	26	30
8	customer service	25	29
9	modification of the offer of products / services	23	27
10	marketing	16	19
11	logistics	13	15
12	acquiring staff	12	14
13	building relationships with suppliers	10	12
14	production technology	9	10

\* The presented values do not add up to 100% because it was a multiple-choice question.

The assessment of the determinants of creativity of the managers constituted another examined issue. On the basis of the data in Table 2, it is worth noting that the level of job satisfaction of the surveyed managers determines their creative behaviours. A strong influence on their creativity also have the issues such as: possibility of improvement and development, interpersonal relations and advancement of cooperation between employees. It is significant that the managerial staff subordinate creative behaviour to a higher degree to non-financial motivation (3.88) than to financial motivation (3.83). Generalizing the obtained answers, it is possible to state that the creativity of managers is determined by inter-organizational factors which are associated with fulfilling needs and achieving personal goals of employees as well as interpersonal relationships and the scale of cooperation between employees. The environment of the organization and material and organizational working conditions have the least influence on creativity.

*Table 2: Determinants of creative attitudes of the surveyed managers (self-elaboration based on survey research)*

<b>o.n.</b>	<b>the highlighted aspect of work</b>	<b>arithmetic mean (1 min – 5 max)</b>	<b>standard deviation</b>
1	level of job satisfaction	4,26	0,83
2	possibility of improvement and development	4,12	0,92
3	interpersonal relationships	4,08	0,92
4	scale of cooperation between employees	4,01	0,89
5	exchange of knowledge between employees	3,98	0,96
6	flow of information	3,95	0,83
7	non-financial motivation	3,88	0,92
8	possibility of group work	3,85	0,93
9	way of managing the entire organization	3,84	1,07
10	financial motivation	3,83	1,06
11	work organization	3,81	0,78
12	material working conditions	3,65	0,93
13	specificity of business activity	3,48	0,98
14	pressure of customers and / or competitors	3,34	1,10

The deepened analysis of the obtained results, presented in Table 3, shows that the self-assessment of creativity of the surveyed managers is slightly negatively correlated with their age and seniority. This means that the younger the managers are, the higher they evaluate their creativity. The number of subordinates does not indicate a significant, statistical relationship with the self-assessment of creativity.

*Table 3: Correlation coefficient of self-assessment of creativity of the surveyed managers with their age, seniority and number of subordinates (self-elaboration based on survey research)*

<b>group</b>	<b>self-assessment parameter</b>		
	age	seniority	number of subordinates
total	- 0,17	- 0,14	0,03
women	- 0,24	0,04	0,00
men	- 0,14	- 0,19	0,06

Gender of the surveyed managers slightly differentiates the obtained results. It turns out that the women in managerial positions subordinate, to a greater extent than the men, the assessment of their creativity to the age. On the other hand, the parameter of seniority, in their case, remains almost without influence on self-assessment. This cannot be said about men performing managerial functions because their self-assessment shows a noticeable negative relationship with seniority. The division of the surveyed managers into: gender, age and seniority in managerial positions allowed to formulate additional conclusions. Table 4 shows how the ranking of work areas, in which the respondents use creativity, changes taking into account the above parameters. To simplify the analysis, items that deviate noticeably from the results of the entire surveyed population are highlighted with colour. Moreover, the character of this difference has been determined with (+) and (-) signs, where the plus (+) means a significantly higher position, and the minus (-) means a significantly lower position in the ranking. Referring to the data in Table 4, it can be noticed that the differences are not very essential and only relate to a few areas of work. The women in managerial positions, more often than the men, use their creativity to modify the company's offer and for the selection of employees, what may be justified by the specificity of the occupied positions. The respondents in the youngest age group relatively rarely rely on their creativity in formulating goals and strategies. This also concerns the managers with the shortest seniority, what may result from the decision-making constraints, i.e. a situation in which formulating strategies does not belong to their responsibility or the goals are top-down determined. The managers holding managerial positions for a maximum of ten years quite often use creative behaviour for the needs of customer service and logistics. The oldest managers are distinguished by their creativity in the area of production technology development.

*Table 4: Areas of work in which the surveyed managers use creativity with division into: gender, age and seniority (self-elaboration based on survey research)*

o.n.	areas of work – general results	gender		age (years)			seniority (years)		
		W	M	-35	36-44	45+	-10	11-19	20+
1	organization of work (OW)	MS	OW	OW	MS	OW	OW	OW	OW
2	motivating subordinates (MS)	OW	TP	MS	OW	TP	MS	MS	MS
3	task planning (TP)	RO	MS	TP	RC	MS	TP	RC	TP
4	resolving conflicts (RC)	RC	RC	RC	TP	RO	RO	TP	RO
5	building relationships in an organiz. (RO)	TP	RO	RO	RO	RC	CSe+	RO	RC
6	creating goals and strategies (CG)	MO+	CG	CSe	CG	CG	RC	CG	CS
7	controlling and supervision (CS)	CG	CS	CS	MO	CS	CS	MO	CG
8	customer service (CSe)	CSe	CSe	MO	M	PT+	L+	M	CSe
9	modification of the offer of products (MO)	CS	MO	L	CS	CSe	MO	CS	MO
10	marketing (M)	AS+	M	CG-	CSe	AS	CG-	CSe	M
11	logistics (L)	M	L	AS	AS	MO	AS	AS	RS
12	acquiring staff (AS)	L	RS	M	L	L	RS	L	PT
13	building relationships with suppliers (RS)	PT	PT	RS	RS	RS	PT	RS	L
14	production technology (PT)	RS	AS -	PT	PT	M-	M-	PT	AS

Analyzing the data from Table 5, several characteristic tendencies in the area of determinants of creative attitudes of the managers can be noticed. In case of the women in managerial positions, the most important significance has the exchange of knowledge and experiences between the employees (in case of the men, it is only the ninth position in the ranking). An attention should also be paid to the increase in the importance of work organization for the creative behaviour of the women.

The men holding managerial positions, definitely more than the women, subordinate their creativity to the style of the enterprise management and flow of information.

*Table 5: Determinants of creative attitudes of the surveyed managers with division into: gender, age and seniority (self-elaboration based on survey research)*

o.n.	determinant – general results	gender		age (years)			seniority (years)		
		W	M	-35	36-44	45+	-10	11-19	20+
1	level of job satisfaction (S)	EK +	S	FM+	S	S	S	S	S
2	possibility of improv. and develop. (ID)	R	ID	S	ID	ID	R	ID	ID
3	interpersonal relationships (R)	S	FI+	R	R	C	EK	R	C
4	scale of cooperation between employees (C)	ID	M+	ID	C	FI	FM+	FI	FI
5	exchange of knowledge (EK)	C	R	EK	FI	R	C	C	NM
6	flow of information (FI)	WO+	C	C	EK	EK	WO	NM	M+
7	non-financial motivation (NM)	GW	FM	WO+	NM	GW	ID-	EK	R-
8	possibility of group work (GW)	NM	NM	FI	M	NM	GW	GW	EK
9	way of managing the organization (M)	FI-	EK-	GW	GW	WO	MC	M	FM
10	financial motivation (FM)	FM	GW	M	FM	M	M	WO	GW
11	work organization (WO)	M	WO	NM-	WO	FM	FI-	FM	WO
12	material working conditions (MC)	MC	BA	MC	MC	MC	NM-	MC	MC
13	specificity of business activity (BA)	BA	MC	BA	BA	BA	BA	BA	BA
14	pressure of customers or competitors (PC)	PC	PC	PC	PC	PC	PC	PC	PC

The managers under 36 as well as those working for less than 11 years attach great importance to financial motivation. It is a determinant of creative attitudes which in this group of respondents is definitely more important than in the case of other respondents. The opposite conclusion can be formulated in relation to non-financial motivation. The youngest managers, similarly to the women, feel a relatively strong correlation between creative behaviour and work organization.

*Table 6: Comparative analysis of creativity leaders and creativity outsiders taking into account the selected parameters (self-elaboration based on survey research)*

parameter	creativity leaders	creativity outsiders	general results
<b>self-assessment of creativity</b>			
scale (1 - 5)	4,25	3,98	4,08
<b>age</b>			
years (ar. mean)	36,7	40,2	39,2
<b>gender</b>			
woman	33%	62%	39%
men	67%	38%	61%
<b>assessment of an opportunity to use creativity in the organization</b>			
definitely yes	71%	29%	43%
rather yes	29%	39%	40%
to the average extent	0%	25%	14%
rather not	0%	7%	3%
definitely not	0%	0%	0%



The analysis of the obtained results taking into account the seniority of the surveyed managers allows to notice that the respondents with the least professional experience subordinate creativity to a little extent to actions in the area of their improvement, development and flow of information. The managers with the longest seniority subordinate, to the least extent among all distinguished groups, creative behaviour to interpersonal relationships existing in an organization. However, they feel relatively strong influence of the management style on their creativity. In the further course of the research process, the surveyed managers were divided into two groups: creativity leaders and creativity outsiders. To the group of creativity leaders were qualified the respondents who admitted in the survey that use their creative attitudes in at least six areas of work. In turn, the creativity outsiders comprised the managers who considered that rely on their creativity in up to three aspects of work. The results of this division, taking into account the selected comparison parameters, are presented in Table 6. Referring to the data in table 6, it should be stated that the managers qualified to two distinguished groups possess quite characteristic features. The managers who use their creativity in many areas of work are mainly the men with high self-assessment of creativity, characterized by a lower average age than in the case of the entire surveyed population and work in the enterprises that create good conditions for development of creative attitudes. On the other hand, creativity outsiders are mainly the women who assess their creativity relatively lowly, are characterized by a higher average age than in the case of the entire surveyed population and work in the enterprises that do not give full opportunities to use creativity of employees.

## 5. CONCLUSION

Appreciating the growing role and importance of creative attitudes of employees in the process of enterprise development, it is necessary to constantly conduct deepened studies in this area. The complexity of the analyzed topic significantly raises the difficulty in obtaining an unambiguous answer to the question about the determinants and manifestations of creative behaviour of the managerial staff. With reference to the assumed purposes of the research, the following final conclusions can be formulated:

1. Polish managers quite highly assess the level of their creativity. The self-assessment of creative attitudes is slightly negatively correlated with their age and seniority. Therefore, the answers of the surveyed managers lead to the conclusion that the level of creativity decreases with age. However, it is not a strong statistical dependence.
2. In the vast majority of cases, Polish enterprises present good conditions for developing creative attitudes. Only a few respondents indicated restrictions in this respect.
3. Managers use their creativity mainly in aspects of work related to employee management (motivating, resolving conflicts, building interpersonal relationships) and in the area of such management functions as work organization and task planning.
4. Job satisfaction has the greatest influence on development of creative attitudes of the managerial staff. Subsequently, the factors such as possibility of improvement and development, interpersonal relationships and the level of cooperation between employees should be distinguished. Nevertheless, it should be noted that the determinants of creativity are quite diverse in relation to the gender and age of managers. The women attach the greatest importance to the exchange of knowledge and experiences within the organization, while the men appreciate the role of efficient information flow. It is essential that the managers with the least professional experience subordinate creative behaviour to a higher extent to financial motivation than to non-financial motivational tools.

Generalizing the obtained results, it should be noted that the creative manager is a person satisfied with their job, who wants to develop and attaches great importance to the cooperation and exchange of experiences between employees.

Therefore, in order to stimulate creative attitudes in enterprises, it is necessary to strive to fulfil needs of employees (in particular the higher-order needs) and enable them to achieve their personal goals as well as take care of good interpersonal relationships. The results of the survey confirm the assumptions of the cognitive evaluation theory put forward by E. Deci and R. Ryan. Creative behaviours are worth developing by influencing internal motivation rather than using financial incentives. However, it should be remembered that the above practice may not give the desired effect in case of the managers who are at the beginning of their careers because they expect mainly financial gratification. If possible, it is also necessary to strive for the individuation of actions in the area of developing creative attitudes. This results from the fact that both the determinants and manifestations of creative attitudes indicated in the results of the research show differences in relation to gender, age and seniority in a managerial position.

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## TRADE OF BETWEEN TWO RENEWABLE ENERGY SOURCES FOR A FACTORY IN THE SUSTAINABILITY CONCEPT

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### **ABSTRACT**

*The need for energy is growing everyday. In today's competitive world the concept of 'sustainability' is considered to be a competitive advantage, but before, it should be viewed as humanity's target goal of human-ecosystem equilibrium. Many nations around the world already use renewable energy sources contributing to this concept. Some countries have set a goal to reach 100% renewable energy in the future. Renewable energy markets will continue to grow strongly in the coming years. In Turkey there are different sources of renewable energy; geothermal, wind and solar energy is some of them. In this article the two different options for the wind energy for a factory located in Turkey is evaluated.*

**Keywords:** *Renewable energy, sustainability, wind energy*

### **1. INTRODUCTION**

Energy use based on fossil fuels; fuel dependency, high import costs and environmental problems, as well as the rapid depletion of world fossil fuel reserves, increasing the importance of renewable energy sources. Renewable energy sources are of great importance due to their sustainability, but also because they can be found in every country of the world. In addition, environmental impacts are very small compared to non-renewable energy sources. The use of renewable energy sources is considered to be the most important energy source in the 21st century if the existing technical and economic problems are resolved. It is the most important problem of the society to provide and use the energy which is the most important necessity of the people at every moment of daily life and every activity that is done and without threatening the environmental values. The increase in energy consumption puts the lives of people and other living creatures under great threat; because it is the energy use of excessive amounts of all the environmental threats. This threat occurs both during the production of the energy and during the use of the energy. In particular, fossil fuels have put a great deal of threat to the lives of all living things in the world. There are three main objectives that businesses can express in the form of profit making, collective service, and sustained lifelong learning. For this purpose, the first step towards serving the collective is to be sensitive to the environment. It is a fact that non-environmentally sensitive businesses will not be able to sustain competitive advantage and will not be able to survive in the long run. One of the most important steps in being sensitive to the environment is the use of renewable energy sources in businesses. Renewable energy sources and businesses that meet their energy needs will gain a high status in international circles, as well as being valuable to the community. These businesses do not only acquire status, but they can also earn additional income for their business by using the renewable energy potential correctly. In this article, the advantages of using renewable energy sources are explained and wind energy costs are modeled and compared for a production facility. Scientists have found that 4.5 billion years have passed since its formation, and our planet has been able to complete only 1/3 of its entire life. Our world, which has been able to preserve its natural balance for hundreds of thousands of years, has reached the point of environmental criticism

every time, with the Industrial Revolution of the 19th century and the achievements of the human being in the technological sense of the century. The technological developments, the increase in the world population, the production and consumption madness arising from urbanization and industrialization are rapidly increasing the demand for energy. Energy, which is the basic input to production, is a necessary element for raising the welfare level of societies and almost every area is used in everyday life (Koç, 2015: 37). Energy is the most important need of a person at every moment of everyday life and every activity that is done. Providing and using energy that is adequate and does not threaten environmental values is the most important problem in societies. The increase in energy consumption poses a great threat to the lives of people and other living things; because it is the energy use of excessive amounts of all the environmental threats. This threat occurs during both the production of energy and the use of energy. In particular, fossil fuels / non-renewable sources of energy threaten the lives of all living things in the world to a great extent (Çukurcayır, T.Y. : 257). Over the last two centuries, fossil-based fuels have found widespread use due to the fact that they are inexpensive to develop in production technology and are cheap, resulting in a superior position over renewable technologies. The energy age, based on oil and coal dominance, created an atmosphere of mistrust as a result of the oil crisis in 1973. As a result of this insecure environment, there has been an intense interest in new and renewable energy sources all over the world. However, in 1973, after the oil crisis, confidence in fossil fuels such as petroleum and coal decreased and the concept of renewable energy gained value. Our world's energy needs increase by about 4-5% per year. On the other hand, the fossil fuel reserve that meets this demand is consumed much more rapidly. Even in the most optimistic estimates made based on current energy use conditions, oil reserves are likely to be largely exhausted and unable to meet demand by 2030 at the latest. Coal is estimated to be about 80-100 years for current reserves and about 100-120 years for natural gas. According to the data of the Ministry of Energy and Natural Resources, in 2013, the first source of energy consumption in the world according to the sources of resources is oil. There is an increasingly decreasing use of coal in the second row and natural gas, which is in third place in terms of production and consumption. Natural gas; day because of less pollution of the environment compared to petroleum and are becoming increasingly important. However, it should be remembered that all these sources are non-renewable energy sources and that they are in danger of extinction. Renewable energy is the result of direct or indirect use of solar energy. Since the creation of the world, the sun while warming the world, has been the main source of different energies by constantly sending energy . These are steam energy, wind energy, sea current, wave, seawater temperature difference energy, photosynthesizing fossil fuels, biomass, and even tidal energy (Doğan, 2001: 245-250). Another definition of renewable energy is the energy derived from the existing energy flow in continuous natural processes. Renewable energy source; the energy taken from the energy source can be regenerated more quickly than it is at the same rate or faster than the depletion rate of the source. For example, a technology powered by solar energy consumes this energy, but the energy consumed remains very small alongside the total solar energy. The most general renewable energy is the sun. Renewable energy sources are listed below. - Hydraulic energy - Geothermal energy - Wind energy, - Solar energy, - Biomass energy - Tidal energy - Hydrogen energy

## **2. TURKEY'S RENEWABLE ENERGY POTENTIAL**

Renewable energy sources are considered to be alternative to fossil fuels and various studies are currently being carried out on the development of renewable energy technologies. Commonly used renewable energy sources; hydraulic energy, geothermal energy, biomass energy, solar energy and wind energy. Turkey is a country rich in diversity and potential of renewable energy sources.

Our country has a significant potential of solar energy because of its geographical location, geothermal energy which is not found in many countries, 8% of the world potential, significant potential of hydraulic energy and serious wind potential due to its ground features. However, their potential use as energy is not sufficient (Koç, 2015: 40).

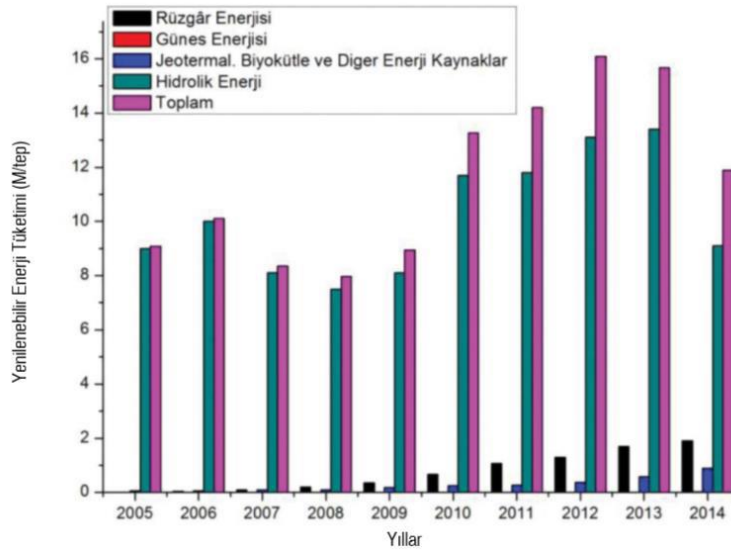


Figure 1: 2005-2014 Year Change of Renewable Energy Consumption in Turkey  
(BP Statistical Review of World Energy, 2015)

One of Turkey's renewable energy target for 2023 is to increase the level of at least 30% by 2023. Other targets in this regard are; wind power of 10.000 MW installed capacity, 300 MW installed capacity of geothermal energy and additionally installed capacity of 5000 MW small hydropower plant (Işık, 2010: online). According to the EGC data, Turkey's hydropower installed capacity of 23.6409 has reached the GW level, this capacity of 7,034 GW of the 443 hydraulic river power stations, while the 16.6069 GW portion constitutes 77 pieces' dam hydraulic plant (Diniz, 2014). In 2013 the world share in hydroelectric power production in Turkey is 1.6

### 3. APPLICATION THE FACTORY POWER DATA

The factory under concern is producing electric supplies which has 1800 employees and a lider in its sector. They have 6 factories is total but the case is about the one located in Istanbul Esenyurt region. The factory has 630 kW installed capacity, if the factory uses their full capacity they need 630 kW, they use %70 of this capacity for their mean daily consumption and this is 441 kW. The wind energy is used as an renewable energy regarding the factories geographical coordinates. In that region there is no jeotermal sources although there are a lot in Turkey, solar energy is might be another option but it is not under consideration of this study. According to the renewable Energy management in Turkey, the economic wind speed to make an investment in that region is 7 m/s and more than that and the factory's location is 7 m/s over 50 metres, which is proper to make that investment.

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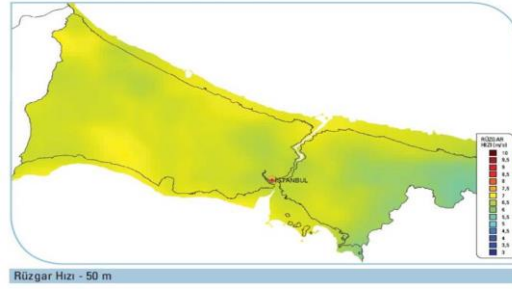


Figure 2: Wind Speed (Yenilenebilir Enerji Genel Müdürlüğü, REPA, 2015)

IEC III wind speed is between 6 - 7,5 m/s. According to the map of wind power of Istanbul, the factory's location is in the low wind speed so the wind turbines are chosen for the region.

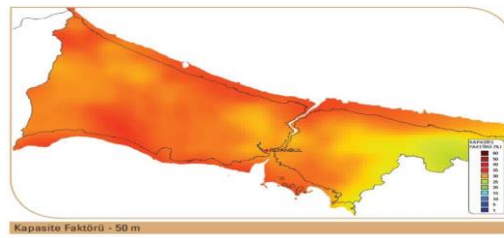


Figure 3: Capacity Factor (Yenilenebilir Enerji Genel Müdürlüğü, REPA, 2015)

The power plant's capacity factor is determined by the ratio of the total energy produced in one period and the total energy produced under full capacity. The factory region's capacity factor is % 35. According to the data gathered from Renewable Energy Management Turkey, 2015 data, the region is proper for wind and solar investments. In this study wind energy is taken into account.

#### 4. THE SYSTEM

The system for renewable energies could be designed for two purposes, the first one is the one is to be connected to the electricity grid and the other one is not to be connected to the electricity grid. The system to be installed will be a system connected to the network. Thus, excess energy produced will be sold to the system or will be available from the system when the energy produced is insufficient. The double-sided counter will be used for this operation. The two-sided counter is a counter that measures how much of the electricity used is generated by alternative energy, and how much electricity is supplied to the network. Since the system is connected to the network, the use of the battery will not be necessary and the battery will not be cost effective.

##### 4.1. Wind Power

The operation of the application is about 8 hours a day. The plant has a daily maximum energy requirement of installed capacity of 630kW. The plant spends an average of 441 kW per day. Two different wind turbines have been selected for application using wind turbines and the related accounts will be explained in detail under Status I and Status II.

##### 4.2. Status I

The Unison brand wind turbine 750 kW is used for application. U model which is suitable to IEC III wind class was chosen. Table 1 gives the general characteristics of the turbine. Tower height is 60 meters. Its economic life is 20 years.

Table 1: Wind Turbine Specifications (<https://en.wind-turbine-models.com/turbines/1562-unison-u50> 10.10.2018)

	U50	U54	U57
Rated power:	750.0 kW	750.0 kW	750.0 kW
Flexible power ratings:	-	-	-
Cut-in wind speed:	3.0 m/s	3.0 m/s	3.0 m/s
Rated wind speed:	12.5 m/s	11.5 m/s	11.5 m/s
Cut-out wind speed:	25.0 m/s	25.0 m/s	25.0 m/s
Survival wind speed:	70.0 m/s	59.5 m/s	52.5 m/s

A logarithmic rule is applied to find the velocity at a different elevation without taking any measurement of any zone. This rule will be used to find the wind speed at a tower height of **60** meters (Elmacı and Türkay, 2014: 73).

$$V = V_{ref} \times \frac{\ln(\frac{Z}{z_0})}{\ln(\frac{z_{ref}}{z_0})}$$

V: wind speed to be calculated at Z height (m / s)

Z: Height from ground level (m)

V<sub>ref</sub>: Wind speed (m / s) known at Z<sub>ref</sub> height

Z<sub>ref</sub>: Height of V<sub>ref</sub> speed

Z<sub>0</sub>: Coefficient of surface roughness

According to the information obtained from the General Directorate of Renewable Energy, the wind speed at the height of 50 meters in the region is 7 m / s. For the cities where the surface roughness coefficient is set, it is determined as 0.4 (Wind-data, online).

Z= 60 m

V<sub>ref</sub> = 7 m/s

Z<sub>ref</sub> = 50m

Z<sub>0</sub> =0,4 V=7 x ln (60,4)/ln(50,4)

V= 7,26 m/s

In this case, the wind speed is 60 m and the wind speed is 7.26 m / s. According to the logarithmic rule, the following graph and table are obtained (Wind-data, online).

Figure following on the next page



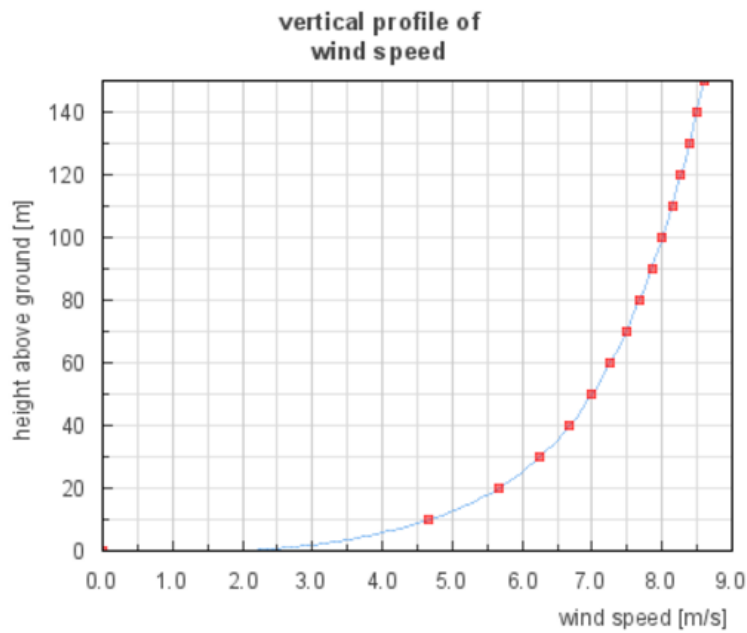


Figure 4: Relation between altitude and wind speed (Wind-data, online).

The logarithmic rule-out is capable of producing 450 kW of electrified wind turbine at a speed of 7.26 m / s. In this case, once the business meets the daily requirement of 441 kW, it will be able to generate income by selling excess electricity to the network. Cost analysis is done according to the wind turbine installed at a point with a capacity factor of 35% in 750 kW power. First, the initial investment amount is calculated. The average turbine price for wind turbines is 900 USD / kW. This cost is added to installation, wind analysis, projecting, double sided meter costs. The sum of all these other costs is 225 USD / kW. In this case, the initial investment cost is 1125 USD per kilowatt to be produced.

Total initial investment cost = 1.125 \$ / kW \* 750 kW = \$ 843,750

Annual electricity generation in wind turbines is calculated by the following formula.

Annual electricity production = Turbine power \* 365 days \* 24hrs \* capacity factor

Annual electricity generation = 750 kW \* 365 \* 24s \* 0.35 = 2.299.500 kWh

It has been taken into account that an operator operates an average of 250 days a year and an average of 8 hours a day when an operator calculates annual energy requirements.

Table following on the next page

Table 2: Relation between altitude and wind speed (Wind-data, online).

height above ground	wind speed
150 m	7.94 m/s
140 m	7.87 m/s
130 m	7.78 m/s
120 m	7.70 m/s
110 m	7.60 m/s
100 m	7.50 m/s
90 m	7.39 m/s
80 m	7.26 m/s
70 m	7.11 m/s
60 m	6.95 m/s
50 m	6.75 m/s
40 m	6.51 m/s
30 m	6.19 m/s
20 m	5.75 m/s
10 m	5.00 m/s

Annual energy requirement:  $441 \text{ kW} * 250 * 8 \text{ s} = 882,000 \text{ kWh}$

The total amount of electricity generated by the wind turbine is subtracted from the operating requirement and the amount of generated electricity is found.

The excess electricity :  $2.299.500 \text{ kWh} - 882.000 \text{ kWh} = 1.417.500 \text{ kWh}$

If the electricity produced is sold under the Renewable Energy Law, the selling price is \$ 0.073 / kWh. In this case, the yearly generated electricity is found to be the result of multiplying the excess amount of electricity by the sales price.

Yearly generated electricity price= electricity surplus \* 0.073 \$ / kWh =  $1.417.500 \text{ kWh} * 0.073 \text{ $ / kWh} = 103.477,5 \text{ $}$

The system needs to be maintained regularly every year. These maintenance costs are approximately \$ 18,000 per year. A break-even analysis of this system of wind turbines is done.

Breakeven point =  $\$ 843,750 \text{ $} / ( 103,477.5 \text{ $} - 18,000 \text{ $} )$

Breakeven = 9,87 years The system will be amortized after 9.87 years.

### 4.3. Status II

In Case I, the system depreciates itself for a long period of time because the amount of need after the day-to-day requirement is low. In Case II, a turbine of higher power was selected. Thus, more electricity is needed and the business will generate more revenue from the sales of this electricity. In this case it is aimed to have a lower break-even point. For the case II, the Suzlon brand wind turbine has been selected and the power of this turbine is 1.5 MW. IEC III is a wind turbine classifier. The table 3 below shows the properties of the selected turbine.

Table following on the next page

Table 3: Characteristics of wind turbine Type Horizontal axis

Rated Power	1500 kW
Switching wind speed	4 m / s
Disengagement wind speed	20 m / s
Tower height	76.1 m
Economic life	20 years

As in Case I, the logarithmic rule will find a wind speed of 76 meters, which is the height of the tower.

$$V = V_{ref} \times \frac{\ln(\frac{z}{z_0})}{\ln(\frac{z_{ref}}{z_0})}$$

According to the information obtained from the General Directorate of Renewable Energy, the wind speed at the height of 50 meters in the region is 7 m / s. For the cities where the surface roughness coefficient is set, it is determined as 0.4 (Wind-data, online).

Z= 76 m

Vref = 7 m/s

Zref = 50m

Zo =0,4

V= 7,607 m/s

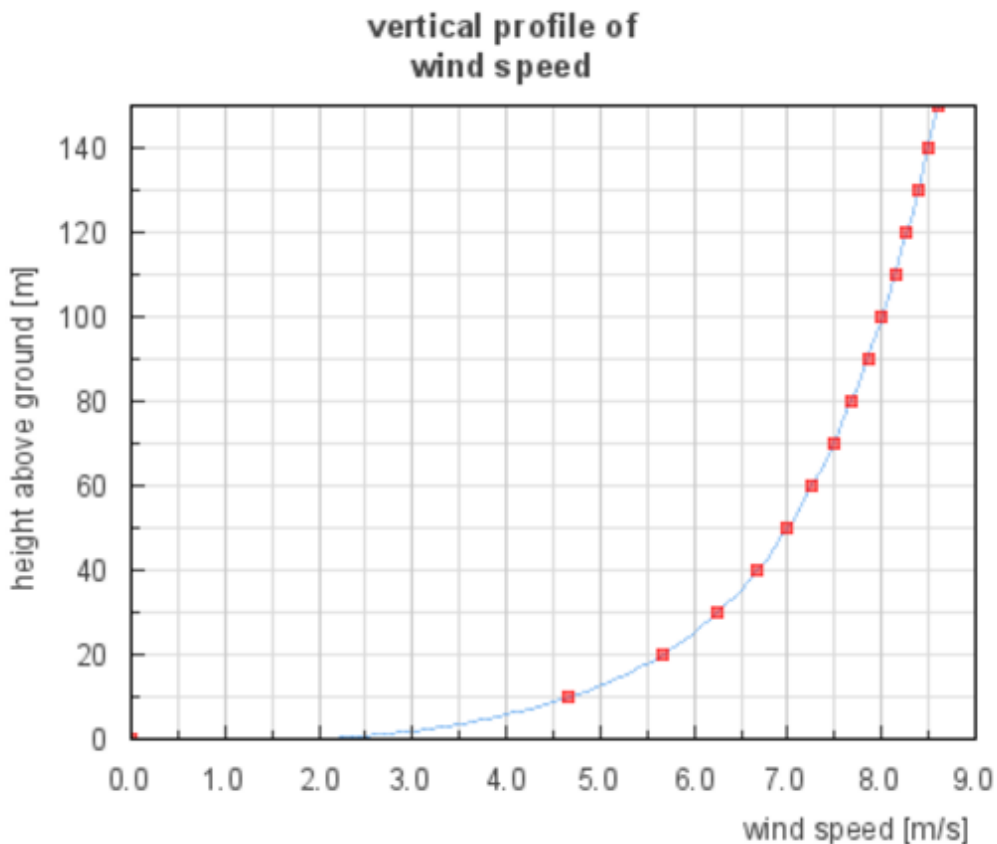


Figure 5: Relation between altitude and wind speed( Wind-data, online.  
<http://wind-data.ch/tools/profile.php?h=70&v=7&z0=0.4&abfrage=refresh>)

The logarithmic rule can produce 600 kW of electrified wind turbine at a speed of 7,607 m / s. In this case, once the business meets the daily requirement of 441 kW, it will be able to generate income by selling excess electricity to the network.

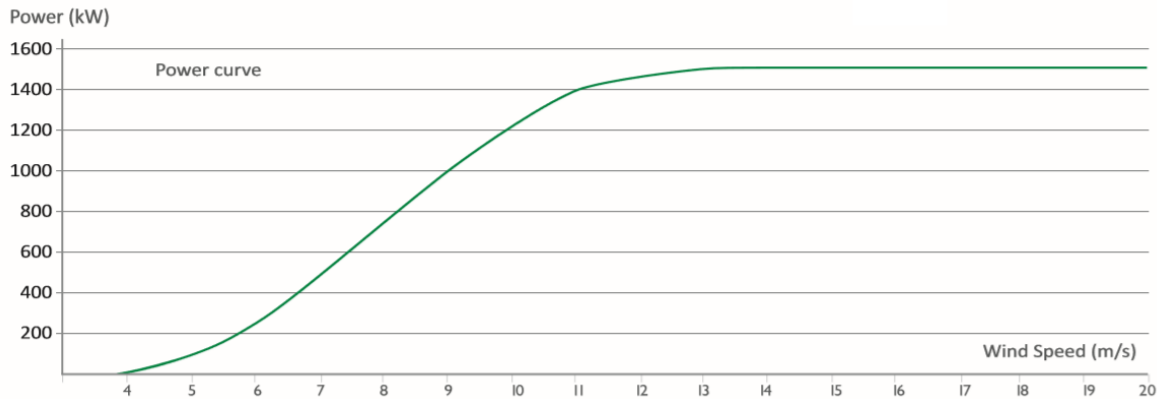


Figure 6: Power curve of wind turbine ( Suzlon <http://www.suzlon.com/> )

Cost analysis will be done according to the wind turbine installed at a point with a capacity factor of 35% at 1.5 MW power. First, the initial investment amount will be calculated. As in Case I, the initial investment cost is 1125 USD per kilowatt to be produced. The annual electricity generation to be produced in the wind turbine will be calculated.

$$\text{Total initial investment cost} = 1.125 \text{ \$ / kW} * 1.500 \text{ kW} = \$ 1,687,500$$

$$\text{Annual electricity production} = \text{Turbine power} * 365 \text{ days} * 24\text{hrs} * \text{capacity factor}$$

$$\text{Annual electricity generation rate} = 1.500\text{kW} * 365 * 24\text{s} * 0.35 = 4.599.000 \text{ kWh}$$

The annual energy requirement is calculated considering that the operator runs an average of 250 days per year and runs an average of 8 hours per day.

$$\text{Annual energy requirement: } 441 \text{ kW} * 250 * 8 \text{ s} = 882,000 \text{ kWh}$$

The total amount of electricity generated by the wind turbine is subtracted from the operating requirement and the amount of electricity produced is surplus.

$$\text{Excess electricity produced: } 4.599.000 \text{ kWh} - 882.000 \text{ kWh} = 3.717.000 \text{ kWh}$$

The electricity produced is sold under the Renewable Energy Law, the selling price is \$ 0.073 / kWh. In this case, the yearly generated electricity is the result of multiplying the excess amount of electricity with the sales price.

$$\text{Yearly generated electricity price} = \text{electricity surplus} * 0.073 \text{ \$ / kWh} = 3.717.000 \text{ kWh} * 0.073 \text{ \$ / kWh} = \$ 271,341$$

The system is \$ 22,000 each year for regular maintenance. A break-even analysis of Status II is done.

$$\text{Breakeven} = 1.687.500 \text{ \$} / (271.341 \text{ \$} - 22.000) \text{ \$}$$

Breakeven = 6.77 years The established system will amortise itself after 6.77 years. The system is modeled in Figure 7.

## 5. CONCLUSION

The cost, annual income, annual expenditure and breakeven point data of the different power wind turbines examined as status I and status II are given in comparison to the table below.

Table 4: Wind energetic system outcome

	Status I	Status II
Turbine power	750 kW	1500 kW
Total Cost	\$ 843,750	\$ 1,687,500
Annual Revenue	\$ 103,477.5	\$ 271,341
Annual Expense	18,000 \$	22,000 \$
Breakeven Point	9.87 years	6.77 years

As it can be understood from Table .4., It is advantageous for the operator to generate additional income by producing more electricity instead of just producing the electricity needed. In this case, although the initial investment cost is higher, the annual income will be higher and the system will therefore amortize itself in a shorter period of time. The model of the system can be seen in figure 7.

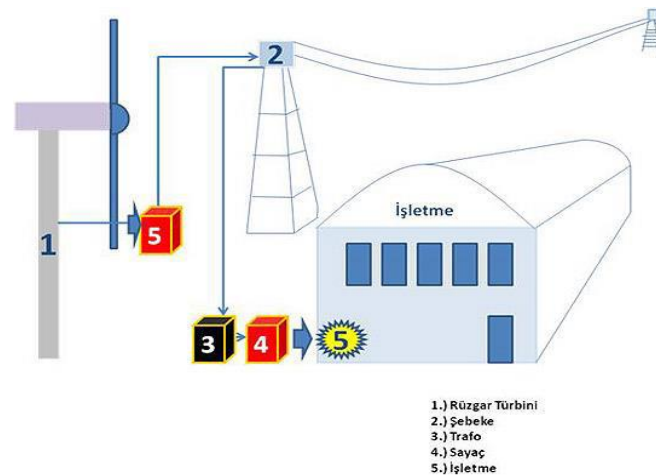


Figure 7: Model of system formed by wind turbine

Based on the results obtained in this study, we can make the following recommendations:  
 Lack of domestic production in the field of renewable energy sources raises the installation and maintenance costs of these resources. Although the investment costs of these resources have declined compared to previous years, they are still very high for many businesses today. Supporting domestic production will reduce external dependence in this area and will lead to a fall in prices due to competition in the market. Although the initial investment costs of renewable energy sources are high, they are the sources that gain in terms of business and national economy in the long term. Initial investment costs can be reduced with government support. In this study, the rates of government incentives can be increased and more individuals and enterprises can be directed towards renewable energy. The scope of green production / green engineering concepts will be expanded and the production phase will be carried out in a factory where renewable energy sources are used, and will be one step higher in environmental awareness.

Businesses can attract the attention of the environmentally sensitive section of the society by emphasizing their renewable energy factories in their promotion activities. Environmental activities should be supported by the state and society.

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# THE SUSTAINABILITY DEVELOPMENT CONCEPT UNDER THE REGULATIONS IN FORCE OF THE TREATY ON EUROPEAN UNION AND THE TREATY ON THE FUNCTIONING OF THE EUROPEAN UNION – LEGAL AND ECONOMICAL VIEW

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## ABSTRACT

*The sustainability concept has been formulated in the second half of the XX century. It was a reaction on the unfavourable changes in environment, whose reason were economic growth and globalization. The main principle of the concept has been the principle of intergenerational fairness, in which the possibility of growth of future generations were postulated. It very fast turned out that the idea has an interdisciplinary character, because it forced a big changes not only in environmental politics, but in economics, law and social politics too. For making possible the implementation of the concept, it was necessary to enter the concept and its assumptions in the legal acts. By this procedure the assumption of the idea or the idea were implemented in international legal acts and in the primary and secondary European Union law. The assumptions of the concept were entered in the Treaty on European Union and in the Treaty on the Functioning of the European Union, which are known as the Treaty of Lisbon. However in the Treaty of Lisbon the assumptions of the sustainability concept were implemented mainly in regulations related to environment. Therefore the concept, even its assumptions, have not been holistically implemented e.g. in regulation according to economics and social politics. Inconstistency of the European Union legislator casts doubt on purposefulness implementation of the sustainability concept or its assumptions to the Treaty of Lisbon. The aim of the article is legal-economical analysis of the Treaty of Lisbon, having in mind regulations connected with sustainability development concept and forming remarks *de lege lata* and *de lege ferenda* remarks taking into consideration the legal and economical rules.*

**Keywords:** *Economy, Law, Sustainability development, Treaty on European Union, Treaty on the Functioning of the European Union*

## 1. INTRODUCTION

A concept of sustainable development has been created for protection of environment which is subject to excessive exploitation as a result of human activity perceived *sensu largo* (Kielin-Maziarz, 2013). In the 20<sup>th</sup> century the vast economic development as well as progressing globalization took place, what contributed to deepening of unfavourable changes in the natural environment and forced decisive actions from the side of UN, and next from the European Union in the scope of environmental protection perceived *sensu largo*. However, in order to understand properly a concept of sustainable development, which had been formed in the 20<sup>th</sup> century, one must go back to the 19<sup>th</sup> century, i.e. the beginnings of the industrial era. The idea of sustainable development can be observed in M.Sommerville's views, who stated that human impact on the natural environment is not always positive and she also stated that delicate

balance between a human and the environment may be swayed due to the lack of discipline (Kielin-Maziarz, 2013). In the 20<sup>th</sup> century an idea of human impact on the natural environment was developed and with time this idea turned into a concept of sustainable development. In order to make the implementation of the concept at the local, regional, state and international level possible, it was necessary to introduce legal instruments in the acts of local, state and international law. A concept of sustainable development had great impact on the international legislation as well as the legislation of particular states, becoming a legal principle or a program norm especially in the scope of administrative law (Skrzydło-Niznik, Dobosz, 2003). A concept of sustainable development has also been implemented in the primary and secondary law of the European Communities, and next, of the European Union, especially in the Treaty on functioning of the European Union and the Treaty on European Union (the so-called Lisbon Treaty). One must firstly consider, though, to what extent a concept of sustainable development was implemented into the Lisbon Treaty, and secondly, whether a concept of sustainable development can be implemented wholly into the European Union legislation, so – accordingly, whether it is internally cohesive. It was assumed, as an analytical hypothesis, that a concept of sustainable development has not been wholly implemented into the Lisbon Treaty, and also, that this concept is not internally cohesive. The objective of this article is the analysis of the Lisbon Treaty with a view to legal regulations regarding elements of a concept of sustainable development as well as forming of remarks *de lege lata* and *de lege ferenda* in reference to legal regulations based on a concept of sustainable development in the Lisbon Treaty, taking into consideration legal and economic perspective.

## **2. BASIC ASSUMPTIONS OF A CONCEPT OF SUSTAINABLE DEVELOPMENT**

In the 20<sup>th</sup> century, theories appeared which aimed at facilitation of long-term and lasting economic growth, e.g. neoclassical theory of growth and corresponding liberal policy of growth and economic development, theory of sustainable development, theory of real economic cycle (Fiedor, 1990). However, an issue of sustainable development as a condition of lasting growth was discussed only in a concept of sustainable development (Adamczyk, Nitkiewicz, 2007). A concept of sustainable development is also linked to a concept of conservation, presented by M.Sommerville, G.P.Marsch, G.Pinchof, who postulate preservation of the best possible environment for a human not only now but also for future generations (Ramlogan, 2011), as well as a principle of intergenerational justice, which assumes facilitation of development not only to the present but also for future generations (Dobosz, 2015). Although the protection of environment was the basic assumption of a concept of sustainable development one may also notice that this concept is of interdisciplinary character and consists of three basic aspects: economic, social and ecological (Adamczyk, Nitkiewicz, 2007). The interdisciplinary character of a concept of sustainable development was synthetically described by D.Pearce and R.K.Turner, who stated that the sustainable development: „means maximization of net profits from economic development, at the same time protecting and providing long term reproduction of usability and quality of natural resources. Then, economic development must mean not only the growth of *per capita* income, but also improvement of other elements of social well-being. It must also include necessary structural changes not only in the economy but also in the whole society” (Pearce, Turner, 1990). A key notion for a concept of sustainable development is a definition of balance and equilibrium between human development and environmental protection. In this scope the social and economic development of the world should respect the environment and its shrinking resources. M.C.Cordonier Segger stated that a concept of sustainable development is a compromise in order to preserve the environment for future generations (Cordonier-Segger, Khalfan, 2012). One should state clearly that the presented basic assumptions of a concept are not exhaustive because in science and in practice this concept enjoyed a various preception, especially in reference to the economic and social



elements of the concept (Baker, 2003; Boyle, 2012; Cordonier Segger, Khalfan, 2012; Kielin-Maziarz, 2013; Meadows, Meadows, Randers, 1972; Ramlogan, 1990; Jacobs, 1991). The definition of balance between economy and environment is becoming especially problematic. Economic neoclassics think that in this scope the decisions of public authorities are required. Others, like for example R.Ramlogan, notice faults in this approach, and M.Jacobs notices that people protect the environment as long as its value is appreciated higher than the costs of its conservation (Jacobs, 1991). One can state, then, that the concept of sustainable development is not homogenous, and even sometimes it is internally contradictory and incohesive, what leads to difficulties in its implementation into economy, society and especially law, which cannot be internally contradictory.

### **3. CONCEPT OF SUSTAINABLE DEVELOPMENT IN INTERNATIONAL LAW AND INTERNATIONAL POLITICS**

In 1968 the first Intergovernmental Conference of Scientific Experts of UNESCO took place, which was devoted to mutual links between the environment and development. During this Conference the interdisciplinary program „Man and the biosphere” (MAB) was formed (Program Man and Biosphere, 1968). Problems of environmental protection and its relations to economic and social issues were discussed during the United Nations Conference on the Human Environment (the so-called Stockholm Conference) in 1972. Also, in the same year the Roman Club published „The Limits to Growth”, which is based on a concept of sustainable development. At that time theories appeared, which related the sustainable development to the problem of overpopulation. These theories are groundless because there is enough place and resources for all people on Earth, but it is important that their use is sustainable and its redistribution is appropriate. These problems, concerning the sustainable development was discussed next in the Brandt Report titled: „North: South – A Programme for Survival”, which was written within the framework of the Independent Commission on International Development Issues (Kielin-Maziarz, 2013). The World Conservation Strategy (WCS) of 1980 is an important document, in which for the first time a notion of sustainable development appeared. The key document in reference to sustainable development is „Our Common Future” (Brundtland Report, 1987), i.e. the so-called Brundtland Report of 1987, which contains the following definition of sustainable development: „in its essence the stable development means such a process of changes in which exploitation of resources, directions of investments, directions of technical progress and institutional changes remain in harmony and preserve now and for the future a possibility of satisfying human aspirations” (Brundtland Report, 1987). A definition contained in the Brundtland Report is general and is of a programming character and uses vague notions, what may indicate heterogeneity of the concepts. In 1992 the Earth Summit took place in Rio de Janeiro, with its legal output represented by the Rio Declaration (Rio Declaration, 1992) and the Agenda 21 (Agenda 21, 1992). One should also mention the Earth Summit in Johannesburg in 2002, during which the Johannesburg Declaration on Sustainable Development was accepted (Johannesburg Declaration on Sustainable Development, 2002). It should be also emphasized that a number of international conventions concerning environment is based to a certain extent on the concept of sustainable development. The concept of sustainable development also bears impact on legislation of various states, to the greatest extent in the branches of public law, and especially of the administrative law (Skrzydło-Niznik, Dobosz, 2004).

### **4. THE CONCEPT OF SUSTAINABLE DEVELOPMENT IN THE EUROPEAN UNION LEGISLATION**

The concept of sustainable development is present in the primary and secondary law of the European Union.

Currently it is often treated as a constitutional principle of the European Union. In the primary law of the European Union one must draw the attention to the Single European Act of 1986 (Single European Act, 1986), which – although it did not use a notion of sustainable development, but by virtue of the Single European Act – it was introduced to the Treaty of Rome, Title VII „Environment”, and therefore one may state that a part of the concept was for the first time implemented into the primary law of the Communities. Next, at the meeting of the European Council in Dublin in 1990 a declaration was accepted, pursuant to which a role of the Community and of particular member states was recognized in creation of ecological policy (Adamczyk, Nitkiewicz, 2007). Literally, the concept of sustainable development appeared in the primary law of the Community in the Treaty of Maastricht of 1992 (Treaty of Maastricht, 1992), which, inter alia, amended the article 2 of the Treaty establishing the European Economic Community, which from that time onwards received the following wording: The Community shall have as its task, by establishing a common market and an economic and monetary union and by implementing the common policies or activities referred to in Articles 3 and 3a , to promote throughout the Community a harmonious and balanced development of economic activities, sustainable and non-inflationary growth respecting the environment, a high degree of convergence of economic performance, a high level of employment and of social protection, the raising of the standard of living and quality of life, and economic and social cohesion and solidarity among Member States”. Treaty of Maastricht used a concept of sustainable development also in reference to economic, environmental and regional issues. In the Treaty of Amsterdam of 1997 (Treaty of Amsterdam, 1997) the concept of sustainable development was phrased within the principles of the Treaty. In art. 2 of the Treaty of Amsterdam, which had the following wording: „The Community shall have as its task, by establishing a common market and an economic and monetary union and by implementing the common policies or activities referred to in Articles 3 and 4 , to promote throughout the Community a harmonious, balanced and continuous development of economic activities, a high level of employment and of social protection, equality of men and women, a high degree of competitiveness and convergence of economic performance, a high level of protection and improvement of quality of the environment, the economic cohesion and solidarity among Member States”, the notion of sustainable development was contained, and therefore, at the same time, a previous notion of sustainable growth was rejected, and which was a notion with a narrower scope than a notion of sustainable development. Moreover, the article 2 of the Treaty of Amsterdam introduced a principle of integration, through which the protection of environment was correlated with other policies and spheres of activity of the Community.

## **5. CONCEPT OF SUSTAINABLE DEVELOPMENT IN VIEW OF THE TREATY ON THE EUROPEAN UNION**

In the Treaty on the European Union (Treaty on the European Union, TEU, 2007), which together with the Treaty on functioning of the European Union (Treaty on functioning of the European Union, TFEU, 2007) forms the Lisbon Treaty (Treaty of Lisbon, 2007), currently serving as the basis for acting and functioning of the European Union at the international level and at the level of particular member states, already in the Preamble there in an invocation to the principle of sustainable development, phrased as follows: „Determined to promote economic and social progress for their peoples, taking into account the principle of sustainable development and within the context of the accomplishment of the internal market and of reinforced cohesion and environmental protection, and to implement policies ensuring that advances in economic integration are accompanied by parallel progress in other fields”. The principle of sustainable development, recorded in the Preamble of the Treaty on the European Union is treated as the constitutional principle of the European Union (Kielin- Maziarz, 2013;

Pyc, 2007). One must consider, though, whether a text of the Preamble is a normative text and whether legal norms can be derived therefrom. The Preamble should rather indicate directions of interpretation which are compliant with the goals and intentions of the European Union legislator. Therefore it seems that only on the basis of the Preamble the principle of sustainable development cannot be deemed as the constitutional principle of the European Union. Regardless of the above considerations one should note that in the Preamble the economic and social progress as well as cohesion and environmental protection must be compliant with the principle of sustainable development. Moreover, the European Union legislator postulates conducting such policies which will ensure that the economic integration will be accompanied by concurrent progress in various fields, so therefore also in this fragment one can notice the idea drawn from the concept of sustainable development. Therefore, one can state that the European Union constitutional legislator's intention is the emphasizing and expanding of the use of sustainable development principle throughout the European Union. Also, one could ask which of the views contained within the framework of sustainable development concepts is treated by the European Union legislator as valid and effective in the European Union, because – as it was proven above – the concept of sustainable development is not internally cohesive and homogenous, and the views presented within the concept are sometimes internally contradictory. The principle of sustainable development has not been contained in art. 2 of the Treaty on the European Union, so therefore among the European Union values, what should be deemed as a normal legislative procedure of the European Union legislator, especially from the axiological point of view, because it is difficult to consider as a value the concept which is internally heterogeneous and also refers only to social- economic and environmental issues. The principle of sustainable development appears among the European Union goals in art. 3 clause 3 paragraph 1 and art. 3 clause 5 of TEU. In art. 3 clause 3 paragraph 1 of the TEU the European Union legislator decides that: „The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance.” Again, the principle of sustainable development refers to social-economic- environmental issues. In the discussed article the European Union legislator stated that the basis of lasting development of Europe includes the sustainable economic growth. One should emphasize, though, that a phrase: „sustainable growth” refers only to economic issues, but it can be also stated that through this regulation the European Union legislator wishes to include economic issue *sensu stricto* into the principle of sustainable development, so therefore to expand the implementation of the concept of sustainable development in the primary law of the European Union, because the sustainable development in the field of economy is not only a principle or a task, but also the goal of the European Union functioning. In art. 3 clause 5 of the TEU the European Union legislator indicates that the goal of the European Union is contributing to „the sustainable development of the Earth”. Summing up the article 3 of the TEU in the context of the principle and concept of sustainable development one can state that the European Union legislator decided that the principle of sustainable development is also the goal of the European Union functioning both in the economic and environmental field as well as even social field in the functional interpretation of the whole article 3 of the TEU, but pursuant to article 2 of the TEU it does not belong to the European Union values. Analyzing the Treaty on the European Union one should also pay attention to article 21, which refers to general provisions on external functioning of the European Union. One should emphasize that the principles which the European Union functioning on the international arena are to be based on, do not include the principle of sustainable development (art. 21 clause 1 of the TEU). Elements of the concept of sustainable development appears just in article 2 clause 2 among the goals of defining and conducting

through the European Union of common policies, actions as well as striving to ensure a high degree of cooperation in all aspects of international relations: „foster the sustainable economic, social and environmental development of developing countries, with the primary aim of eradicating poverty” (article 21 clause 2 letter d of the TEU) and „help develop international measures to preserve and improve the quality of the environment and the sustainable management of global natural resources, in order to ensure sustainable development” (article 21 clause 2 letter f). The analysis of the above regulations allows to claim that in principle this is the shift of goals from article 3 clause 3 and 5 of the TEU to the level of international cooperation of the European Union with other states. Again, one can notice the implementation of elements of the concept of sustainable development in the environmental, economic as well as social field (especially a fragment concerning the eradication of poverty). One should emphasize, though, that despite the fact that the concept of sustainable development is known all over the world, because it is promoted by the UN, the European Union legislator has not introduced the principle of sustainable development into a catalogue of principles which the functioning of the European Union on the international area is based on, so therefore it is consistent in face of the catalogue of the European Union values, arising from the article 2 of the TEU.

## **6. THE CONCEPT OF SUSTAINABLE DEVELOPMENT IN VIEW OF THE TREATY ON THE EUROPEAN UNION FUNCTIONING**

Elements of the concept of sustainable development can be perceived also in the Treaty on the Functioning of the European Union. A principle of subsidiarity expressed in article 5 of the TFEU should be referred in the first place to the issue of environmental protection being a part of the concept as well as the principle of sustainable development. In this article the European Union legislator states that: „Environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development”. Articles 7 – 17, and therefore also of article 11 are titled General provisions, so therefore they can be defined as principles. In article 11 one may differentiate a principle of integration and the principle of sustainable development, however, they refer clearly to environmental protection issues, however, not excluding other fields, but in comparison to the Treaty on the European Union one can state that in the Treaty on the Functioning of the European Union the principle of sustainable development was greatly narrowed down. What is more, it may be derived from this provision that the sustainable development is the goal of the European Union, but not all policies and actions of the Union refer to it, and these, which are based on the principle of sustainable development must contain environmental protection requirements. One can surely state that the concept of sustainable development was not holistically implemented into the European Union law. In the Treaty on the Functioning of the European Union the European Union legislator introduced a separate XX title – named „Environment”. Analyzing Title XX of the TFEU one can notice that it is based wholly on the concept of sustainable development. Among the goals of the EU environmental policy the following was stated in article 191 clause 1 of the TFEU: „preserving, protecting and improving the quality of the environment, protecting human health, prudent and rational utilisation of natural resources, promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change.” The following principles of the EU environmental principle were recorded in article 191 of the TFEU: caution, prevention, loss remedy, the „polluter pays principle” (TFEU; Kielin-Maziarz, 2013). Pursuant to art. 191 clause 3 „in preparing its policy on the environment, the Union shall take account of: available scientific and technical data, environmental conditions in the various regions of the Union, the potential benefits and costs of action or lack of action, the economic and social development of the Union as a whole and the balanced development of its regions.”,

so therefore, shaping the EU environmental policy one should take into consideration the sustainable development. While analyzing the Treaty on the Functioning of the European Union with a view to provisions based on the concept of sustainable development or containing the principle of sustainable development one can notice that the sensu stricto sustainable development or its elements are referred to the environment and regulations concerning the protection of environment. Art. 309 of the TFEU which states that: „ The task of the European Investment Bank shall be to contribute, by having recourse to the capital market and utilizing its own resources, to the balanced and steady development of the internal market in the interest of the Union” may be indicated as an exception in principio. In this provision the European Union legislator invokes the sustainable and constant development of internal market, so therefore one can notice a certain focus on the economic pillar of the concept of sustainable development. However, the sustainable or constant development is not indicated, this is why this regulation may be only referred to sensu largo to the principle of sustainable development in the context of article 3 of the TEU. Implementation of the economic pillar of the concept of sustainable development can be also perceived in the Declaration on Article 126 of the Treaty on the Functioning of the European Union, clause 5, which states that „ The Union aims at achieving balanced economic growth and price stability. Economic and budgetary policies thus need to set the right priorities towards economic reforms, innovation, competitiveness and strengthening of private investment and consumption in phases of weak economic growth. This should be reflected in the orientations of budgetary decisions at the national and Union level in particular through restructuring of public revenue and expenditure while respecting budgetary discipline in accordance with the Treaties and the Stability and Growth Pact.” In the presented provision there is a reference to the „balanced economic growth”. From the prior analyses one can conclude that the notion of „balanced economic growth” may be derived from the concept of sustainable development, although this is a notion with a scope which is narrower than the sustainable development. However, it is worth noting, that the „balanced economic growth” is connected with economic and budget policies, economic reforms, innovations, competitiveness, enhancement of private investments and consumption. Moreover, the „balanced economic growth” should be reflected in the directions of budget decisions not only at the national but also at the European Union level, so therefore its impact is very vast on the sphere of member states and of the European Union, because it assumes even restructurization of revenues and public expenses, with the concurrent observation of budget discipline pursuant to the Treaties and the package of stability and growth. It should be indicated, though, that this is the Declaration to art.126 of the TFEU, which refers to the issues connected with a budget deficit, so therefore it does not refer to the entirety of economic policy of the member states and the European Union. As a consequence one may state that the discussed Declaration contains a reference to the economic pillar of the concept of sustainable development, but in a context of art. 126 of the TFEU, and therefore only in reference to issues connected with the budget deficit.

## **7. CONCLUSION**

Coming to a conclusion one must state that the concept of sustainable development influenced the European Union legislature, including also the: Treaty on the European Union and the Treaty on the Functioning of the European Union, discussed herein. However, analyzing the primary assumptions of the concept of sustainable development, which is based on three pillars: environmental, economic (Kozien, 2018) and social, one can state that this is not a homogenous concept, and what is more, sometimes internally contradictory, this is why it is used by various milieus for defense or fight for their interests and views. The concept of sustainable development including with its scope various views, generally concerning the environmental protection and based on the principle of intergenerational justice, this is why it is very easy in the public discourse to invoke a concept or the principle of sustainable development, because

the probability that a given view is contradictory is relatively low. The concept as well as acts of international law in this scope are of a very general, but of the program character at the same time. In principle, apart from the Brundtland Report, a definition of sustainable development does not exist and even the one existing in the Report is of a general character and contains program norms. One can ask, though, whether the concept of sustainable development may be recorded in legal regulations, especially that this is not homogenous, and sometimes internally contradictory, however the law cannot be internally contradictory and should be cohesive. On the basis of the above analyses one can state that the whole concept of sustainable development cannot be entered into legal acts and only certain elements of the concept may be regulated or, when construing legal acts one can draw on specific ideas from the concept, and also create a cohesive definition of sustainable development in the European Union legislation. Coming to the *de lege lata* remarks in reference to the Lisbon Treaty with a view to implementation of the concept of sustainable development one can state that the principle of sustainable development present in the Lisbon Treaty is of a general character and should be included into various policies of the European Union. However, the principle of sustainable development by itself is not defined by a principle of environmental protection policy, but this is one of its goals (Kielin-Maziarz, 2013). The primary law of the European Union does not define the notion of sustainable development, so therefore, as observed by L.Kramer and D.Pyc (Kramer, 2012; Pyc, 2007), a definition of sustainable development functions in the European Union law and it is adopted in the Brundtland Report, pursuant to which „at the current civilization level the sustainable development is possible, this is such development in which the needs of the current generation may be satisfied without reduction of chances of future generations for satisfying them” (Brundtland Report, 1987). Neither in the secondary law of the European Union can one find a definition of a notion of sustainable development. Analyzing the Lisbon Treaty one can notice that although there are regulations which indicate the economic and social aspects, these regulations, though, are of the program norm character. In principle only the general norms, based on the environmental pillar concept of sustainable development find their development in further detailed regulations of the Treaty on the Functioning of the European Union (art. 191-193 of the TFEU). One must also emphasize that art. 191 is the treaty basis for issuing primary law acts, if their main objective is the protection of environment (Jans, 2000). In L.Kramer’s opinion (Kramer, 2012) the principles, arising from art. 191 of the TFEU are of the character of guidelines regarding the issues of environmental protection policy. G.Winter (Winter, 2004; Kielin-Maziarz, 2013) thinks that the principle may be transformed into the law, if it becomes contained in the legal regulations, and then it is exercised before everything else, however, the policies which cannot become the effective law are of a completely different character. G.Winter treats the concept of sustainable development as the policy, whereas R.Macrony attributes to them the binding force, and A.Epiney refers the meaning of the concept only to art. 11 of the TFEU (Epiney, 2006), i.e. to the environmental aspect. In the doctrine it is noted that the concept of sustainable development is too general to become a principle. Therefore, one may notice various views in the doctrine regarding implementation of the concept of sustainable development and its legal character in the Treaty of Lisbon. In the authors’ opinion the concept of sustainable development is not homogenous and sometimes is internally contradictory, so therefore it cannot be wholly implemented, because the law must be internally cohesive. Too general character of the concept as well as its program character causes the formation of numerous ideas and the interpretation possibilities of the concept. Also, it must be stated that a number of legal acts of the secondary law of the European Union, especially in the environmental area, is based on the elements of the concept of sustainable development, and also the sustainable development is literally the goal of the European Union, pursuant to art. 3 clause 3 of the TEU. However, as it has been noticed before, the program character, vagueness and a high degree of generality of the concept causes such a situation that many legal acts may

be recognized as based on the concept, although a specific legislator may not have had such an intention. The concept of sustainable development consists of three pillars, and because the European Union legislator has not defined sustainable development one should invoke the Brundtland Report and treat sustainable development as consisting inseparably of three pillars. As a consequence, one should state that the sustainable development is not a principle, and what is more, the constitutional principle of the European Union. At the same time, it is something more than only politics, because it is listed among the European Union goals. Therefore, one can treat the sustainable development as the general goal of the European Union, its program norm, which is devoid of a *ius cogens* attribute, becoming a norm of soft law character. Only then there will not be a problem with reconciliation of entering the sustainable development to the Lisbon Treaty and its program and heterogenous character. Therefore, the European Union may act based on sustainable development within the meaning adopted in the Brundtland Report, but in case of the lack of its implementation or even an action which is contrary to an idea of sustainable development – no consequences can be drawn against any state, institution and organization. It does not change a fact that the regulations which are made precise and are of *ius cogens* character and at the same time are based on the concept of sustainable character are mandatory regulations of law, a reference is made here to regulations, which only use a phrase „sustainable development” or related phrases without any further attempts of making it more precise. Therefore, anytime in the Lisbon Treaty and in other legal acts of the European Union a reference is made only to „sustainable development” one must treat it as a general, not precise goal of the soft law character. *De lege ferenda* one should formulate a precise but at the same time flexible definition of sustainable development in the Lisbon Treaty so that to specify clearly, which ideas of the concept of sustainable development are treated by the European Union legislator as generally effective in the European Union law. Moreover, it is necessary to standardize the sustainable development terminologically in the European Union law, and especially in the Lisbon Treaty. If the European Union legislator wishes to implement the concept of sustainable development, it should be done in a holistic manner, and therefore they take into consideration all three pillars of the concept of sustainable development, defining beforehand which ideas from the concept are treated in particular areas as effective and valid in the European Union legislation. Moreover, one should define and standardize the legal character of the concept of sustainable development in the Lisbon Treaty as well as in the entire European Union legislation, especially is the European Union legislator wishes to treat the sustainable development as a principle, a constitutional principle or mandatory laws. At the same time, one could consider the treatment of the concept of sustainable development as a general policy of the European Union, but then it should be clearly defined and standardized.

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## **THE USE OF SOCIAL MEDIA MARKETING IN MODERN RETAIL: THE CASE OF MAJOR PRODUCING AND DISTRIBUTING COMPANIES**

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### **ABSTRACT**

*This paper has the purpose to examine the increasing role and importance of the use of social media marketing (SMM) in business. More specifically, it aims to assess the possible impact on modern retailers by the means of examining how companies are dealing with these novel and powerful tools in order to target consumers and markets. To achieve the research goals, two major producing and distributing companies, who play leading roles while supplying the retail sector in the olive oil sector, were selected as cases representing such reality, being subject to an in depth examination. Since the olive oil industry is a very specific sector with particular characteristics, this paper devotes some significant considerations while developing and presenting the corresponding framework as well. It is worthwhile to note that the beginning of olive and olive oil use in human nutrition is lost in time. Nevertheless, it is undisputable that olive is used at least since the dawn of Western civilizations, and probably even before the period of the classical antiquity. Olive became particularly important in the region of the Mediterranean basin, where climate favours its cultivation. Furthermore, olive assumed a limelight position within the ancient Greek civilization, where olive oil was essential not only in terms of food, as its use was far beyond nutrition, from lightning to healthcare, up to cosmetics and religion (Boskou, 2006; Polymerou-Kamilakis, 2006). If it is true that nowadays olive oil is no longer needed for lightning, it is not less true that it continues to have a wide range variety of uses in modern times, continuing Greece to be the largest consumer worldwide, in per capita figures. Regardless ancient, and with deep roots in the Mediterranean culture, olive oil appears to be losing its status, as different modern ways of living are arising, with new fashionable foods, globalization, and trendy fast-food chains. Furthermore, the increasing massive widespread use of other different vegetable oils, much cheaper than olive oil, together with issues concerning the truthiness of olive oil production, are significantly challenging producers and trading companies, being such increasingly hazardous for this historical and relevant business sector. Being important to hold both traditional existing olive oil consumers, but being critical to attract new, fresh consumers as well, in this paper are examined the role and practices of the major players on the olive oil sector in order to access the employment of Social Media Marketing (SMM), and related Corporate Social Responsibility practices, to promote products and, most importantly, to advertise the oil benefits and to ensure an enduring olive oil sector in face of the consumption decline recorded in multiple traditional markets.*

**Keywords:** Social Media Marketing, Corporate Social Responsibility, Olive Oil Health Benefits, Retail, Sovena, Deoleo

## 1. INTRODUCTION

For a long time that olive and olive oil are good friends of mankind. The beginning of olive and olive oil use in human nutrition is lost in time. Nevertheless, it is undisputable that olive is used at least since the dawn of Western civilizations, and probably even before the period of the classical antiquity (Namdar, Amrani, Getzov, & Milevski, 2014; Wiesman, 2009). Olive became particularly important in the region of the Mediterranean basin, where climate favours its cultivation. Furthermore, olive assumed a limelight position within the ancient Greek civilization, where olive oil was essential not only in terms of food, as its use was far beyond nutrition, from lightning to healthcare, up to cosmetics and religion (Boskou, 2006; Polymerou-Kamilakis, 2006). If it is true that nowadays olive oil is no longer needed for lightning, it is not less true that it continues to have a wide range variety of uses in modern times, continuing Greece to be the largest consumer worldwide, in per capita figures. Indeed, for millennia that olive oil has been supporting the development of a pan-Mediterranean way of living. Having olive and olive oil as a centrepiece, it was not only a pan-Mediterranean cuisine that has emerged and that has been diffused afterwards across different parts of the globe. Indeed, one can argue that olive oil has also contributed to lay down the foundations of the Mediterranean civilisations, which became the basis of the modern Western civilisation. Not only olive oil assumed a key role for inhabitants of the Mediterranean Basin for ages, i.e. for many thousands of years, as it is nowadays becoming increasingly popular throughout the globe, with fresh new consumers aiming to get the healthy benefits associated to the Mediterranean diet (Boskou, 2006; Polymerou-Kamilakis, 2006). In addition to its prime gastronomic use, olive oil, which is sometimes mentioned in this paper simply as “oil”, has also being having other non-conventional uses. For example, olive oil has been used in body care products, such as creams and shampoos. One should point that such uses may not be considered as being so much non-conventional by anyone coming from the Mediterranean region; nonetheless, they can be naturally considered as non-conventional by those not aware of the Mediterranean culture. The fact is that, worldwide and nowadays, many are increasingly aware of the Mediterranean diet, but such awareness is not so much to be extended to the Mediterranean way of living. Olive oil has indeed a huge variety of uses, much beyond food and nutrition. Some of such uses are coming from the classical antiquity and even earlier. Indeed, Polymerou-Kamilakis (2006) highlights the use of olive oil by women, but by men as well, for both body care and beauty treatment, being used either on specials occasions, such as weddings, and on ordinary day-by-day life as well. Olive oil can be employed indirectly, as a basic ingredient, or as a basis for manufacturing cosmetics; or directly, on skin, or hair, for example. It is important to recall the importance of hair for the woman’s beauty, being even today common practice to use olive oil in order to nourish and to have a nice lustrous hair. Dioscorides, a Greek physician from the Roman Empire time, mentions very interesting alternatives uses for olive oil. For example, he let us know that some people from such epoch were using olive oil as a sunblock to protect the skin during summer time, while during the winter it was used as a moisture to preserve the skin from the cold. More broadly, Dioscorides described olive oil as having simultaneously “wetting and thermal” properties (Polymerou-Kamilakis, 2006). Furthermore, olive oil was mentioned to the a basic ingredient of many scented oils that were mainly used by women, being referred by the writer Antiphanes that the “most elegant Greeks exaggerated so much that they used different scents for different parts of the body”, being “the vessels used for the scented oils (...) small and delicate, made of clay, alabaster or glass, round or long with a special neck that allowed the oil to be poured in very small amounts. Of course, a vessel with scented oil was one of the most favorite love gifts” (Polymerou-Kamilakis, 2006, p. 8). The social and cultural importance of olive oil is not limited only to nutrition or cosmetics though. It had other relevant functions, such as for heating and lighting, and was fundamental for religion and worship as well.

Was and it is today, as the main religions in the Mediterranean basin, Christianity, Islam, and Judaism, continue to use olive oil in several religious ceremonies, as in ancient times. Moreover, if today olive oil is regarded as healthy and diseases' protective, in the past its role was even more relevant as it was widely employed for medical treatment as well. That continues nowadays as, for example, many people continue to use it to cope with skin burnings and other irritations. Polymerou-Kamilakis (2006, p.7) reminds that olive oil was traditionally used "as an antiseptic for curing small wounds and for dealing with skin irritations. It was also used as a pain killer for rheumatism, abdominal pains, and for earache. It was used as an embrocation, poison antidote and all-purpose antiseptic.", and, in a more esoteric tone, "it was also used in magic to remove the evil eye". More recently, as "healthy" became a very trendy seal, several enhancements have been given to olive oil use, as research advances keep discovering and confirming some beneficial properties that have been first outlined for a long, as by emeritus Hippocrates and other physicians of the classical antiquity (Boskou, 2006). Nowadays is widely recognised that olive oil is a healthy fat with excellent nutritional and therapeutic characteristics, as it helps in the reduction of cardiovascular, neurological, cognitive and cancerous diseases, as well as helps to prevent aging, thus increasing the quality of life. This is because olive oil is a natural and vegetable fat, obtained through mechanical and physical processes, not through chemistry or other adulterant processes, and provides a great source of other essential nutrients, such as vitamin E (Barranco, Fernández-Escobar, & Rallo, 2001; Kiritsakis, 1992; Saldanha, 1999). Some even argue that the consumption of olive oil may also contribute to the prevention of breast cancer and cervical cancer, as, among others, it has monounsaturated fatty acids which may keep bad cholesterol under control (Barranco *et al.*, 2001; Kiritsakis, 1992), being such prevention and combat diseases' properties a result not only of such acid fats, but also a consequence of the presence of other constituents in oil, with particular emphasis for biophenols, as more contemporary research suggests (Boskou, 2006). Furthermore, olive oil is not merely a synonym of health. It is also a synonym of wealth. Since ancient times that olive and olive oil had a very important economic role, from production and technology, to trade and consumption, allowing populations not only to enjoy its benefits but also allowing producers and traders to get wealthier. However, the globalization of trade is also a reality for the olive oil market. Moreover, the olive and oil production and consumption has been transcending the traditional Mediterranean basin for a while. It is important to recall that the Mediterranean culture has been "exported" not only to the East, but also to the West. That started with the Portuguese and Spanish sailors, and continued with the new colonies established all across the New World. Later waves of emigration from Europe reinforced the spreading of the Mediterranean culture and diet across the Americas. Furthermore, there are regions from several overseas countries, i.e. outside from Europe Union (EU), that offer very good conditions for olive production, sharing similar Mediterranean climate properties, both in terms of temperature and humidity. For example, regions such as California, in the United States of America (USA), and other regions in large countries such as Argentina and Australia, offer good conditions for production (Pires, 2005). Other countries outside the Mediterranean that also produce somewhat significant amounts include Chile, and even China has started producing oil a few years ago, having consistently increased the production level in recent years. From the consumption side, the USA rules overseas, with five times more oil consumed than the second highest consuming country, the Brazil (IOC, 2018a). Other overseas countries with relevant consumption figures include, ranked by importance: Japan, China and Taiwan, Australia, Canada, and Russia (IOC, 2018a). Regardless ancient, and with deep roots in the Mediterranean culture, olive oil appears to be losing its status in traditional markets, as different modern ways of living are arising, with new fashionable foods, globalization, and trendy fast-food chains. Furthermore, the increasing massive widespread use of other different vegetable oils, much cheaper than olive oil, together with issues concerning the truthiness of olive oil

production, are significantly challenging producers and trading companies, being such increasingly hazardous for this historical and relevant business sector. Globalisation and other factors are indeed making markets more competitive for producers and distributors, and therefore there is greater pressure on prices and on the quality of the products, as consumers are progressively more educated and informed, and have better access to a wider range of products. This is leading to the need to differentiate the olive oil products to the maximum, through better promotion and marketing, often focused on the intrinsic value of the properties of organic products. If it is true that many consumers are characterised by being concerned about their health, being therefore olive oil an excellent product to be promoted in such market segment, and being aware that corporations have to have that into consideration, nevertheless the message has to be delivered to consumers, and that remains a major issue. In resume, and as examined previously, olive oil is a product that comes from a natural process and provides a relevant contribution towards the improvement of the human health condition (Santos G. , 2011). However, does health benefits awareness translate into real consumption? Furthermore, are olive oil companies trying enough to properly and successfully advertise their products? Being important to hold both traditional existing olive oil consumers, but being critical to attract new, fresh consumers as well, in this paper are examined the role and practices of the major players on the olive oil sector in order to assess the employment of Social Media Marketing (SMM), and related Corporate Social Responsibility practices, to promote products and, most importantly, to advertise the oil benefits and to ensure an enduring olive oil sector in face of the decline of multiple traditional markets.

## **2. A CHANGING WORLD WITH CHALLENGING CONSUMERS**

In order to be aware whether does health benefits awareness translate into real consumption, it is needed to observe olive oil data. In terms of broad results, analysing the available dataset from the International Olive Council (IOC, 2018a), dating from 1990 until nowadays and within the whole EU space, from 2005 that olive oil consumption has been steadily decreasing in the traditional oil consuming Mediterranean countries, being such decrease compensated by the remaining non-Mediterranean EU countries, but partially only. Indeed, while oil consumption has been increasing, overall, in the non-Mediterranean EU countries, such evolution is not compensating the decrease in the major consuming Mediterranean countries, most notably Italy, Spain, and Greece, respectively, as shown in Figure 1. As an overall result, since 2005, not only consumption is decreasing in the Mediterranean countries, as it has been mostly decreasing in the whole EU market.

*Figure following on the next page*

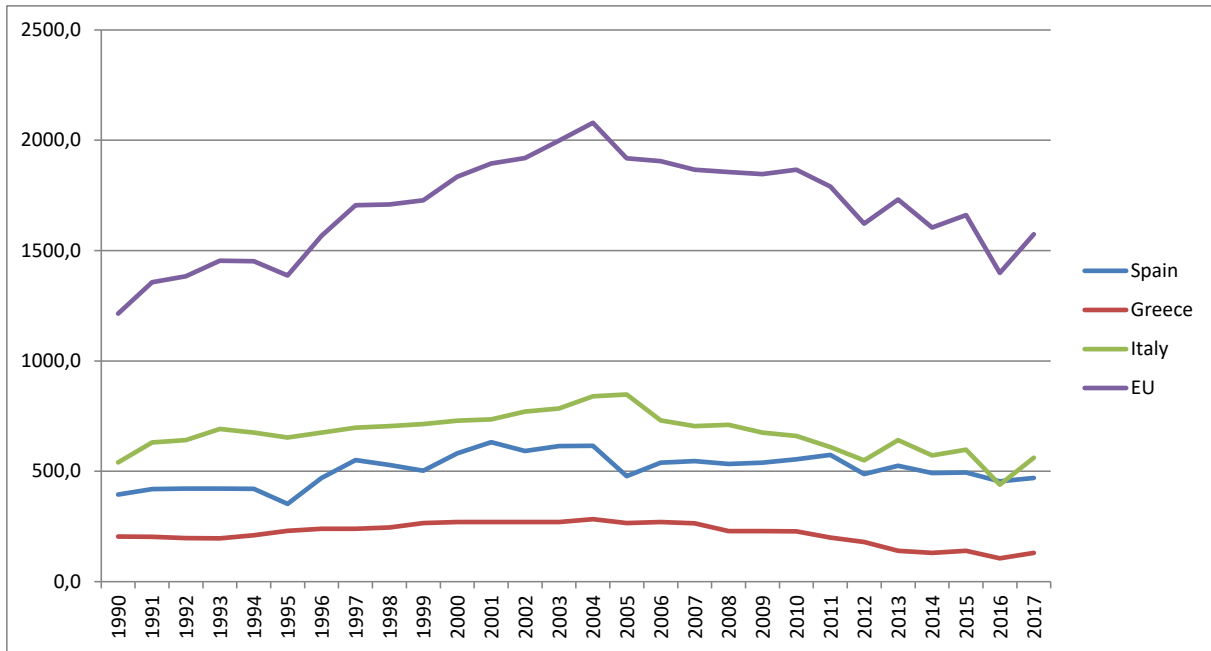


Figure 1: Evolution of olive oil consumption in traditional Mediterranean countries versus European Union total consumption (1,000 tonnes)  
 Source: International Olive Council (IOC, 2018a).

Overseas, i.e. outside the European Union, the panorama is somewhat similar. Traditional consuming countries from the Mediterranean basin and Middle East are recording decreases from 2005, while in the remaining countries consumption is mostly increasing since 1990, with a particular note for the USA, which became the third largest consumer worldwide, followed by other relevant overseas countries with very strong increases in recent years, as is the case of Brazil, Japan, China, Australia, and Canada (IOC, 2018a). The evolution of the main emerging olive oil consumption countries can be observed in Figure 2.

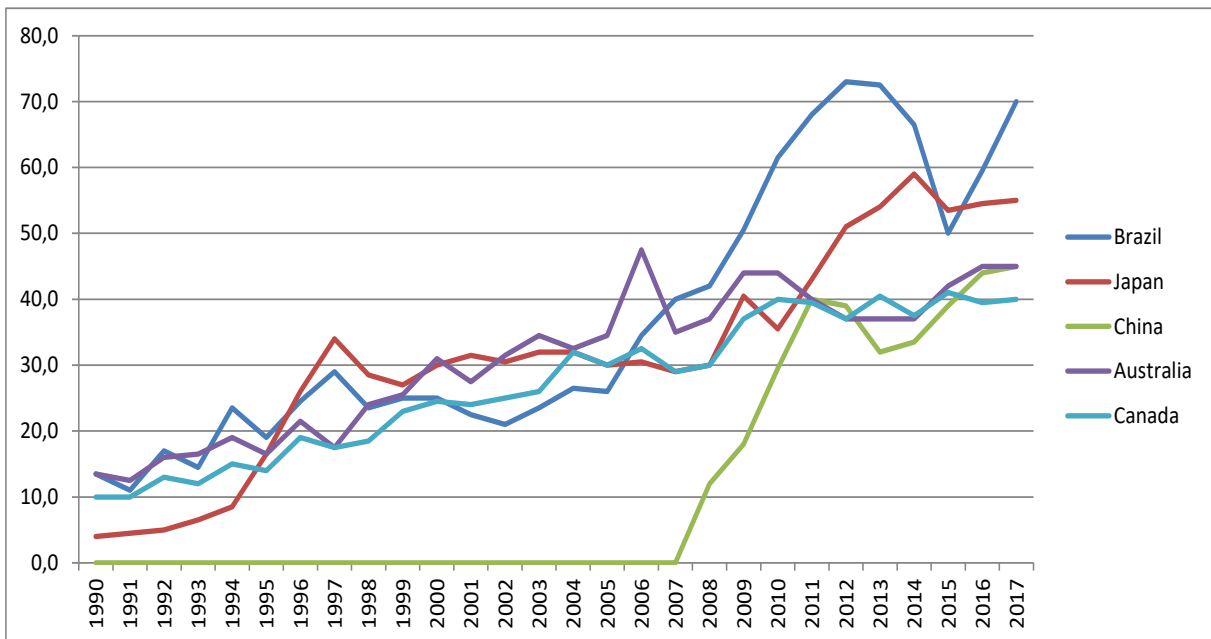


Figure 2: Evolution of olive oil consumption in main overseas markets (1,000 tonnes)  
 Source: International Olive Council (IOC, 2018a).

Despite the relevant increases in Australia and Canada, together with the outstanding olive oil consumption performance in Brazil and Japan, and the amazing recent performance of China, that basically started consuming only a decade ago, the reality is that these “Top 5” overseas markets are dwarfed by the growth and relevance of the USA market, which totals more consumption alone than those five countries together, as shown in Figure 3. Furthermore, the olive oil prices in the USA are one the highest worldwide, making the USA one of the most attractive countries for companies of this economic sector.

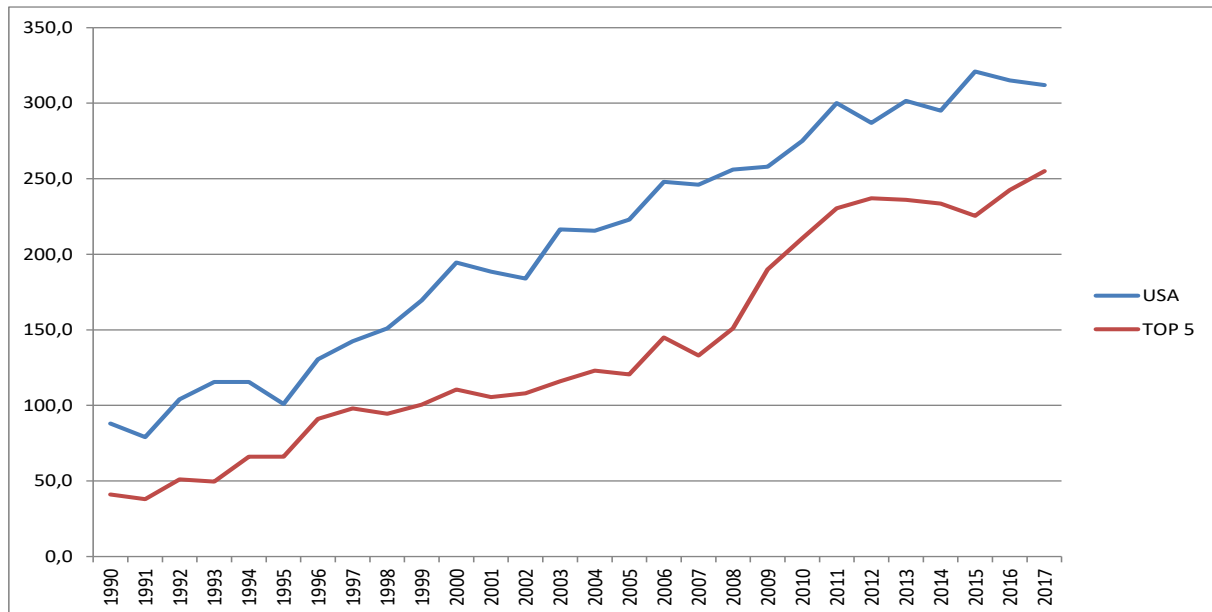


Figure 3: Evolution of olive oil consumption in overseas countries versus USA (1,000 tonnes)  
Source: International Olive Council (IOC, 2018a).

Globally, the data for the entire world reflects the examination described before. A worldwide increase in consumption from 1990 to 2005 and a somewhat slight decrease since then, which can be perceived as stagnation, at best, as depicted in Figure 4. No equivoque offered by data: the possible health benefits awareness is not being translating into olive oil consumption, and that may also suggest that companies are struggling to successfully target customers, as they are clearly losing their position on the traditional customers.

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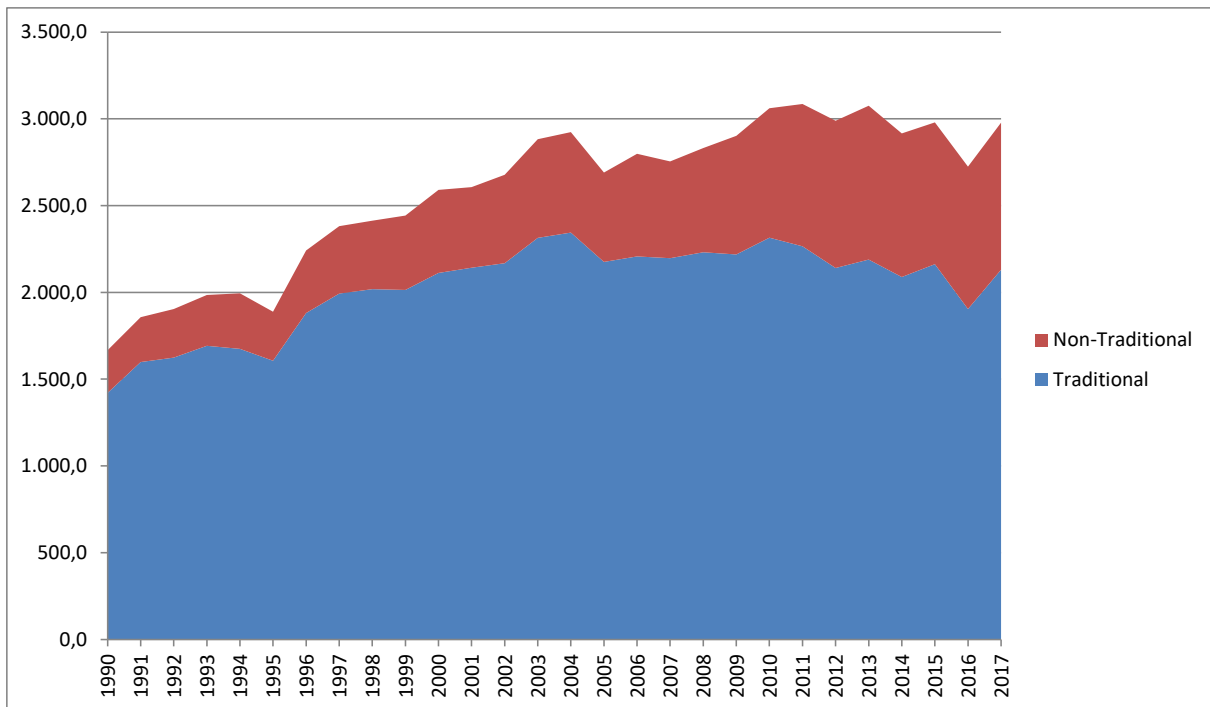


Figure 4: Worldwide evolution of olive oil consumption in traditional versus non-traditional markets

Source: International Olive Council (IOC, 2018a).

Concurrently to a loss of consumption in traditional markets, there are gains being recorded in the non-traditional ones, meaning that the downside among traditional customers may not necessarily be due to difficulties regarding advertising, and other commercial practices.

### 3. FROM OLIVE OIL BENEFITS TO SOCIAL MEDIA MARKETING

Considering that consumers are aware of olive oil benefits, even if by word of mouth, than the decreases in oil consumption may be due to insufficient commercial and advertising policies. Indeed, on the one hand, traditional customers are supposed to be already aware of olive oil benefits, at least to some extent. Furthermore, if the number of non-traditional consumers is increasing, maybe the olive oil benefits awareness is indeed increasing among the public, and companies are indeed being successful with its advertising. On the other hand, there has been the development of a strategy of targeted communication, giving preference to the trade of traditional olive oils. Companies are increasingly assuming a strong commitment to the valuation of olive oil as a product, meaning a bet on higher quality and also higher prices, both for the domestic market, but also while attracting new consumers from foreign markets. To achieve these goals, the strategic focus include: promotion of the excellence of extra virgin olive oils; disclosure of the characteristics of olive oil as mentioned before; accelerating the acknowledgment of the nutritional and therapeutic qualities of the consumption of olive oil; a more active participation of production in the value chain of the sector; valorisation of the product through new technologies and marketing instruments, betting on the brand awareness, packaging and on a labelling appropriate to different target markets; and, finally, the reinforcement of the generic promotion of olive oil on new markets, targeting new consumers (Santos S. , 2008). Accordingly, we carried an exploratory study focused on the major players on the olive oil sector in order to access the possible employment of Corporate Social Responsibility (CSR) practices and the use of Social Media Marketing (SMM) to promote products and, most importantly, to advertise the oil benefits. It is important to point out that the olive oil sector is characterised by an extreme atomization of the offer, meaning that most



companies are family-owned business, small traditional producers, whose size is to be a SME, at best. This means that barely every company in the sector has a very limited financing capacity, being that extensive to the managerial ability. Taking this reality into consideration, i.e. expecting that only a few companies could have the capacity to effectively implement CSR and SMM policies, two major companies were selected for the research, one from Portugal and another from Spain. These companies are not only leading their domestic markets, as they are also top players worldwide. The cases data and examination follows.

#### 4. DEOLEO

Deoleo is a Spanish company that argues to be the “world leader in olive oil”, by the means of innovation, quality, leading brands, international presence, and also “digital transformation” (Deoleo, 2018, p.14). Furthermore, Deoleo holds Bertolli, the leading worldwide olive oil brand, acquired to Unilever in 2008. Despite presenting a global sales figure of 692 million euros in 2017, the company has been facing financial troubles, being under a financial restructuring, having reduced its net loss to 18 million in 2017, i.e. a 90% cut from a 179 million loss in 2016. Curiously, the best performing markets for the company are the traditional ones, both in the Mediterranean basin and Middle East, while, conversely, is currently facing challenges in the Northern Europe. More importantly to the research presented here, in terms of CSR, the company is disclosing yearly environmental investments of around 2 million in recent years. Such CSR’s investments include actions related to emissions and climate change, water and waste treatment, continuous improvement and prevention of pollution, including the adoption of Kaizen technique in 2017. In more broad terms, Deoleo publicises a set of goals for its CSR policy, namely: “1. Prepare top quality, healthy products adapted to suit consumers’ needs; 2. Promote the consumption of olive oil in the world as a staple ingredient in a healthy, high value-added diet that improves people’s well being; 3. Develop our activities according to a sustainable business model that contributes value, profitability and competitiveness in the medium and long term, to achieve results that fully meet the expectations of our different stakeholders; 4. Adopt a service attitude to identify, understand and give priority to the needs of internal and external customers in an effort to meet their needs efficiently, anticipating and valuing their requests; 5. Contribute towards a better management of natural resources and preservation of the environment through energy efficiency, innovation and awareness to minimise the adverse environmental impacts of our business activities; 6. Promote honest conduct in all those who form part of or interact with our group, fostering integrity and ethical behaviour.” (Deoleo, 2018, p.51-52). In terms of SMM, Deoleo recognises that until 2017 the company had very little initiative, being its digital existence very limited. To contest such poor condition, in 2017 Deoleo created a digital department, naming two important positions, a Head of Digital and a Digital Manager. It is also worthwhile to mention the assumption of a strategy for the development of “own platforms, such as the corporate website and brand websites”, together with the “Creation and maintenance of the channels in social networks (e.g. Facebook) (...); Creation of regular contents for the brands; Analysis, tracking, reporting and active listening; Design and implementation of global brand campaigns, including paid media; Definition of guidelines for e-commerce management and action plans” (Deoleo, 2018, p.18). Whether Deoleo is accomplishing every major SMM objective, as outlined above, is unclear. Moreover the new 2017’s guidance is quite too fresh to be assessed. Nevertheless, the presence in social media channels is a reality, therefore the tools to implement such SMM strategy are indeed in place. Institutionally, Deoleo has its own webpage, which contains a broad set of information, including information about the company’s business and products, financial information for shareholders, innovation and internationalization, brands, and CSR information as well, including cultural, social and environmental dimensions. The health benefits from the Mediterranean diet are clearly mentioned also.

In terms of SMM, nothing can be found at Deoleo's main webpage, as SMM is directed for the brands, for which Deoleo has created specific websites with several media connections, but with a complexity of different networking possibilities. For example, flagship Bertolli brand has its own and adjusted webpages according to different regions and countries. The content differences are not related to the different webpages languages, but to the specifications of the regions and countries, instead. In terms of social media connections and marketing contents, Bertolli brand in the USA is linked at Facebook, Instagram, YouTube, Twitter, and Pinterest. Nevertheless, in Italy, for example, the only existing link is Facebook. The other brands have less SMM presence, resulting in fewer contents and less adjustments. As examples, Carbonell brand is at Youtube, Facebook and Twitter; while Carapelli, is only at Facebook and Instagram. Finally, some of the brand's websites and social media websites links have CSR's contents as well, together with specific references to the benefits of the Mediterranean diet and contributions of olive oil to a healthier life. In resume, there are some connections made between SMM and CSR's strategies, but not in a full fashion, as the company makes adjustments to different realities and circumstances. For example, such benefits and contributions are more present and highlighted in non-traditional consuming regions. While the focus on advertising and reassuring the quality of the products is more common in Anglo-Saxon countries, with particular relevance in the case of USA, where several controversies have arisen, including direct accusations regarding the lack of quality of Deoleo's products, which have been extended to the top leading brand Bertolli, seriously damaging its prestigious and traditional image.

## **5. SOVENA**

Sovena is a Portuguese company that argues to be "the 2nd largest olive oil group in the world" (Sovena, 2018), with "operations in 4 continents and to be market leaders in relevant geographies such as Spain, Portugal or USA." (Sovena, 2017, p.5). Unlike Deoleo, a company nowadays owned by banks and financial investment groups, Sovena keeps being a family owned business. Nevertheless, Sovena is by far larger than Deoleo, roughly almost doubling the number of employees and sales, which is partially explained by the fact that the company includes other businesses related to the olive industry, such as biodiesel, or soaps production. Anyway, olive oil is the core business of Sovena. Also contrasting Deoleo, Sovena has been far more successful in recent years, as not only has been profitable, as its olive oil brands appear to be granting more prestige, through numerous prizes, awards and recognitions granted. That should not disregard the fact that Deoleo's brands are also being awarded, but Sovena appears to be winning more and better awards. For example, according to Sovena (2017, p.5) "for the third consecutive year, Sovena was awarded with the highest prize of the world's most respected olive oil contest: Gold Medal in the Mild Green Fruitiness Category.", something that Deoleo cannot be proud of, as its oils were not granting any of these top awards in recent years. This uptrend continues nowadays, as showed by the most recent Mario Solinas top worldwide competition, organised by the IOC, for which companies submit oils for consideration, in the most prestigious international quality award for extra virgin olive oil worldwide (IOC, 2018b). In 2018, the Portuguese companies, competing with 35 oils, equaled the same number of awards of the numerous Spanish counterparts, which submitted 97 oils. From twelve possible awards, the Iberian companies seized a total of eight. Nevertheless, regarding the top players, while Sovena was awarded a silver award, none was awarded to Deoleo (International Olive Council, 2018b). Furthermore, the awarded olive oils from Portugal were all coming from the same region, Ferreira do Alentejo, in Alentejo region, making Alentejo, with four awards in twelve possible, arguably one of the best olive region in the world nowadays, as no other region was even close to be so massively awarded. Indeed, following the rain of awards that have been following, it appears that Sovena made the right strategic choice.

Sovena holds the largest olive grove in Portugal in the Alentejo region, where the new state-of-the-art Marmelo Mill was inaugurated in 2010, in Ferreira do Alentejo exactly. This region has enormously benefited from the construction of the colossal Alqueva dam, which created the largest artificial lake in Europe, a massive water reservoir that has first reached full level in 2010, and cornerstone of an immense irrigation project. This is allowing to develop and extend substantially the area of the olive groves, having Sovena a very important share of more than nine thousand hectares of groves (Sovena, 2017). It is therefore clear that Ferreira do Alentejo became the hearth of Sovena operations, its de facto "headquarters", as it also represents the main Portuguese olive oil brand, Oliveira da Serra. Something else adds to that geo-strategic advantage, where you place cutting-edge mills in the heart of the olive grove, as is the case of Marmelo mill and, to some extent, Painho mill, from 2010 and 2012, respectively. This another competitive advantage that may help explaining Sovena's success relies on the fact that "Sovena is the only major olive oil player that integrates the entire value chain within its activities, from olive groves plantation, to milling, packaging and commercialization. Vertical integration drives Sovena competitive edge defended with competitive industrial facilities and continuous knowledge update.", resulting in a major secret that Sovena makes no question to hide: "One of the secrets of quality in Sovena's olive oil is how quickly olives go from tree to the olive oil mill" (Sovena, 2017, p.23). Relating directly to CSR, the company dedicates itself extensively to environmental and social concerns and considerations. On the company's institutional website, one can consult some of their main social responsibility actions (Sovena, 2017): "Support for charities that work in benefit of underprivileged families, children in need and homeless people, such as Banco Alimentar (Food Bank) and other charity organizations; Promotion, dissemination and sharing of studies and guidelines about nutrition, health and well-being, in respect of the products that we develop and in liaison with various universities; Creation and sharing of content that inspires society and raises its awareness towards adopting a healthier diet; Organization of and support for sporting activities that involve and raise awareness among staff and communities for a healthier lifestyle.". Likewise Deoleo, the company has also very clearly and detailed environmental and sustainability strategies, with many diverse actions outlined, that are not to be included in this paper to avoid a certain degree of repetition, in accordance to the references made previously to Deoleo. Despite both companies to present differences, one may consider them au pair in terms of impact and worthiness of CSR's policies. Additionally, it is only possible to have a perception, as they do not disclose so much direct comparable data, including in financial terms. Nevertheless, some data follows. According to Sovena's latest sustainability report (Sovena, 2017), the community investment, which not only includes supporting local communities, but promoting health and nutrition as well, averaged the sum of 15 million euros per year, during the 2014-2016 triennium. In terms of environmental investments, Sovena refers an investment of 562 thousand euros, and 493 thousand euros in savings from efficiency measures implemented, plus another 1.22 million in savings from ongoing measures. As for SMM dimension, and as in the case of Deoleo, Sovena's digital focus appears to be limited until recently. The SMM strategies of both companies appear to be comparable as well, although the investment from Deoleo suggests being superior. Sovena has an institutional webpage for the corporate group, which offers information about the company's group activities, which go beyond olive and olive oil. Nevertheless, the focus is clearly on the olive oil business. The institutional webpage provides a miscellaneous of information, but in a very simple way, from company's business and products, brands, internationalisation, to CSR information and sustainability. Nevertheless, other important information can only be found on the webpage in a very light way, including cultural and environmental dimensions of olive oil, together with health benefits from the Mediterranean diet. , directly as it is only possible to access through a link to a sustainability report, available as a file, in digital format. Overall, Deoleo's webpage

offers more and better information. Nonetheless, Sovena has institutional SMM links for LinkedIn and YouTube, while Deoleo has none. Apart the institutional website, Sovena has also specific websites for its olive oil brands, which accurately target the preferred markets for which the brand is being built. This brand's advertising strategy compares to Deoleo's, although it also differs somewhat, as the later appears to be more broad, in terms of markets' target. Sovena's brands strategy appears to be the following: flagship Oliveira da Serra brand for Portuguese markets, i.e. Portugal and countries with Portuguese communities or cultural influence; Andorinha brand for Brazil; Fontoliva for Spain; and Olivari for the USA and non-traditional olive oil consuming countries. That said, as for Deoleo's, this straight approach is not necessarily so clear, as, for example, Oliveira da Serra's massively awarded brand, with 200 prizes since 2007, is increasingly being introduced in more international markets, inclusively non-traditional (Sovena, 2018; Sovena, 2017). This is also a reality for the other brands, which can also be found in different other countries and geographies from the target. That is the case of Olivari as well Being a brand created for the USA market, it can be also found in several countries outside the New Continent, from Europe to Middle East, increasingly targeting emergent markets (Sovena, 2018). This somewhat confusing scenario can also be extended to Andorinha, which is the flagship brand for the very important Brazilian market, as it also targets, as Oliveira da Serra, the Portuguese citizens and descendants disseminated around the globe, and not only, because also targets other markets, as Olivari, resulting in a brand which is distributed in several countries from every continent, apart Oceania. Finally, it seems clear that Fontoliva is primarily designed for the Spanish market, but it can be found in other European countries, as the UK, or Belgium, and even in exotic destinations, as Mauritius islands.

## **6. CONCLUSION**

Globalisation is indeed in place in the olive oil market, and therefore the commercial practices do not seem to be as tidy as presented by the companies, since multiple brands from the same company may overlap each other in the same countries and geographies, regardless a primary conceptual strategic goal. The reality suggests that other considerations, such as the need to fulfil in the best possible way the complexity of the markets, competition, and even circumstantial market opportunities, or problems, overthrown eventually the theoretical strategies, in an olive oil global market that is revealing to be very innovative, challenging, and dynamic. Innovative, as companies try to find additional and attractive ways for users to employ olive oil. Challenging, as competition is fierce and quality issues have been casting distrust on the product intrinsic value, together with pressure on prices, plus the more recent trend and proposals on protectionism, which are not only limited to the USA. Dynamic, as the markets do may change rapidly and the health benefits may not be enough to ensure customers, as there are also other vegetable oils, with good properties, but at ridiculously low prices when compared to olive oil. This cheaper condition actually serves better the customers from countries facing economic crises, or dealing with austerity measure, being probably this the reason why the giant consumer goods Unilever company sold the stellar Bertolli olive oil and vinegar brand business to SOS Group (would be renamed to Deoleo) in 2008, by the massive amount of 630 million euros (Unilever, 2008). A move which was according to Unilever's later strategy to deal with the expectation of the increase of poverty in Europe, that would be revealing to be hazardous for Deoleo, both financially, as its debt increased over reasonable figures, and in terms of quality, with recent accusations of product adulteration, or mislabelling, with a proved case settled in the USA with a seven million US dollars bill, due to problems with certain types of Bertolli olive oil, including extra virgin, some of which were continuously sold between 2010 and 2018 (USDCNDC, 2018). Taking into consideration this complex environment, it is understandable that designing the SMM strategy becomes a harder task, which, on the other

hand, must effectively reflect the top marketing priorities, as shown in the SMM analysis, which was performed in order to try to capture what Sovena is effectively focusing on. In resume, olive oil is not only food and nutrition, but also health. Furthermore, beauty even! Nevertheless, product quality must be primarily ensured, otherwise Social Media Marketing and Corporate Social Responsibility strategies may not successfully reach consumers. Despite SMM, and CSR also, appear to be in its early days at Deoleo and Sovena corporations, they both acknowledge the relevance of these contemporary tools for sustainability and to effectively bring awareness to the public, being notorious that these companies are increasingly devoting more resources and focus to the development of effective strategies, as proved by their diverse and culturally adapted presence in the social media networks.

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## RELATIONSHIP BETWEEN MAINTENANCE AND SUSTAINABILITY IN WASTE WATER TREATMENT PLANT

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### **ABSTRACT**

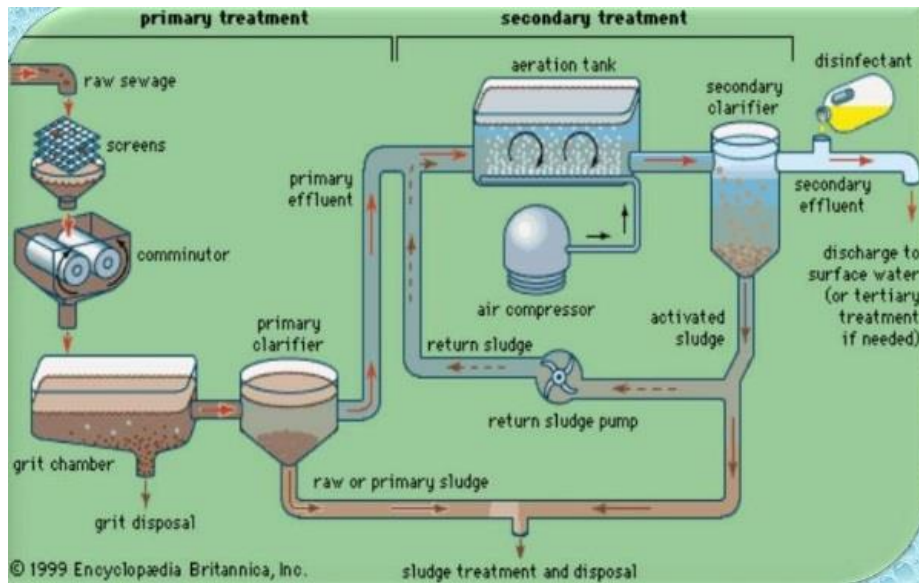
*It is known that, in all around the world, clean water reserves are decreasing and water pollution is rising with the increasing population of the world and developing industries. Due to this reason, protection of the rivers, lakes, seas and other water resources become a high constraint for all the authorities and governments. In most of the countries, waste water treatment plants became an mandatory facility in high populated cities. A waste water treatment plant consists hundreds of different kind of machines and this brings too many operation and maintenance costs for the municipalities. In this study, the operation and maintenance costs for an advanced biological waste water treatment plant are examined and the costs are tried to be decreased in a significant level by using different kinds of maintenance and operation methods. In addition to that, effects of these maintenance techniques to the environmental life and sustainability is concerned.*

**Keywords:** *Maintenance, sustainability, water treatment plant*

### **1. INTRODUCTION**

First part of study is for comparing the predictive and preventive maintenance for the equipments in a sample plant. Turbo blower machines which transfer air to the aeration tanks are chosen as a sample to complete this comparison. As it can be predicted, shutdown of each equipment will cause an economical load and extra pollution in the water resources so a detailed cost analysis performed and their environmental effect is calculated in terms of total suspended solid and biogas production. In addition to that to detect the main problems and realize the equipment efficiency, a reliability analysis is performed and failure rates are calculated individually. Waste water treatment plants are facilities to remove the dangerous content in waste water which is coming from residential and industrial sewage lines. In developing world waste water treatment plants are essential service for public and nature health (Samer, 2015). In recent 25 years treating waste water become an obligation as many countries's law state and waste water treatment plants were built even in villages and rural areas. Waste water treatment is separated in two main areas. First of them is mechanical treatment. This process involves mainly core screens fine screens, grit removers and grease removers. The main purpose for this process is the remove solid particles, sand and oil in the waste water (Vogelsang et. al., 2006). There is no any chemical and biological process in this removal. In small cities and rural areas. This process is the first part of waste water treatment and in small cities and rural areas mostly only mechanical treatment is used.

*Figure following on the next page*



*Figure 1: Waste water treatment processes*

The second type of waste water treatment is the biological treatment. This process involves primary and final sedimentation tanks, aeration tanks and sludge drying units. The main purpose of biological treatment is removing nitrogen, phosphorus and carbon in the waste water which are very harmful for water sources (Wang et. al., 2009). Comparing with the mechanical treatment, it is much more complex and expensive process but it is needed for complete security of nature and water resources. In European Union countries, this process is obligatory for cities which has population larger than 50.000. Operation and maintenance of this process is harder than the mechanical treatment but many researches and techniques have been developing each day. In an advanced biological waste water treatment plant approximately 200-300 different machines are in operation. Mostly in all over the world, municipalities are responsible from the operation and maintenance of the plants. As it is stated, scheduling and planning a maintenance plan for a large number of machine complex is very hard because when maintenance is proceeding, the plant has to continue to operate. Due to different reasons, some of the machines are highly needed in summer and some of them are highly needed in winter. And a regional characteristic of the city is very important because most of the maintenance activities have to be scheduled when the inlet flow of the plant is under the average flow of the plant. For example in metropolitan regions inlet flow is decreasing in summer because many people leave the town for holiday. In contrary in holiday places inlet flow is increasing in summer.

*Figure following on the next page*



*Figure 2: An example of an advanced biological waste water treatment plant*

The maintenance of equipments is completed in different periods like daily, monthly, semiannually and yearly. These periods are determined by machine characteristics and manufacturer advises. Monthly maintenances mostly include visual check of the machine and routine controls of machine operation such as current and vibration measurements. Semi-annual maintenance consist a detailed check of the machine and greasing. Greasing period changes machine to machine but in general it should be done in 4000 hour which approximately coincides with 6 months. Lastly in yearly maintenance, gear oil, oil filters, sealing equipments and other necessary spare parts of the machine are changed. In this maintenance, equipments are completely reviewed and check to provide any failures in future.

## **2. TYPES OF MAINTENANCE**

### **2.1. Preventive Maintenance**

It is the most commonly used type of maintenance. It proceeds by scheduling and programming maintenance periods for the equipment and completing necessary checklists which can avoid any failures in the future while the equipment is running properly. Before starting to this kind of process, all former service reports and failures of the equipment should be considered (Hein et. al., 2004). The maintenance periods should be arranged as the properties of equipment, plant requirements and labor possibilities. The biggest advantage of this type of maintenance is the fact that it requires a constant labor and spare part cost. Due to small and middle scale companies do not have too much budget and labor for the maintenance activities, preventive maintenance is a preferable method. On the other hand, preventive maintenance is not a technical way of checking the equipment. It consist only the essential techniques and methods to prevent ordinary failures of the equipment. It is not an effective way for the specific failures.

### **2.2. Predictive Maintenance**

Predictive Maintenance also called as "online monitoring" is a type of maintenance which take actions when equipment tends to fail. The failure symptoms collected by the automated signals. In former time, these detections were done by human eyes and ears but now it is done by sensors and detectors (Hashemian, 2011). Thank to the developments in the technology, this equipments eliminate the human factor. In predictive maintenance, operators set a limit degree for inputs such as vibration, current, temperature and water leakage.



These limits are less than the degrees of failure but higher than the normal operation conditions. When a specific input warns the system, maintenance activity will begin by this way only necessary interventions are applied on the equipment. When comparing with the preventive maintenance, predictive maintenance is a much more professional way of maintenance. Due to it is a condition based maintenance, the spending in the unnecessary work and spare parts will be eliminated. In addition to that, any possibility of wrong service will decrease in predictive maintenance. On the other hand, predictive maintenance requires a much more qualified labor force than preventive maintenance. Also, there is not a certain schedule of maintenance, the labor needs for the activities will be unbalanced and unclear. This type of maintenance may cause some unnecessary labor costs.

### **3. TURBO BLOWER MACHINES**

The specified machine for this project is called "Turbo Blower Machines". The main purpose of this equipment is to provide oxygen to aeration tanks with compressing the air which is taken from the atmosphere to the oxygen lines in a given pressure. This pressure amount can be changed by the diameter and the length of the lines (Jang et. al., 2008). The aeration tanks are design for 4 blowers for each tank. The number of working blowers and frequency of them are adjusted by the oxygen need which can be changed by season properties. A Turbo Blower Machine can be separated in to three main parts. First of them is the electrical motor. In this equipment the power which is need for impeller is generated by transforming electrical energy to the kinetic energy. This transformation is done by using magnetic field in the rotor with the 500 kW electrical powers. In normal operation of the blower the rotation is about approximately 2950 1/min. The second part is called "gear box". This part is designed especially for transmitting the power which is coming from electrical motor to the impeller with an increasing rotation rate. A gear box has two main objects, which are called low speed shaft and high speed shaft. The electrical motor is connected to the low speed shaft and it triggers the high speed shaft by turning. The rotation rates between the shafts have the inverse proportion with the diameter of the gears. Lastly the third part is called air unit which consists impeller, diffuser, igv valve and vgdv valve. In this unit the suctioned air and pressured air are adjusted by valves in terms of the plant requirements. The diffuser is to set the air inlet and the rotation of the impeller is to set the air outlet. These particles are designed very carefully for the plant requirements and each angle in the impeller and diffuser blades are stable for the aeration. Delivering oxygen to the aeration tanks is very significant because nitrogen removal which is one of the main reasons for biological treatment is preceded by this method. Ammonia which is consists in the urine will transform firstly to the nitrogen dioxide and water after that Nitrogen dioxide will transformed to the N<sub>2</sub> nitrogen gas. After this process, the water resources are protected from the harmful effects of the nitrogen. Therefore the need of turbo blowers in a plant is determined by the nitrogen and oxygen concentration in the inlet waste water. When the oxygen level is decreasing system automatically open the diffuser blades of the blowers to increase the oxygen pressure or start to operate a new blower. For example in rainy weather, due to rain drops contains oxygen, the blower requirement will decrease automatically.

#### **3.1. Preventive Maintenance of Turbo Blowers**

To improve the machine performance and working life of the equipment, predictive maintenance is very serious for the Turbo blowers. The predictive maintenance is done in periods like monthly, semiannually and annually. Normally, in monthly and semiannual controls, there is not any significant spare parts change because it requires only routine controls of the machine and the motor. The biggest spending for these maintenances are labor costs. When monthly maintenance of one turbo blower takes 2 hours, semiannual maintenance of one turbo blower takes 4 hours.

In normal conditions this maintenance is done by 2 operators, one of them is for mechanical issues and other one is for electrical issues. At the end, a monthly maintenance requires 4 working hours and a semiannual maintenance requires 8 working hours. The total labor cost is estimated by multiplying cost of one hour of the operator and working hours.

$$C_L = C_o \times h \times N_w$$

As it is stated before, in annual maintenance, the machine will be checked in a very detailed way and lots of spare parts will be changed in this operation. Spare parts which will be changed are determined by the machine parameters and recent breakdowns of the machine. The biggest guidance for the spare parts is the vibration, current and temperature parameters of the machines. Vibration parameter shows the fluctuations in the gear box and gives too much information about the current status of the bearings. Two bearings which are located at the both ends of the electrical motor are very important because when it has a breakdown during the operation, it may cause very excessive damages to the electrical motor and sometimes motor may not be used again. Due to this reason, in annual maintenance current status of the bearings are checked very carefully and the space between the rolls and inner & outer rings are checked very carefully. Also the current status shows the situation of the electrical motor because if the current is higher than the normal parameters, the machine is getting hard to complete its duty and something must be wrong about the motor. Finally the impeller and diffuser part of the blower is checked in the maintenance. The impeller, diffuser, igv and vgdv valves of the blowers are disassembled and checked the current positions of the housing. If the positions are not in the tolerance values, this may cause the mistakes in the operation degrees like inlet & outlet pressures and the air flow. Lastly penetration test will be done for diffuser blades to detect any crack because of metal fatigue life. Therefore, the setup process will be done for each of the blowers. By looking the parameters, shaft seals, oil filters, greasing, coupling screws, vibration sensors and air inlet filters will be changed during the maintenance. The biggest spending in the annual maintenance is the change of gear box oil because each blower needs approximately 400 liter of TX-46 special gear box oil. In normal conditions, annual maintenance of one blower takes approximately 10 working hours with 4 operators. 3 of them are for the mechanical checks and the rest 1 of them is for the electrical checks. This maintenance time can be exceeding by the complications during the maintenance and extra duties which can occur according to checks in the impeller side. Also, the spare parts which are checked can be changed in terms of the operation conditions. For example if the operation are is not cleaned regularly, the oil cooling fans has to be changed in the annual maintenance and also if the grease which is used in the maintenance is not in the quality of the normal grease, it can be leaked in to the motor and these leakages has to be cleaned with an extra labor force.

Equipment	Unit Spare Part Cost (TL)	Required Amount	Total Cost (TL)
Shaft Seals	20	1	20
Gear Oil	1,25	400	500
Oil Filters	50	2	100
Air Filters	30	1	30
Total Cost			650

*Table 1: Total Spare Part Cost for Preventive Maintenance*

$$C_L = 12 \frac{TL}{h} \times 10 \times 4 = 480 TL$$

$$C_{sp} = 500 + (50 \times 2) + 30 + 20 = 650 TL$$
$$Total Cost = 1130 TL$$

$$Annual Total Cost = 1130 \times 12 = 13,560 TL$$



Figure 3: Penetration test and impeller check in a preventive maintenance

### 3.2. Predictive Maintenance for Turbo Blowers

As it is stated is based on interventions to the equipment according to the control parameters of the equipment like vibration, current and temperature. This type of maintenance is not based on periodic maintenances. The maintenance is proceeding when a parameter exceeds the limits of operation. For example, in turbo blowers the motor is running with 3000 rpm rotation speed and the normal operation vibration degree for this type of motor is 0-2.00 mm/s and the risking operation vibration are 2.00-5.00 mm/s. In this case, if a blower is approaching to the 5.00 mm/s. The bearing change process will be done. By this method, only the electric motors which have problems are maintained and company does not have to spend money for the blowers which run perfectly. On the other hand, bearing change is much more costly than normal preventive maintenance activities in terms of spare parts cost and labor cost. The most important thing to perform predictive maintenance is establishing a very accurate controlling system. In some of the facilities, there are more than thousands of different equipments. Due to that reason it is impossible to control all of them manually or by human eye. Each parameter should give an alarm input for each of the parameters of the equipment. So the automation and alarm system should be perfect to apply a well established predictive maintenance system. In addition to that reliability is very important for the correct predictive maintenance. The supply chain and maintenance planning is arranged according to the reliability. Reliability of sensors and measurement equipments will play a major role in planning and performing the predictive maintenance (Heizer et. al., 2009). Reliability basically measured by the unit of product failure rate. Also to make a reliability analysis, one has to find the mean time between failures. However all single equipment has its own reliability, the reliability of the total system is found by multiplying all the reliabilities of the equipments. In below, the formulas for the reliabilities can be seen.

$$R_S = R_1 \times R_2 \times \dots \times R_N$$

$$FR(\%) = \frac{N_F}{N_{UT}} \times 100\%$$

$$FR(N) = \frac{N_F}{N_{UH}}$$

$$MTBF = \frac{1}{FR(N)}$$

As it is stated below, the costs of predictive maintenance is much more higher than the preventive maintenance. For example when a turbo blower gives a high vibration alarm the bearings at the both end should be replaced and this process takes approximately 30 working hours with 4 operators. Cost of the main things in predictive maintenance is listed below:

- Cost of bearing: 800 TL (2 bearings)
- Cost of shim for bearing: 50 TL
- Cost of Grease: 20 TL
- Cost of one worker: 12 TL/hour
- Average maintenance per year: 3 turbo blowers

Type of Maintenance	Required Hours of Operation (TL)	Required Number of Workers	Required Unit Labor Cost (TL)	Total Labor Cost (TL)
Preventive	10	4	12	480
Predictive	18	4	30	2160

Table 2: Labor costs for predictive and preventive maintenance

$$C_{sp} = (800 \times 2) + (50 \times 2) + (20 \times 2) = 2800 \text{ TL}$$

$$\text{Total Cost} = 3900 \text{ TL}$$

$$\text{Annual Total Cost} = 3880 \times 3 = 11,700 \text{ TL}$$

As it can be seen above, the predictive maintenance is approximately 2000 TL cheaper than the preventive maintenance. This shows that predictive maintenance is more sensual in economical way. In technical way, the preventive maintenance requires more unqualified labor force and due to it is a planned type of maintenance; it is more systematical and easy to apply. In a waste water treatment plant, there are hundreds of different types of machines and it is very hard to find qualified labor force for each kind of machines.

### 3.3. Reliability Analysis

$$FR(\%) = \frac{N_F}{N_{UT}} \times 100\% = \frac{4}{12} \times 100 = 33.3 \%$$

In the formula below, the total product failure rate for turbo blower system is calculated. 33.3% is a very high number for such an important system. That means, to sustain the proper oxygen delivery, 33.3% of the system always should be backed up.

In the table below failures in specified operation time are estimated with the proportion of number of failures and number of unit hours of operation time. This value gives such a strong chance to make comments for the reliability of the each machine and it will help to make proper interventions to the specified blower. If failure rate of one blower is high, it has to be much more detected and maintained than other blowers.

$$FR(N) = \frac{N_F}{N_{UH}}$$

Number of Turbo Blower	Operation Time (hours)	Number of Total Failures	FR(N)	MTBF (hours)
1	30.515	4	0,000131083	7.629
2	33.998	3	8,82405E-05	11.333
3	44.800	3	6,69643E-05	14.933
4	26.641	2	7,50723E-05	13.321
5	34.925	4	0,000114531	8.731
6	40.993	2	4,87888E-05	20.497
7	23.277	1	4,29609E-05	23.277
8	32.147	3	9,33213E-05	10.716
9	34.481	2	5,8003E-05	17.241
10	11.763	2	0,000170025	5.882
11	11.570	1	8,64304E-05	11.570
12	35.414	2	5,64748E-05	17.707

Table 3: Failure Rate of Turbo Blowers

$$MTBF = \frac{1}{FR(N)}$$

The mean time between failures is estimated by the formula above. It shows us the frequency of the failures in operation time. From the table above it can be seen that the most troubled blower is blower number 10. That means that, it has to be checked in a more detailed way. Unlike, the most well operated blower is blower number 12; it has a very high range of operation without failure. This means that blower number 12 has the biggest reliability among other blowers. In the planning part of the predictive maintenance those values are very important because when the equipment gives an alarm for any reason, the maintenance crew firstly look at the break down history of the equipment.

#### 4. CONCLUSION

To sum up, waste water treatment industry is developing rapidly because of the awareness in the environmental issues and to protect the water resources. Because of that reason, operation of waste water treatment plants is detected by legal authorities very significantly. In this study, the different types of maintenance are compared for its economical load to the company and effects to the environment and water resources. After that it is understood that, the predictive maintenance costs cheaper than preventive maintenance and also it is more environment friendly because of the low shut period. In addition to that contribution to the water resources, it provides an economical advantage because of the gain in production in biogas which is used as a fuel in sludge drying production. In addition to that, effects of operation of a waste water treatment plant to the renewable energy gain are examined in this study. In earlier methods, sludge drying process is mostly completed with vapor technologies but due to the limited stocks of the natural resources this diverts to the gas turbines which can operate with the biogas. Bio-energy is one of the most significant types of renewable energy and after the solid waste

removal plants and food industry; this innovation is used in waste water treatment plants. In full capacity electricity production in a waste water treatment plant is almost equal to the consumption of one small town. Due to this reason, in most of the newly established waste water treatment plants, biogas facilities are included in the process. By looking to the results of the study, despite its environmental effects, it reduces the expenditures for the natural gas almost to the half price. In long term, this difference becomes millions of dollars which can reduce the operation costs vary significantly. It is one of the biggest reasons for municipalities to use bio-energy in waste water treatment plants. In future projects, the maintenance periods of the waste water treatment plant equipments should be reduced to protect the water resources more significantly. Most of the municipalities in small towns prefer only the pre-treatment and mechanical treatment plants because of the high economical load of operation and maintenance of biological treatment plants. Also with automation facilities the labor costs and spare part costs for maintenance can be reduced very significantly. This will definitely encourage the municipalities to built new waste water treatment plants and improve the existing ones. In addition to that renewable energy usage in waste water treatment plants are limited in this level. As it is stated in the study, the maximum usage of biogas is 40 percent recently. This level must be developed and the sludge drying process may be completed by only biogas with future innovations.

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# ANALYSIS OF ICT STUDENTS' LMS ENGAGEMENT AND SUCCESS

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## **ABSTRACT**

*Big data and analytics are shaping the future of higher education. Their role is significant in creating guidelines for reform activities and in assisting educators, students, and administrators in improving teaching and learning. This paper tackles one aspect of this phenomenon. The aim of this study is to examine whether and to what extent students' activity at the Learning Management System (LMS) can be a predictor of academic success. Log file analysis is performed from a blended course in the field of Information Communication Technology (ICT). Results indicated no significant correlation between students' behavior and grade attitudes and participation could be identified. However, differences between male and female students are identified.*

**Keywords:** *Academic success, educational data mining, learning analytics, log file analysis, students' performance*

## **1. INTRODUCTION**

The massive increase of data stored in education domain on the one hand, and raise in the power of available software tools and algorithms for data analysis, on the other side, had led to the development of the educational data mining and learning analytics fields. Today, learning in higher education is inevitable without the support of information and communication technologies. Education institutions often use learning management systems (LMS) to support the teaching and learning process. An LMS stores data about students' activities in log files. The aim of the study presented here is to measure the student's activity by analyzing the log files of LMS in one course at the Information Technology (IT) setting. With the aim to achieve the above-mentioned goal, the statistical methods are applied. Results of the log data analysis are potentially useful for students, teachers and educational institutions. Increasing choice and quality analysis of the educational programs lead to the need for continuous improvement of their processes. In-depth analysis of the students' success at higher education institutions and faculties can yield interesting and useful insights - both for higher education institutions and faculties as well as for students themselves. Those findings are helpful for adaption or change in the current education system to improve its quality and efficiency, with the aim of creating better and more competent students - experts of their orientation. Long-term strategic planning of study programs leads to the increase in student success and their satisfaction level (Oladokun, Adebajo and Charles-Owaba, 2008). This paper is organized as follows. Section 2 presents the results of the previous research related to the topic. Section 3 explains the data and methodology used in the study and presents research results. Section 4 concludes the paper and gives recommendations for further analysis.

## **2. BACKGROUND AND PRIOR WORK**

Students' academic success is one of the most important indicators of the education system quality, as well as higher education institutions quality. Thus, it is an interesting topic for research.

Previous papers were mostly focused on the student success prediction and identification of student success determinants based on socio-demographic data, personality, and intelligence testing, learning styles, self-discipline or study habits and attitudes towards study. Such models are presented in the papers of e.g. Wilson and Hardgrave (1995), Ting and Robinson (1998), Busato et.al. (2000), Barchard, (2003), Duckworth and Seligman, (2005), Credé and Kuncel, (2008), York, Gibson and Rankin (2015), Rimfeld et al. (2016). Currently, there is an increasing interest in the analysis of data from learning management systems (LMS). Those platforms provide multiple channels for teachers and students to communicate in a course, share files and information, prepare and upload assignments and tests, interact in discussions. Learning management systems store log data of the students' activities and have implemented student monitoring features (Mazza and Milani, 2005). Romero and Ventura (2007) explored the application of data mining to learning management systems. Authors investigated the advantages of particular data mining techniques for LMS data analysis. LMS enables a student-centered approach of participation. The most frequently investigated topics towards LMS are students' satisfaction and acceptance of the courses. (e.g., Bollinger & Martindale, 2004; Martínez-Caro & Campuzano-Bolarín, 2011). Gender differences in students' attitudes are also explored. Many researchers focused on gender differences in LMS usage and attitudes. Huang et al. (2012), Li and Kirkup, (2007) and Rozendaal, Minnaert, and Boekaerts, (2003) find that male students have more positive attitudes than female students. Yukselturk and Top (2012) explored the participation of students and classified students by gender and other individual characteristics. The focus of their research was at the gender differences. Results indicated females' participation was more intensive than males'. These results are in line with previous studies of Caspi et al., (2008), Crocco, Cramer, and Meier (2008), González-Gómez et al. (2012), Kimbrough et al., (2013). Furthermore, the authors emphasized females' engagement in communication with other students and teachers. However, these findings are different from results of Prinsen, Volman, and Terwel (2007) which indicated the more intensive participation of male students. Since students' participation in online course activities can enhance learning, there is a need to investigate the impact of such participation on student course performance measured as students' grade. This paper presents a case study based on an undergraduate IT course. Results of such research and analysis can be precious in order to adapt or change the current education system with the aim of improving its quality and efficiency. Hereinafter, we will present the results of our research tackling this issue.

### **3. DATA ANALYSIS**

Student's usage statistics are usually the starting point of LMS learning analytics (Romero et al., 2007). Such statistics include measures as the total number of logs to the systems, number of views for specific resources, students distribution over time, the most frequent accessed sources. Student participation in a learning management system here is analyzed in quantitative terms, and it is performed in order to gain insight into student engagement. Following the completion of the academic year, data on the student usage of the learning management system was performed. Course Knowledge discovery in data taught at the University of Zagreb, Faculty of Organization and Informatics, was included in the research. The number of students included was 27. Three hours teaching lectures were held every Monday and three hours laboratory exercises were held in two groups: one every Tuesday and another every Wednesday. The collected data were analyzed, and the following information was compiled: (i) descriptive statistics and distribution of the variables indicating usage of specific resources, (ii) visualization of the patterns of usage, (iii) calculations of correlations. First, variable distributions are given in Table 1. In the first column, variables are provided, and in the second column, there are distribution numbers of students per students logs with respect to the observed variable.



Table 8: Data description

Variable	Distribution
Files view	
Forum view	
Student report	
Folder view	
Choice	
File upload	

System login	
Test	
Assignment	
Gender	
Mode of the study	

The variable files view is related to access any file in the system. The files are mainly related to the lecture notes and teaching materials. There were students that accessed only several times to the files on the system. There are also students with more than 100 logs to files on the systems. The highest number is the number of students that made between 40 to 50 logs to the files on the system. When considering the forum view, most of the students made 25- 50 logs on the system. Similar conclusions can be derived for all other variables, except the last two. Last two variables are not related to the logs of the students, but to real values of the variables gender and mode of the study. In the course, there is a higher number of male students (21) than female students (7). In terms of the mode of the study, we differ full-time and part-time students. In the set, there were 22 full-time, and 6 part-time students. Figure 1 shows an average number of logs across the semester by gender. Female students have a higher averaged number of logs than their male colleagues. Additionally, Figure 1 presents the average grade by gender. Female students have a higher average grade than the male students. There is a correlation between a number of logs and average grade in terms of gender.

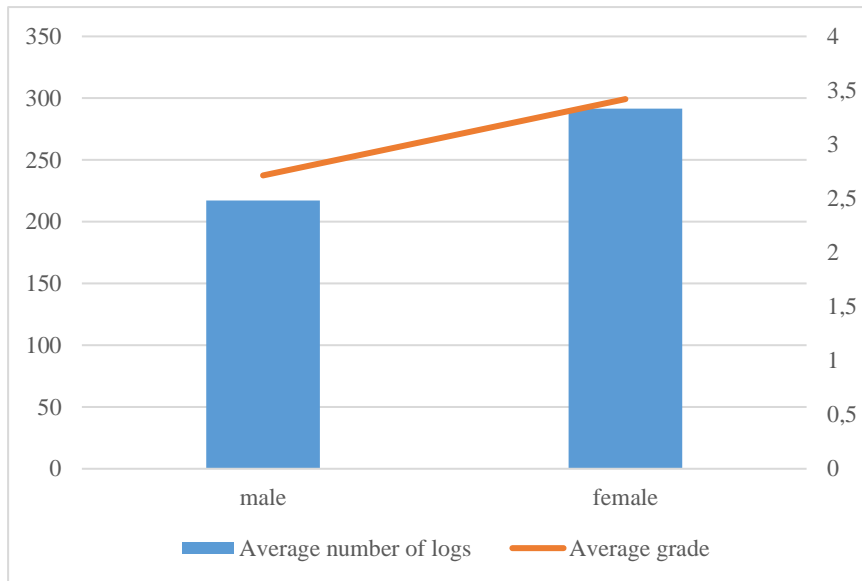


Figure 9: Average number of logs by gender

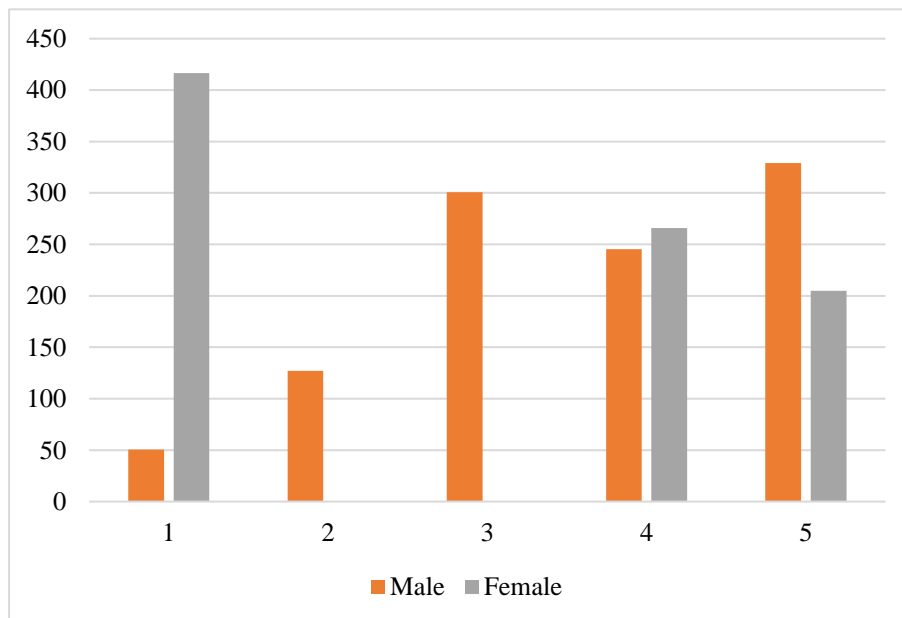


Figure 2: Average number of logs by grade

Figure 2 presents the average number of logs by grade and gender. It is interesting to note that the highest average number of logs have female students who fail the course. They are followed by male students that achieved the highest grade, 5. A high number of logs for the students that achieved a high grade seemed to be more logical and expected that the high number of logs and the lowest grade, which is the case here. Then, a more detailed analysis was conducted and it showed that those female students that achieved the lowest grade, but made the highest number of logs, were part-time students. The part-time students in most cases do not attend classes physically. That suggests the conclusion that attending the classes is an important factor in passing the exam with a high grade. Figure 3 shows the number of logs from the 1st to 19<sup>th</sup> week of the course. The 8<sup>th</sup> and 12<sup>th</sup> week of classes are the weeks during with the highest number of records. Due for assignments upload was in the 8th week of the course), and the test was held in the 12th week of the course. Those are the reasons for increased activity. There was a general upward trend in activity until week 12, after which the teaching was over, and students did their projects.

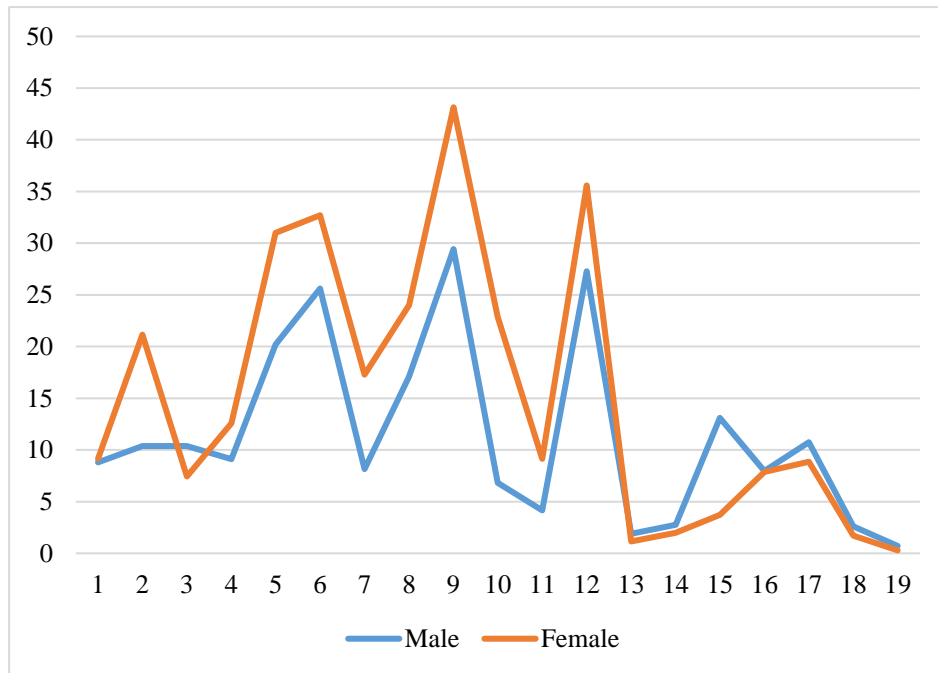


Figure 3: Distribution of logs per weeks

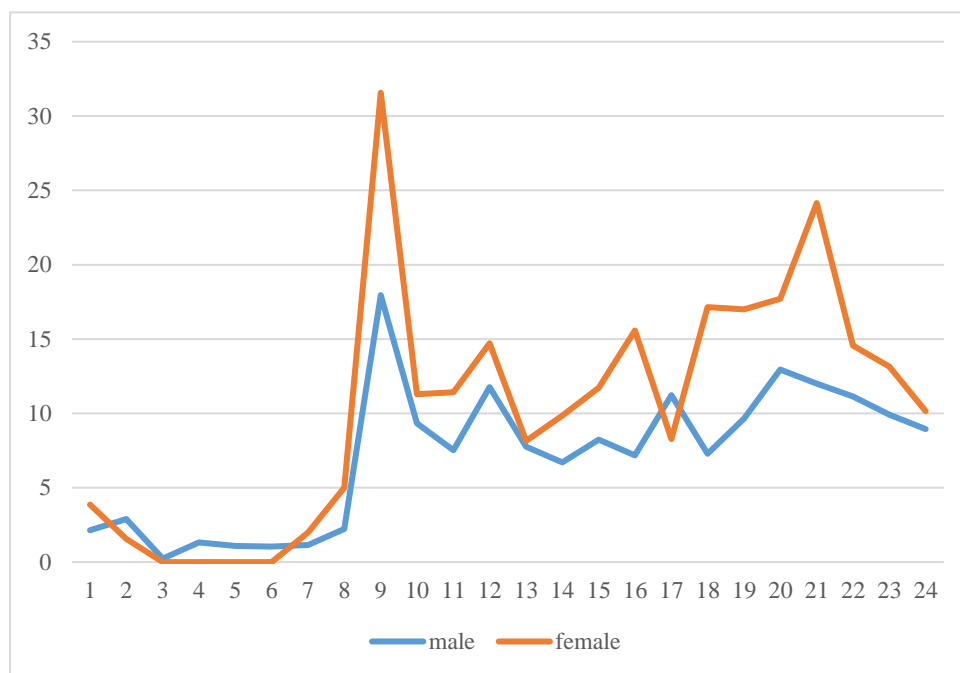


Figure 4: Distribution of logs per day hours

Figure 4 shows the averaged number of logs per day hours and gender. Most of the activities at the course LMS was performed between 8 am, and 9 am. Since both groups of laboratory exercises were at that time, students were engaged into file and folder views and assignments uploads. After that, the general trend increases until evening when increases again slightly, perhaps indicating a belated effort by students to see forum news. Previous research indicated that the ways in which students engage in learning management systems would influence the learning outcomes (Cotton and Yorke, 2006). To investigate if there is any correlation between specific activities on the LMS and grades, we have performed correlation analysis. Results are presented in table 2.

*Table 2: Correlation analysis*

<b>Variable</b>	<b>Variable</b>	<b>Correlation</b>
Forum	File view	0,988804
Students report	File view	0,990833
Students report	Forum	0,989881
Folder view	File view	0,984207
Folder view	Forum	0,979175
Folder view	Students report	0,979979
Choice	File view	0,993976
Choice	Forum	0,989721
Choice	Students report	0,995237
Choice	Folder view	0,980252
File upload	File view	0,995952
File upload	Forum	0,986588
File upload	Students report	0,993106
File upload	Folder view	0,979779
File upload	Chioce	0,994497
Report	File view	0,975506
Report	Forum	0,971357
Report	Students report	0,979057
Report	Folder view	0,997928
Report	Chioce	0,980492
Report	File upload	0,972551
Test	File view	0,993891
Test	Forum	0,992324
Test	Students report	0,993271
Test	Folder view	0,981866
Test	Choice	0,994953
Test	File upload	0,991452
Test	Report	0,977592

The results indicate a statistically significant correlation among students' test, files and folders viewing. However, there is a lack of association between grades and other logs in the course. Students demographic characteristics (gender, mode of study) are also not related to the grades.

#### **4. CONCLUSION**

In this paper, a learning analytics approach is used for analysis of IT students' activity at the LMS to analyze student's performance. In line with previous research, results presented here outlined that the behavior of students online differs between male and female. Female students are more engaged in the activities and active usage of LMS resources. Gender effects may be explained by female participants' higher compliance with social interaction rules. Although our paper offers contributions in terms of insights, there are several limitations. The presented findings are limited to the IT students at one university. Future research should include other fields of study. Other activity domains and cultural contexts should be examined, as well. Future research should additionally employ advanced machine learning methods.

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# CHANCES FOR THE IMPLEMENTATION OF THE MAIN NATIONAL TARGETS OF EUROPE 2020 STRATEGY BY THE EU COUNTRIES

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## **ABSTRACT**

*Europe 2020 strategy is a ten-year socio-economic development plan for EU and its member states that has been implemented since 2010. Its main target is formation of innovative and competitive economy, implementation of the idea of sustainable development and growth, as well as increase in employment and growth of socio-economic cohesion. The purpose of the paper is to examine how implementation of the main national targets determined in Europe 2020 Strategy proceeds in Poland and in other European Union member states. The paper also attempts to identify the trends in this sphere and forecast the possibilities of implementation of determined national targets by individual European Union countries by 2020. The level of implementation of individual targets determined in Europe 2020 Strategy by the countries of the European Union is characterised by considerable diversification which may delay timely implementation of the strategy assumptions. The research period includes the years 2004 – 2016 and established national target values as indicated for 2020*

**Keywords:** *Europe 2020 strategy, sustainable development, the EU countries, the main national targets*

## **1. INTRODUCTION**

Europe 2020 strategy is oriented on building European economy that is economically strong and competitive on a global scale (European Commission, 2010). Development plan for Europe includes, among others, five key trends associated with reduction of structural unemployment and growth of employment among people aged 20-64 (Klimko & Rievajova, 2015, pp. 297-302; Warzecha, 2018, pp. 492-501), development of research and innovations through higher level of spending on research and development (Skórska & Wójcik, 2017, pp. 2409-2416; Warzecha & Wąsowicz, 2017, pp. 2982-2989), reduction of greenhouse gas emission and increase of the share of renewable energy sources (RES) in total energy consumption (Paska & Surma, 2014, pp. 286-294; Warzecha 2017, pp. 2974-2981; Wójcik 2018, pp. 502-509), effective investment in education through improvement of education quality (reduction of the rate of early school leavers and increase of the rate of people with higher education aged 30-34), and fight against poverty (Warzecha & Skórska, 2017, pp. 657-671). Within determined trends, European Union proposes flagship initiatives and operational programs on the level of member states, that should support achievement of determined targets (Żmuda, 2011, pp. 200-210; Zalecenia Rady, 2012).

## **2. OBJECTIVE, SUBJECT AND RESEARCH METHOD**

Europe 2020 Strategy is based on three main pillars that European Union targets presented in table 1, and designated for implementation by 2020, are associated with. They are goals related to sustainable development (four indicators); goals related to development supporting social integration (two indicators) and objectives associated with smart development (two indicators). Target values of Europe 2020 Strategy are determined on global level, i.e. for the whole European Union, as well as for individual EU member states because they are countries highly diversified in social and economic terms. For each of them the "starting point" is different, and the target values that can be achieved in the time horizon assumed by the Strategy are also different (national targets for some countries are considerably lower or remarkably higher that



reference targets, which is related to specific character and significant diversity in socio-economic development of individual EU countries). Each of the countries must implement different methods to achieve the targets. They need to be adapted to the specific character of the country, and the problem areas. The main purpose of the paper is to assess Poland's position in comparison to the countries of the European Union on the basis of achieved national main targets of Europe 2020 Strategy in individual EU countries at the end of 2016, as well as to analyse and assess the chances for the implementation of main national goals of Europe 2020 Strategy by EU countries within the specified period, i.e. until the end of 2020. To assess the chances for implementation of national targets of Europe 2020 Strategy, the average rate of changes as geometric average of annual rates for 2004 – 2016 was calculated, and it was checked on this basis, whether a given country has the chance to achieve its national goals in 2020, assuming that the dynamics of studied phenomena will not change.

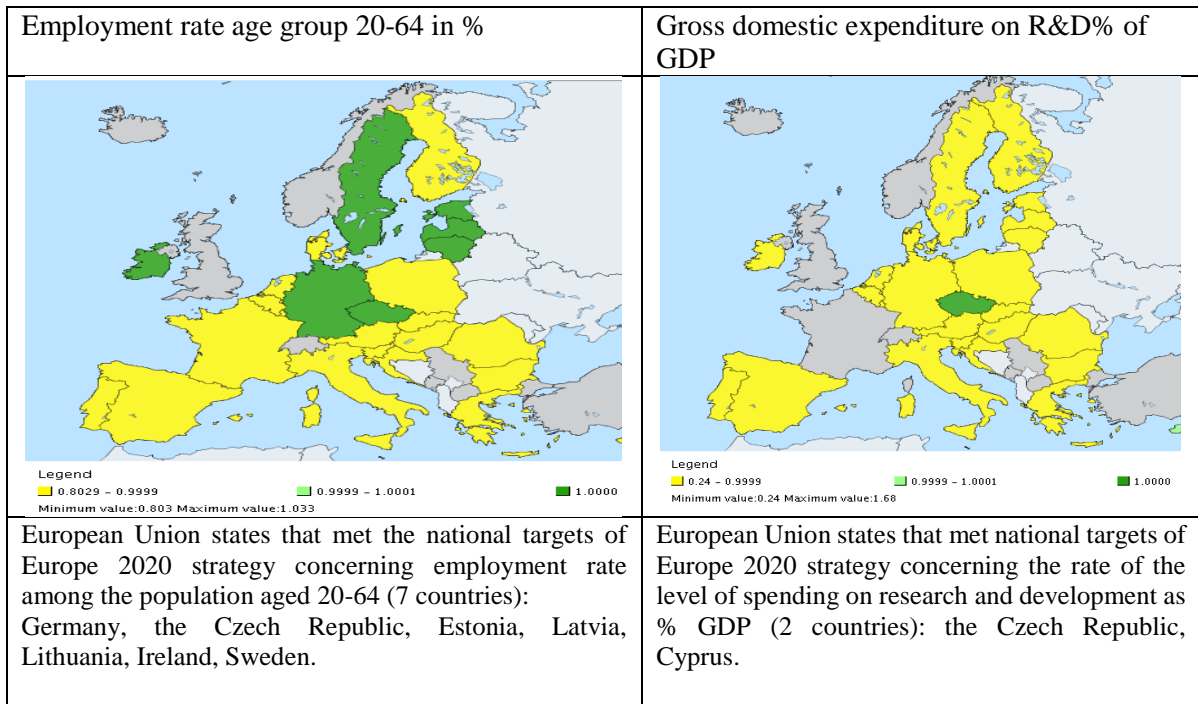
*Table 1: The list of main targets in Europe 2020 Strategy for EU-28 and Poland*

Main targets of the Strategy	Target for EU-28	Target for Poland
Targets associated with sustainable development		
Growth of the level of spending on R&D [% GDP]	3 %	1.7 %
Reduction of greenhouse gas emission (1990=100)	20%	14%
Increase of the share of renewable energy sources (RES) in total energy consumption	20%	15.5%
Increase in efficient energy use – primary energy consumption [TOE million]	1483	96.4
Targets associated with smart development		
Decreasing the rate of early school leavers	10 %	4.5%
Increasing the rate of people aged 30-34 with higher education	40 %	45 %
Targets associated with development supporting social integration		
Growth of employment rate among the population aged 20-64 [%]	75 %	71 %
Decreasing the number of people at risk of poverty or social exclusion	20 mln.	1.5 mln.

### **3. LEVEL OF IMPLEMENTATION OF MAIN NATIONAL TARGETS OF EUROPE 2020 STRATEGY IN EU COUNTRIES**

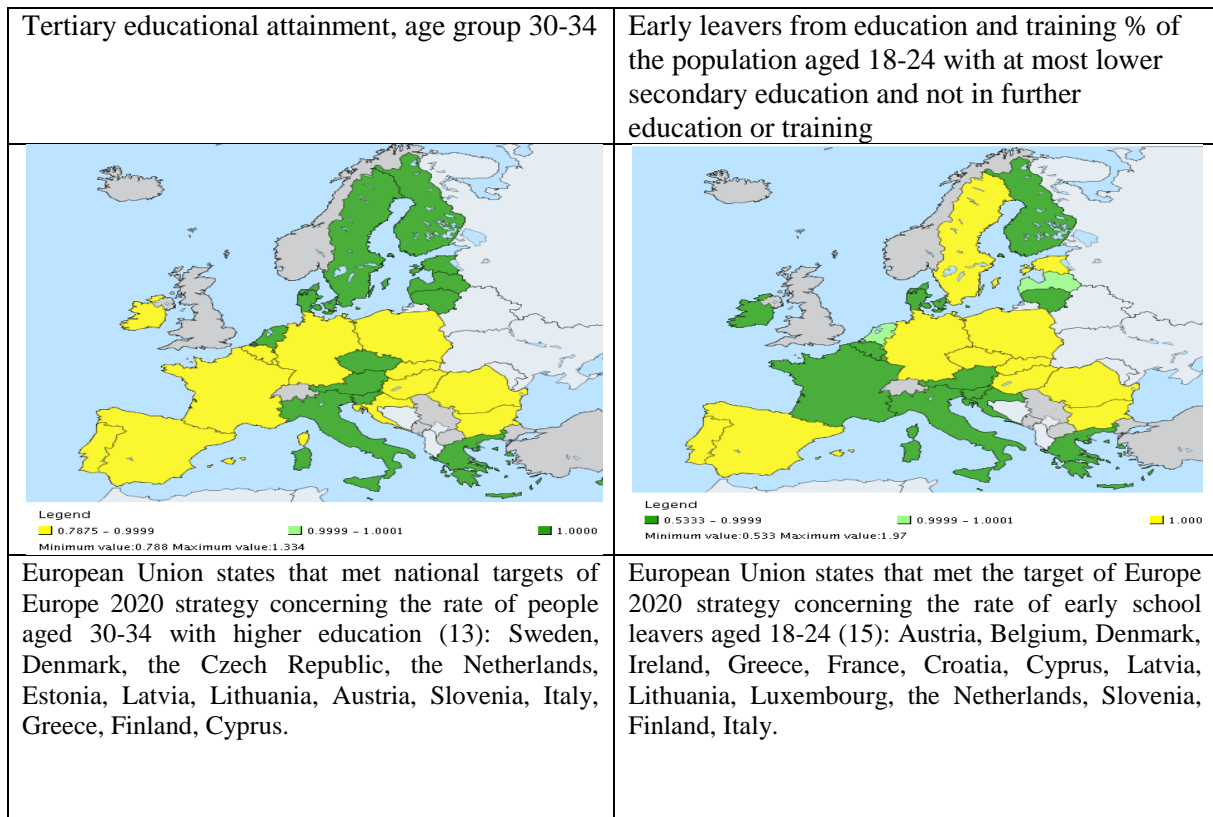
It is shown beneath, which EU countries met their national targets of Europe 2020 Strategy at the end of 2016 (fig. 1-3). Employment rate in Europe reached in 2016 on average 71% and thus there are still 4 percentage points left for the European countries to reach the expected 75%. It is positive that in most of the states the employment rate is above the average, which is proved by the negative direction of asymmetry (asymmetry coefficient -0.57). The most favourable situation on the labour market was observed in Sweden (employment rate of 81.2%), and the least favourable in Greece (56.2%) which confirms economic collapse of the country, which was a result of economic crisis of 2008-2009. As data in fig. 1 show, national target of Europe 2020 Strategy concerning the growth of employment rate was achieved in 2016 only by 7 EU countries.

*Figure following on the next page*



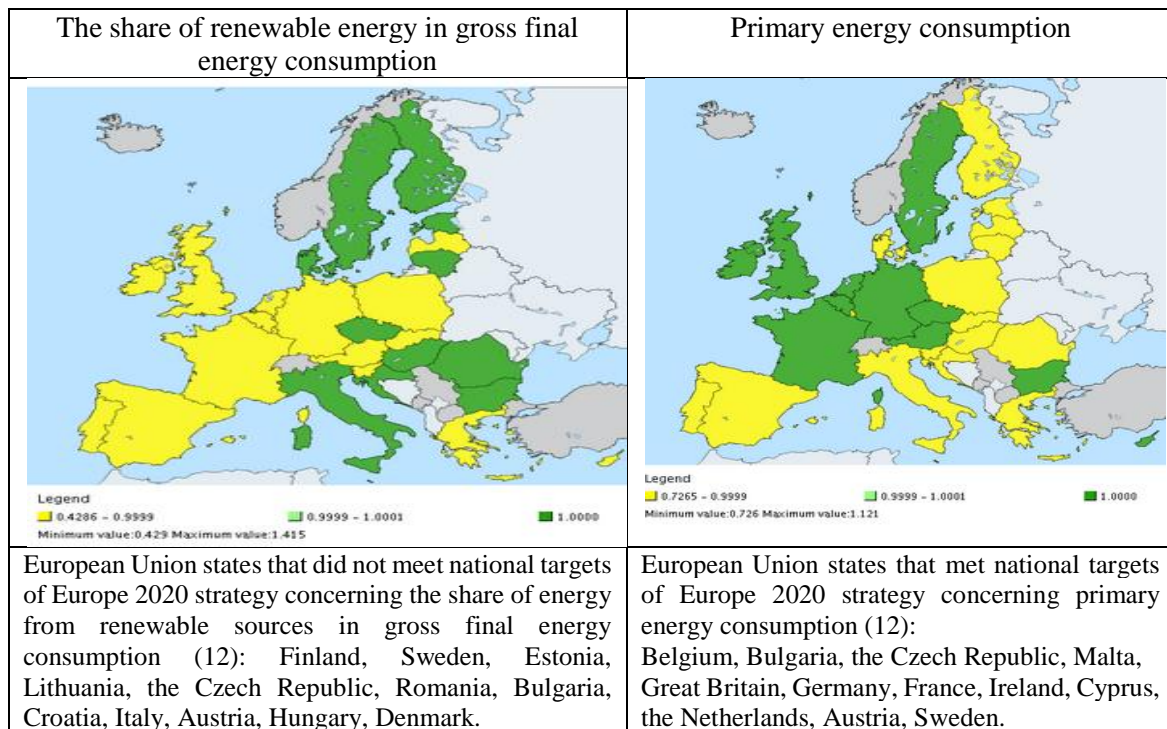
*\*- dark colour shows the countries that met the national target of Europe 2020 strategy in a given year*

*Figure 1: Employment rate of the population aged 20-64 and the indicator of spending on research and development in % GDP in EU countries in 2016*



*\*- dark colour shows the countries that met the national target of Europe 2020 strategy in a given year*

*Figure 2: The rate of youth aged 30-34 with higher education; the rate of youth aged 18-24 who did not continue education in EU countries in 2016*



\*- dark colour shows the countries that met the national target of Europe 2020 strategy in a given year

Figure 3: The share of energy from renewable sources in gross final energy consumption and primary energy consumption

The strategy objective is to support research and development of innovative economy. The countries of the European Union are highly diversified with respect to the analysed rate (56%), and the positive value of asymmetry coefficient (0.67) means that in most of the countries the rate is lower than EU average (reaching 2.03% in 2016, whereas the EU objective is to spend 3% GDP on research and development investments). The largest investments on research and development in 2016 were made in Sweden (3.25% GDP) and Austria (3.09% GDP), whereas the smallest in Romania (0.48% GDP). As data included in fig. 1 show the national objective of Europe 2020 Strategy was met in 2016 only by 2 EU countries. Analysing the share of renewable energy in gross final energy consumption, the highest rate in 2016 was observed in Sweden (53.8%) and Finland (38.7%), whereas the lowest in Luxembourg (5.4%), Malta and Holland (6%). Dispersion in this sphere is high, while reaching the level of 59%, and the positive value of the asymmetry coefficient (1.01) means that in majority of the countries the share is lower than the EU average (reaching 19.96% in 2016). As data included in fig. 3 show, the national objective of Europe 2020 Strategy concerning the growth of the share of renewable energy in gross final energy consumption was met in 2016 by 12 EU countries. According to Europe 2020 strategy, the member states should follow the path of development of knowledge-based economy, which is associated with the growth of the rate of people aged 30-34 with higher education (in 2016 the highest rate was reached by Luxembourg (54.6%) and Lithuania (58.7%), whereas the lowest by Romania (25.6%) and Italy (26.2%)). In most of EU-28 countries this rate is above the EU average (that reached 41.32% in 2016). As data included in fig. 2 show, national target of Europe 2020 concerning the growth of the rate of people aged 30-34 with higher education was achieved in 2016 by 13 EU countries. The strategy assumes that the number of early school leavers aged 18-24 must be reduced to 10%. In 2016 the lowest rate of this phenomenon was reported in Croatia (3.1%), Slovenia (4.3%) and in Poland (5.0%). On the other hand, the worst situation in this respect was observed in Spain (18.3%), Malta (18.6%) and Romania (18.1%). As data in fig. 2 show, the national target of Europe 2020

Strategy concerning the reduction of the rate of early school leavers aged 18-24 was achieved in 2016 by 12 countries in the EU. The strategy target is also to reduce poverty and social exclusion. Poverty risk in 2016 most often concerned the population of Bulgaria (40.4%), Romania (38.8%) and Greece (35.6%); whereas it was least experienced by the population of Czech Republic (13.3%); Holland (16.7%) and Denmark (16.8%). The strategy assumed increase of efficient energy use by 20%. As data included in fig. 3 show the target of Europe 2020 Strategy concerning growth of efficient energy use (i.e. reduction of primary energy use) was achieved in 2016 by 12 EU countries.

*Table 2: Implementation of national target levels of main indicators of Europe 2020 Europe Strategy as determined for 2020 in EU countries and final number of national targets that were achieved (as of 2016)*

No.	EU country	A	B	C	D	F	G	H	Number of achieved national targets
	Belgium				X		X		2
	Bulgaria					X	X	X	3
	Czech Republic	X	X	X		X	X	X	6
	Denmark			X	X	X			3
	Germany	X					X	b	2
	Estonia	X		X		X		b	3
	Ireland	X			X		X		3
	Greece			X	X				2
	Spain								0
	France				X		X		2
	Croatia				X	X		b	2
	Italy			X	X	X			3
	Cyprus		X	X	X		X		4
	Latvia	X		X	X			X	4
	Lithuania	X		X	X	X			4
	Luxembourg				X				1
	Hungary					X			1
	Malta						X		1
	Netherlands			X	X		X		3
	Austria			X	X	X	X		4
	Poland							X	1
	Portugal								0
	Romania					X		X	2
	Slovenia			X	X				2
	Slovakia								0
	Finland			X	XX	X		b	3
	Sweden	X		X		X	X	b	4
	United Kingdom	b	b	b	b	b	X	b	1
	sum	7	2	13	15	12	12	5	

#### 4. CHANCES FOR THE IMPLEMENTATION OF NATIONAL TARGETS OF EUROPE 2020 STRATEGY BY THE EU COUNTRIES IN 2020

Tables 3-5 show data on the basis of which chances for the implementation of national targets of Europe 2020 strategy by individual EU countries at the end of 2020 are analysed. Each of the tables 3-5 presents the national target of Europe 2020 strategy relevant for the analysed area, the average rate of change of a given indicator in the years 2004-2016 was calculated and

forecasts for a given indicator for 2020 was determined (assuming that the dynamics of changes of the phenomena will not change). Furthermore, the difference between the forecast and assumed target is calculated. It shows whether a given EU country has the chances for the implementation of its national target of Europe 2020 strategy (countries that have chances for achievement of national target are marked grey in tables 3-5).

*Table 3: Assessment of the chances for achievement of the national target levels of main indicators of Europe 2020 Strategy in EU countries as determined for 2020, and estimated number of national targets that can be achieved at the end of 2020*

No	EU country	2020 target	Average pace of changes	Forecast for 2020	Difference	2020 target	Average pace of changes	Forecast for 2020	Difference
		A - Employment rate age group 20-64 in %				B - Gross domestic expenditure on R&D% of GDP			
1	Belgium	73,2	1,003	68,41	-4,79	3	1,027	2,77	-0,23
2	Bulgaria	76	1,010	70,44	-5,56	1,5	1,043	0,92	-0,58
3	Czech Republic	75	1,008	79,04	4,04	1	1,032	1,91	0,91
4	Denmark	80	1,000	77,33	-2,67	3	1,014	3,04	0,04
5	Germany	77	1,012	82,41	5,41	3	1,016	3,14	0,14
6	Estonia	76	1,007	78,82	2,82	3	1,035	1,47	-1,53
7	Ireland	69	0,998	70,91	1,91	2	1,000	1,18	-0,82
8	Greece	70	0,989	53,85	-16,15	1,2	1,055	1,25	0,05
9	Spain	74	0,998	63,41	-10,59	2	1,011	1,24	-0,76
10	France	75	1,001	70,27	-4,73	3	1,006	2,31	-0,69
11	Croatia	62,9	1,003	62,05	-0,85	1,4	0,984	0,80	-0,60
12	Italy	67	1,000	61,60	-5,40	1,53	1,017	1,38	-0,15
13	Cyprus	75	0,993	66,69	-8,31	0,5	1,033	0,57	0,07
14	Latvia	73	1,006	75,06	2,06	1,5	1,008	0,45	-1,05
15	Lithuania	72,8	1,007	77,28	4,48	1,9	1,010	0,89	-1,01
16	Luxembourg	73	1,004	71,73	-1,27	2,3	0,979	1,14	-1,16
17	Hungary	75	1,012	74,94	-0,06	1,8	1,029	1,36	-0,44
18	Malta	70	1,015	74,00	4,00	2	1,018	0,66	-1,34
19	Netherlands	80	1,002	77,85	-2,15	2,5	1,010	2,11	-0,39
20	Austria	77	1,006	76,66	-0,34	3,76	1,030	3,48	-0,28
21	Poland	71	1,016	73,83	2,83	1,7	1,048	1,17	-0,53
22	Portugal	75	0,998	69,98	-5,02	2,7	1,047	1,53	-1,17
23	Romania	70	1,004	67,26	-2,74	2	1,020	0,52	-1,48
24	Slovenia	75	1,000	70,00	-5,00	3	1,032	2,27	-0,73
25	Slovakia	72	1,008	71,96	-0,04	1,2	1,039	0,92	-0,28
26	Finland	78	1,001	73,80	-4,20	4	0,985	2,59	-1,41
27	Sweden	80	1,004	82,51	2,51	4	0,996	3,20	-0,80
28	United Kingdom	No determined national targets for UK							

*Table 4: Assessment of the chances for achievement of the national target levels of main indicators of Europe 2020 Strategy in EU countries as determined for 2020, and estimated number of national targets that can be achieved at the end of 2020*

Lp.	Kraj UE	2020 target	Average pace of changes	Forecast for 2020	Difference	2020 target	Average pace of changes	Forecast for 2020	Difference
		C - Tertiary educational attainment, age group 30-34				D - Early leavers from education and training % of the population aged 18-24			
1	Belgium	47	1,011	47,68	0,68	9,5	0,9736	7,91	-1,59
2	Bulgaria	36	1,025	37,28	1,28	11	0,9461	11,05	0,05
3	Czech Republic	32	1,082	45,00	13,00	5,5	0,9887	6,31	0,81
4	Denmark	40	1,012	50,01	10,01	10	1,0107	7,51	-2,49
5	Germany	42	1,018	35,66	-6,34	10	0,9842	9,67	-0,33
6	Estonia	40	1,040	53,15	13,15	9,5	0,9688	9,60	0,10
7	Ireland	60	1,026	58,17	-1,83	8	0,9597	5,26	-2,74
8	Greece	32	1,045	50,97	18,97	10	0,9695	5,48	-4,52
9	Spain	44	1,007	41,23	-2,77	15	0,9383	14,73	-0,27
10	France	50	1,017	46,65	-3,35	9,5	0,9787	8,07	-1,43
11	Croatia	35	1,047	35,27	0,27	4	0,9753	2,53	-1,47
12	Italy	26	1,044	31,14	5,14	16	0,9699	12,21	-3,79
13	Cyprus	46	1,022	58,32	12,32	10	0,9416	5,97	-4,03
14	Latvia	34	1,074	56,92	22,92	10	0,9621	8,57	-1,43
15	Lithuania	48,7	1,055	72,70	24,00	9	0,9888	4,59	-4,41
16	Luxembourg	66	1,047	65,66	-0,34	10	0,9803	5,08	-4,92
17	Hungary	34	1,049	40,02	6,02	10	0,9809	11,48	1,48
18	Malta	33	1,045	35,68	2,68	10	0,8871	12,20	2,20
19	Netherlands	40	1,026	50,63	10,63	8	0,9539	6,62	-1,38
20	Austria	38	1,056	49,83	11,83	9,5	0,9974	6,83	-2,67
21	Poland	45	1,067	57,89	12,89	4,5	0,9819	4,83	0,33
22	Portugal	40	1,065	44,47	4,47	10	0,8922	8,87	-1,13
23	Romania	26,7	1,079	34,68	7,98	11,3	0,9446	14,73	3,43
24	Slovenia	40	1,048	53,38	13,38	5	1,0126	5,15	0,15
25	Slovakia	40	1,077	42,42	2,42	6	0,9896	7,10	1,10
26	Finland	42	1,005	47,04	5,04	8	0,9816	7,33	-0,67
27	Sweden	45	1,035	58,44	13,44	7	0,9775	6,76	-0,24
28	United Kingdom	No determined national targets for UK							

As previous analyses show (data included in table 2) 7 EU countries achieved their national target related to employment at the end of 2016. If the pace of changes of studied indicator does not change, by 2020 also Poland and Malta will have met their national target (and even according to projections included in table 3, they will have exceeded the assumed national targets). Data included in table 3 show that between 2004 and 2016 the highest real average pace of changes of employment rate was reported in Poland (1.6%) and Malta (1.5%).

*Table 5: Assessment of the chances for achievement of the national target levels of main indicators of Europe 2020 Strategy in EU countries as determined for 2020, and estimated number of national targets that can be achieved at the end of 2020*

Lp.	Kraj UE	2020 target	Average pace of changes	Forecast for 2020	Difference	2020 target	Average pace of changes	Forecast for 2020	Difference
		F - The share of renewable energy in gross final energy consumption				G - Primary energy consumption			
1	Belgium	13	1,135	14,45	1,45	43,7	0,995	47,95	4,25
2	Bulgaria	16	1,059	23,69	7,69	16,9	0,997	17,40	0,50
3	Czech Republic	13	1,068	19,35	6,35	39,6	0,994	38,92	-0,68
4	Denmark	30	1,066	41,63	11,63	17,4	0,988	16,38	-1,02
5	Germany	18	1,081	20,22	2,22	276,6	0,994	288,24	11,64
6	Estonia	25	1,038	33,44	8,44	6,5	1,009	6,31	-0,19
7	Ireland	16	1,121	15,03	-0,97	13,9	0,999	14,53	0,63
8	Greece	18	1,068	19,78	1,78	24,7	0,980	21,66	-3,04
9	Spain	20	1,062	22,01	2,01	119,8	0,990	112,50	-7,30
10	France	23	1,044	19,04	-3,96	219,9	0,992	228,14	8,24
11	Croatia	20	1,016	30,11	10,11	11,15	0,992	7,85	-3,30
12	Italy	17	1,088	24,41	7,41	158	0,985	139,72	-18,28
13	Cyprus	13	1,096	13,41	0,41	2,2	1,000	2,40	0,20
14	Latvia	40	1,011	38,79	-1,21	5,4	0,998	4,27	-1,13
15	Lithuania	23	1,034	29,23	6,23	6,5	0,971	5,34	-1,16
16	Luxembourg	11	1,161	9,81	-1,19	4,5	0,991	4,05	-0,45
17	Hungary	13	1,103	20,98	7,98	24,1	0,997	23,64	-0,46
18	Malta	10	1,407	23,49	13,49	0,7	0,979	0,64	-0,06
19	Netherlands	14	1,096	8,65	-5,35	60,7	0,993	63,12	2,42
20	Austria	34	1,034	38,25	4,25	31,5	1,001	31,93	0,43
21	Poland	15	1,042	13,32	-1,68	96,4	1,007	96,90	0,50
22	Portugal	31	1,033	32,51	1,51	22,5	0,992	21,44	-1,06
23	Romania	24	1,036	28,83	4,83	43	0,985	29,47	-13,53
24	Slovenia	25	1,024	23,38	-1,62	7,3	0,998	6,63	-0,67
25	Slovakia	14	1,054	14,80	0,80	16,4	0,991	14,97	-1,43
26	Finland	38	1,024	42,51	4,51	35,9	0,993	32,13	-3,77
27	Sweden	49	1,028	60,04	11,04	43,4	0,996	46,26	2,86
28	United Kingdom	15	1,195	18,95	3,95	177,6	0,984	170,27	-7,33

Analysing data concerning investments on research and development and data included in table 2, it can be stated that only two countries achieved their national target at the end of 2016. Data included in table 3 show that also Denmark, Germany and Greece have the chances to have their national targets achieved, or even have the values of their national targets exceeded by 2020 (if the dynamics of changes of the described phenomenon does not change). Between 2004 and 2016, the highest average real pace of change in the rate of research and development investments was observed in Greece (5.5% per year) and Poland (4.8% per year). Furthermore, data included in table 3 show that for most of the EU countries, (if the pace of changes of the

studied phenomenon remains on the level similar to that calculated in the table), the national targets related to the level of investments on research and development will not have been met by 2020. Analysing data concerning the rates associated with education, and data included in table 3 it can be stated that at the end of 2016, 13 EU countries achieved their national target concerning the growth of the rate of people aged 30-34 with higher education, and 13 EU countries met their national target concerning reduction of the rates of early school leavers aged 18-24. Data included in table 4 show that further 9 countries (Belgium, Bulgaria, Croatia, Hungary, Malta, Poland, Portugal, Romania and Slovakia) also have the chances to have their national targets concerning the rate of people with higher education achieved or even the values of their national targets exceeded by 2020 (if the dynamics of changes of the described phenomenon does not change). Data included in table 4 show that 4 further countries (Germany, Portugal, Spain and Sweden) also have the chances to have their national targets concerning the rate of early school leavers aged 18-24 met, or the values of their national targets even exceeded by 2020 (if the dynamics of changes of the described phenomenon does not change). As it is shown by data included in fig. 3, the national target of Europe 2020 Strategy, concerning the growth of renewable energy share in gross final energy consumption was achieved in 2016 by 12 EU countries, whereas data included in table 5 show that 8 further countries (Belgium, Germany, Greece, Spain, Cyprus, Malta, Portugal, Slovakia, Great Britain) also have the chances to achieve their national targets in this sphere. Data included in fig. 3 show that the target of Europe 2020 Strategy concerning increase of energy efficiency (i.e. reduction of primary energy consumption) was achieved in 2016 by 12 EU countries, whereas data included in table 5 show that only Poland has the chances to meet its national targets in this sphere; furthermore, if the pace of changes for the Czech Republic, Spain, Malta and Great Britain remains on the current level, according to forecasts for the end of 2020 their national targets will not have been achieved even though at the end of 2016 the countries already achieved their national targets.

## 5. CONCLUSION

The paper analyses the level of achievement of selected national targets of Europe 2020 Strategy by EU countries. The analyses show that the national target of Europe 2020 Strategy related to increase in investments on research and development is the hardest to achieve (until the end of 2016 only two countries, i.e. Austria and Sweden met the target), and the forecasts show that by the end of 2020 only four countries will have had the national targets achieved. The study shows that national educational targets are the easiest to achieve (13 countries met national targets related to the growth of the rate of people aged 30-34 with higher education), and projections show that 22 countries will have achieved the national targets of this rate by 2020. On the other hand, national targets of the rate concerning early school leavers aged 18-24 was achieved by 15 EU countries at the end of 2016, whereas according to forecasts, until the end of 2020 the target will have been achieved by 18 EU countries. Positive forecasts also concern the rate of share of renewable energy in gross final energy consumption because 12 EU countries achieved their national targets at the end of 2016, and it is estimated that this target will have been achieved by 21 EU countries by 2020. In comparison to EU countries, at the end of 2016 Poland was rated very poorly (one national target of 7 main indicators of Europe 2020 Strategy was achieved). However forecasts show that by the end of 2020 Poland will have met a total of four national strategy targets. Finally, it must be stated that timely implementation of all national targets of Europe 2020 Strategy associated with its main assumptions by all EU countries seems little probable. The most unfavourable situation is observed in the sphere of achievement of the targets related to employment, research and development investments, and the issue of poverty.



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## HIGH TECH BUSINESS DEVELOPMENT IN SIBERIA: GROWTH FACTORS AND BARRIERS FOR DEVELOPMENT

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### ABSTRACT

*Social-economic development of Russia in general and Siberia in particular is connected with "new economy" and "new industrialization". New industrialization is based on manufacturing and high tech sector as well as on knowledge-intensive services, which are related to information and communication technologies. The scope of the paper is to analyze the current state of play and prospects of development of high tech and knowledge-intensive enterprises in regions of Siberian Federal District. Spatial and industrial structure of high tech business in Siberia is presented. Main problems and prospects of development of high tech companies are discussed. Data provided by official statistics and several data bases are used for empirical analysis. It was proved that contribution of high tech business to Siberian economy is rather modest; it forms less than 10% of regional economy. In 2016, high and medium tech activities formed 14.4% of shipped products in Siberian Federal District (SFD). In Russia in general, this indicator is higher (20.7% in 2016). Siberian service economy, which includes knowledge-intensive services demonstrates higher growth rates. This sector is represented mainly by air services, knowledge-intensive industrial services and small and medium size high tech business. Large high tech companies operate mainly in aviation and space industry as well as in military complex and nuclear industry. Siberian regions are characterized by high differentiation of high tech business development. More favorable environment for "new economy" is created in regions with advanced research and educational basis. Novosibirsk, Tomsk, Irkutsk oblast and Krasnoyarsk krai are good examples of such regions.*

**Keywords:** *high tech business, regional and industrial structure, Siberia*

### 1. INTRODUCTION

The Russian Federation is the largest country in the world in terms of territory and only eleventh in terms of its GDP. As far as global competitiveness is concerned, it ranks as number 38 (Global Competitiveness Report, 2017), being highly dependent on the export of raw resources and global demand for fuel and raw resources. The failure of that exhausted model of development is evidenced by dropping rates of economic growth (-2,8% in 2015, -0,2% in 2016 and 1.5% in 2017). Reversing this retardant trend for Russia and its regions including Siberia, bridging the gap with developed countries and raising the quality of its socio-economic development may only depend on the growth of "new economy" and "new industrialization". The material basis for this new industrialization is manufacturing industries, mostly the high tech sector as well as knowledge -intensive services closely tied to information and communication technologies. Presently, the share of medium and high-tech industry value added in the total value added of manufacturing is 26% (#58 among 144 countries), which is much below that of the leaders (Singapore – 80%, Korea - 64%, Germany – 61%, etc.) (CIP database, 2017).

However, the average value does not indicate an extreme concentration of high tech economy in few selected regions. The vast share of technological and knowledge --intensive firms are located in the European part of Russia, primarily in Moscow and St. Petersburg regions. In most regions of Russia, technological and knowledge - intensive business represents a tiny share in the regional economy structure (Barinova et al., 2018). It has been declared that one of the principal strategic national goals should be a change of the economic structure by means of developing technological and science-intensive sector. This would raise the rates of economic growth, create new jobs and improve human well-being. The Siberian federal okrug (district) (SFO) occupies 30% of the territory of Russia with its population of over 19 million. SFO comprises 12 subjects of the Federation with various natural conditions and economic potentials. The region is not only rich in natural and raw resources (over 80% of total Russian store of lead, platinum, coal, molybdenum, etc.) – it has advanced manufacturing industries, agriculture, science and education. While the share of manufacturing industries roughly represents 20% of the added value of SFO, its share in export is below 5%, with almost 90% of export being fuel and energy products, timber and metals. The goal of our paper is evaluation of the current state of things, identification of problems and opportunities for development of high tech and science-intensive enterprises in the regions of Siberian federal okrug.

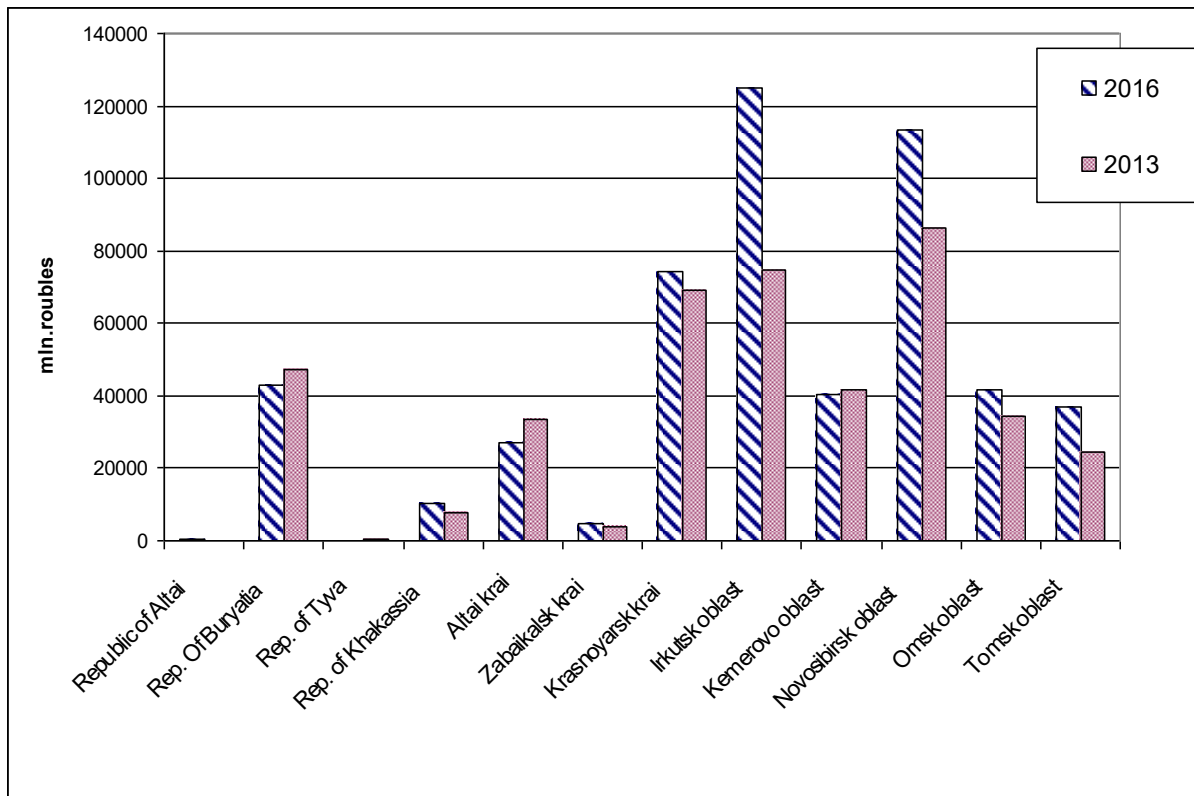
## **2. SPATIAL AND INDUSTRY-SPECIFIC STRUCTURE OF HIGH TECH BUSINESS IN SIBERIA**

In order to identify high tech and science-intensive businesses, we used an aggregation of the industry according to technological Intensity. In appliance with NACE Rev. 1.1 at 2-digit level (EUROSTAT Statistics), high technology includes the NACE codes 30, 32 and 33; medium-high-technology includes the NACE codes 24, 29, 31, 34 and 35. The sample of high-tech knowledge-intensive services includes NACE codes 61, 62, 64, 72, 73 and 73. We used as our sources of data the official statistics and SPARK<sup>1</sup> database. It helped us get information on high tech and science-intensive enterprises registered in SFO (excluding microenterprises of less than 15 employees and revenues below 120 million Rubles). According to the state statistics (Russian Regions, 2017), high tech production in SFO in 2016 constituted 14,4% of shipped processed products, which is less than average in Russia (20,7% ). As for various regions within the SFO, the dynamics was different (Chart 1). The highest output of high tech production comes from Irkutsk oblast, Novosibirsk oblast and Krasnoyarsk krai. The leaders have an almost double advantage over the followers that include Republic of Buryatia, Omsk, Kemerovo, Tomsk oblast and Altai krai. Contribution from other regions of SFO is insignificant. In the period from 2013 to 2016, there was a breakthrough in high tech production growth in Irkutsk oblast, which overtook the previous leader – Novosibirsk oblast. Kemerovo oblast, Republic of Buryatia and Altai krai somewhat reduced their levels of high tech production.

*Figure following on the next page*

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<sup>1</sup> SPARK represents a database of all incorporated entities in Russia, Ukraine, and Kazakhstan. It is the largest corporate database on the territory of the former USSR. SPARK combines data from 20 different sources including federal departments, courts, federal mass media, companies themselves and provides tools for data analysis.



*Chart 1: High tech and medium high tech types of businesses  
 (volume of shipped goods and services) in SFO regions , 2013 and 2016  
 (Russian Regions, 2017)*

In most regions, the dynamics is determined by operation of largest companies. Among the 400 largest companies in Siberia (Rating, 2017) there are 49 high tech companies, with the first three in terms of revenue in 2016 being the Irkutsk aircraft plant (#11 of the rating), ‘Sibir’ airlines (#12) and Ulan Ude aircraft plant (#40). More than half of the sales revenue of the largest high tech and knowledge - intensive companies of Siberia in 2016 was provided by airlines companies and of aircraft and spacecraft Manufacture The highest sales revenue (34%) are represented by 9 airlines companies, followed by space and aircraft manufacturers (30%), machine-building (13%), science-based services (10%), atomic industry (9%), and pharmaceuticals (4%). The companies that provide scientific services represent geological exploration and industrial services for oil and oil and gas production. ‘Digital economy’ is limited to only two information technology companies from Novosibirsk oblast. Ten largest high tech companies are part of state owned corporations – ‘Rosatom’ (2 companies), ‘Roskosmos’ (5 companies) and ‘Rostekhnologyi’ (3 companies). Large high tech companies of Siberia are mostly represented in space and aviation industry, defense and atomic industry. These are traditional Russian industries, where they manage to maintain global competitiveness. No Siberian companies represent manufacture of electronic components, computers, electronic and optical devices that are typically part of high tech industries. Most enterprises of ‘new’ economy have to grow yet. Nice exception to that may be the four pharmaceutical manufacturers: ‘Pharmsynthesis’ (Irkutsk oblast), ‘Evalar’ (Altai krai), PFK ‘Obnovlenie’ and ‘Vector-Best’ (Novosibirsk oblast) and the two above-mentioned information technology companies. Very large companies dominate the high tech sector in Siberia, but, as shown by empiric studies (Haltiwanger et al., 2013; Wolf et al., 2016; Kravchenko et al., 2017), job growth in the high tech sector of economy comes primarily from small startups. Database SPARK allows getting a more thorough description of high tech companies in Siberia.

In 2016 on the territory of SFO, there were 817 companies<sup>2</sup> belonging to the industries we are interested in, which is less than 6% of the total number of Russian high tech companies. The majority (150 companies) provide knowledge-intensive services in the fields of architecture, engineering design, geological exploration, geodesics and mapping. The next largest group comprises machine- and equipment-building enterprises (146). There are 54 firms operating in the field of computing and data technology, while other 44 firms pursue scientific research and development. The high tech sector of Siberia includes 60 companies that manufacture pharmaceutical products (23 firms), medical goods (22 firms), electronic components, equipment for radio, TV and communications (12) and flying machinery, including spacecraft (3 firms). The distribution of high tech companies by region and level of technology is illustrated by Table 1.

*Table 1: Distribution of high tech companies by region of SFO in 2016  
 (Russian Regions, 2017)*

Subject of SFO	High tech		Medium high tech		Science-intensive		Total	
	# of companies	Share in total high tech revenues, %	# of companies	Share in total high tech revenues, %	# of companies	Share in total high tech revenues, %	# of companies	Share in total high tech revenues, %
Rep. Altai	0	-	3	0,1	4	0,2	7	0,4
Rep. Buryatia	5	3,6	1	0,1	7	0,3	13	4,0
Rep. Tyva	0	-	0	-	1	0,0	1	0,0
Rep. Khakassia	0	-	4	0,2	4	0,8	8	0,9
Altai krai	7	1,5	31	3,3	25	1,2	63	6,0
Zabaikalsk krai	0	0,0	4	1,4	8	1,8	12	3,2
Krasnoyarsk krai	2	0,2	38	6,1	105	15,9	145	22,3
Irkutsk oblast	3	1,1	31	4,1	62	5,4	96	10,5
Kemerovo oblast	5	0,3	55	7,9	39	2,0	99	10,3
Novosibirsk oblast	28	2,6	73	4,8	130	21,0	231	28,4
Omsk oblast	6	1,2	21	3,2	37	1,5	64	5,9
Tomsk oblast	4	0,5	27	4,6	47	3,1	78	8,2
Total	60	11	288	36	469	53	817	100

Novosibirsk oblast and Krasnoyarsk krai remain frontrunners both in the number of companies (231 and 145 respectively) and in revenues, approximately double that of Irkutsk<sup>3</sup>, Kemerovo and Tomsk oblast, followed by Altai krai and Omsk oblast, republic of Buryatia and Zabaikalsk krai. Republics of Khakassia, Altai and Tyva represent less than 1%.

### **3. WHAT IS KEEPING BACK THE DEVELOPMENT OF HIGH TECH IN SIBERIA?**

The list of problems of high tech business development may be divided in general high tech problems and those specific to business in Siberia. The general problems are universally known and embrace technological and market risks, lack of internal and external financing especially for startups and small businesses, lack of qualified personnel, etc. ( Bruton, Rubanik, 2002; Beck, Demirguc-Kunt, 2006; Colombo, Grilli, 2010; Shirokova, Shatalov, 2010). The Siberian specifics is related to the already described peculiarities of high tech industries, the decisive role of the state in operation of large companies, difficulties of accumulating scientific potential for future development and chronic underfinancing of science and education, poorly developed

<sup>2</sup> Our sample excludes micro enterprises (with revenues below 120 m Rubles)

<sup>3</sup> The high tech sector of Irkutsk oblast did not include the corporation 'Irkut' as it is registered in Moscow.

infrastructure for high tech, weak mechanisms of inter-regional integration and cooperation. (Yusupova, Halimova, 2017). Historically, high tech business was closely tied to military defense programs and now those companies remain the largest in Siberia. The problems that are now facing those companies include the lack of accumulated technological knowhow and qualified personnel, which in turn resulted from chronic underfinancing due to highly unreliable prospects of state contracting. Lately, there was more state intervention in such high tech industries as information and communication, pharmaceuticals and financial technologies. This is bringing about higher costs and is further hindering development of high tech businesses. Attracting highly qualified personnel remains quite problematic for Siberian companies (as compared to companies in central Russia) due to specific features of local labor markets. It should be pointed out that the high tech sector comprises companies diverse in size and representing various industries. They also differ by functions they exercise in the regional economy. Most large high tech businesses are federal companies administrated by the state. Their interaction with small- and medium-size regional companies is very limited. Small high tech and science-intensive businesses serve as the channel for transfer of scientific developments in everyday products and services – they generate highly qualified jobs and represent ‘breeding grounds’ for future high growth companies. Small companies are also the weakest segment of high tech business that requires special support. Shortage of qualified staff for growing small- and medium-sized high tech companies is further exacerbated by the fact that such companies require very special skills, which may not be produced in adequate numbers or not represented at all in the local educational system. The lack of financial resources, being the common problem for all small companies, is highly onerous for Siberian firms due to lower level of banking services available in regions of Siberia (Ageeva, Mishura, 2016; Hattendorff, 2015). Growing Siberian companies more often have to face shortage of land and production space, higher rent and poor quality of manufacturing facilities. Then, there are ‘soft’ factors limiting the growth of high tech - that are becoming quite relevant such as a level of trust between the company and its counterparts, implicit contracts, and intellectual property management. As we see, the state of high tech and science-intensive business is hard to define. However, its prospects are even murkier.

#### **4. OPPORTUNITIES OF HIGH TECH BUSINESS DEVELOPMENT IN SIBERIA**

General conditions favorable to creation and development of high tech business embrace forward-looking research and development that may be converted into new technologies and products, availability of high skilled personnel, access to investment and finance, and, lastly, markets and demand for those implemented high tech technologies, goods and services. (Van Roy, Nepelski, 2017, Barinova et.al, 2018). These necessary conditions need to merge and harmonically interact with parts of the regional and national innovative systems that include various forms of state support, tax system stimulating high tech, intellectual property protection, standardization, state contracts, etc. Business based on high tech mostly depends on surplus stock of previous scientific research and development. In its turn, it is determined by investment in science and education as well as their results that may be converted in new products, technologies and services. We are not going to evaluate the results of those investments, but the level of investment performed to date might give us an approximation of development potential of high-tech business in SFO regions. The costs incurred on research and development in SFO from 2013 to 2016 in absolute figures went up from 69 billion Rubles to 84 billion Rubles, that corresponded to 6,3% in 2013 and 6,8% in 2016 of the total Russian spending. Expenditures on information and communication technologies (ICT) in SFO over the same period grew from 48 b R to 64 b R, that corresponded to 5,5% and 6,7% of the total in Russia. The number of personnel involved in research and development, grew in both absolute and relative terms: in 2013 it was 53,8 thousand employees (7.4% of the total in Russia), and in 2016 it went up to

55,3 thousand employees (7,6%). The distribution of costs by region is more dynamic. Table 2 shows regional distribution of investment in future between regions as well as the numbers of people involved in research and development. The four leading regions take up most of investment and safeguard their previous positions. However, there are alternative moves within the four – the absolute leader – Novosibirsk oblast, having the same number of research personnel, cut investment in ICT research and development, while Krasnoyarsk krai and Tomsk oblast – raised it, Irkutsk oblast cut research spending and raised spending on ICT. The situation is quite stable with a trend for concentration of research and development activities in the same regions. It should be noted that in 2016 the level of concentration of scientific research and development in the leading regions went up yet higher.

*Table 2: Spending of SFO regions on research and development and information-communication technologies, % of the total R&D and ICT spending in SFO (Digital Economy Indicators, 2017)*

Indicator	Spending on R&D, %		Spending on ICT, %		R&D personnel, %	
	2013	2016	2013	2016	2013	2016
Years						
Republic of Altai	0,2	0,1	0,5	1,0	0,3	0,2
Rep. Of Buryatia	1,4	1,5	2,3	3,6	2,3	2,2
Rep. of Tyva	0,5	0,4	0,5	0,6	0,7	0,7
Rep. of Khakassia	0,2	0,1	2,0	4,4	0,5	0,4
Altai krai	2,4	2,7	4,1	4,1	5,8	4,9
Zabaikalski krai	0,4	0,5	2,3	4,3	0,6	0,9
Krasnoyarsk krai	20,9	26,5	14,0	17,7	13,5	13,8
Irkutsk oblast	10,3	6,3	14,2	18,8	9,4	8,0
Kemerovo oblast	2,3	2,5	13,1	8,6	2,3	2,8
Novosibirsk oblast	36,2	31,6	31,8	19,0	39,9	39,5
Omsk oblast	7,9	9,3	6,7	6,1	8,5	8,6
Tomsk oblast	17,3	18,4	8,6	11,8	16,2	17,9
Four leading regions	84,8	82,9	68,6	67,3	78,9	79,2

An important indicator of future progress is long-term investments from state corporations of development – represented by JSC ‘Russian Venture Company’ (RVC), JSC ‘RUSNANO’, and State Corporation ‘Rostec’. JSC ‘RVC’ is the largest Russian investor in the high tech sector, being the key tool of the state policy. Over the ten-year period of RVC activity, the approved volume of investment reached 17.71 billion Rubles (RVC Report, 2017). 65,9 % of the total went to the Central Federal Okrug, 6,15% – to the North-West FO, 5,4 % – to the Volga FO, 1,8 % – to the Urals FO, 0,7 % – to the Siberian FO, 0,2 % – to the Southern FO, 0,07 % – the Far East FO and 0,03% – to the North Caucasus FO. Offshore investment from RVC comprised 19,6%. In Siberia there are three direct investment projects where JSC ‘RUSNANO’ participated (all of them in Novosibirsk oblast) (RUSNANO, 2017). One production project (in Irkutsk oblast) failed, another one saw the exit of ‘RUSNANO’ (in Tomsk oblast). As for the number of production projects (78 in the beginning of 2017), Siberia is far behind the central regions. The total investment of ‘Rostec’ in 2016 reached 142 billion Rubles (Rostec, 2017). However, it should be pointed out that among the largest projects implemented by ‘Rostec’ in the territory of SFO most relate to mining and cannot be directly attributed to high tech. Thus, the state institutions of development do not (yet) consider Siberia the territory of growth for high tech and science-intensive business. Development prospects of largest Siberian companies that have state organizations and corporations as their main clients and ordering customers, depend on a variety of factors that are out of reach for the management of those companies. Their future seems to be determined by strategic national priorities and geopolitical interests.

Another trend that we are able to perceive is the growth of small start-up companies of the 'new' economy that rely on their internal resources and non-state sources of support. Their contribution is especially significant in the economy of Novosibirsk and Tomsk oblast. The testimony for this trend comes from the national competition TechUspeh ('tech success'), which seeks to find and support 'the champions'. The year 2017 saw 13 companies representing Siberia whereas there were only 3 in 2013. With additional state aid, such companies could certainly boost their growth creating new jobs, contributing tax revenues to regional budgets, but above all, shaping new economic and social reality. Apart from resources and conditions, high tech business development requires substantiated and real state strategy and policy that does not only set long-term priorities, provides support, but also coordinates efforts of various stakeholders in high tech business growth. Only three Siberian regions clearly indicated the formation of high tech sector and new companies as the strategic goal of their social-economic development (Novosibirsk oblast, Krasnoyarsk krai, Tomsk oblast). The global practice and the experience of Russian regions demonstrate that success comes to the regions with stable and effective interactions between large, medium and small high tech companies, science and education, business community and regional authorities and managers (A.T. Kearny, 2014; Perret, 2014).

## 5. CONCLUSION

As of now, high tech and knowledge-intensive business in Siberia does not play a significant part, contributing less than 10% to the regional economy. Large companies dominate the Siberian high tech sector. However, new jobs and employment growth primarily come from recently created small and medium enterprises. Large high tech companies of Siberia operate in the B2B sector, they are connected with defense and depend on the state strategy in this field. A higher rate of growth in Siberia is demonstrated by service economy represented by knowledge - intensive services. The largest group of such services – air transportation, in the second place – science-intensive industrial services. Among the Siberian regions, there is high differentiation in concentration and level of development of high tech sector. The regional leaders are Novosibirsk oblast, Krasnoyarsk krai and Irkutsk oblast. They are followed by Kemerovo oblast, Tomsk oblast, Altai krai and Omsk oblast. The most favorable conditions for 'new economy' development are found in the regions of advanced science and education. These are Novosibirsk oblast, Tomsk oblast, Krasnoyarsk krai and Irkutsk oblast. Common problems of high tech business development including scarce financing, shortage of skilled personnel and other are fully manifested in Siberian regions due to limitations of local labor markets and financial services. The state support for high tech sector of Siberia economy is insignificant when compared to support provided to this sector in the Central regions and this produces a negative impact on development prospects of large high tech companies. A positive trend is represented by the growth of small young companies of 'new economy' reliant on own resources.

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## **SERVICE LEARNING AS A LEVER FOR RURAL SOCIAL ENTREPRENEURSHIP DEVELOPMENT IN CROATIA**

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### **ABSTRACT**

*The recent post-crisis years have brought significant problems onto the surface, where Croatian people, particularly young, do not see the perspective in their homeland. This is especially obvious in the rural communities where the emigration took on the form of the total exodus. The aim of this paper is to explore the possibilities of the young people engagement in the service learning to support social entrepreneurship venture initiatives, particularly in rural areas. At the beginning we shall set out the framework by defining the main concepts that lie behind the idea – the social entrepreneurship and the service learning. Then we shall present several initiatives based on the qualitative approach – analysis of such cases from the literature. Furthermore, this will be supplemented by more thorough analysis of the two case studies from the Croatian practice to promote the idea of a rural life sustainable potential. The data were acquired through in-depth semi-structured interviews which were conducted with Croatian social entrepreneurs from rural areas by using the method of phenomenological interviewing.*

**Keywords:** *community, rural, service learning, social entrepreneurship, support, in-depth interview, qualitative approach*

### **1. INTRODUCTION**

In the recent years Croatia has faced a significant problem of depopulation of large parts of the country which is especially obvious in the rural communities. Large parts of the country have been depopulated which has been a demographical trend for more than 25 years (Turk et al., 2016.) and the latest data show that Croatia lost over 200 thousand inhabitants in the last ten years (Duka, 2017). Rural communities are particularly affected due to the long-standing negligence of policies in terms of demographic and economic development, which delayed and in many cases hindered or completely disabled socio-geographical transformation of rural areas of Croatia (Nejašmić & Toskić, 2016). Nevertheless, young people have enormous potential and sometimes the enthusiasm needed to change the course of trends. Since entering the European Union Croatia has got the access to different kinds of financing schemes (social funds, structural funds, cohesion funds etc.) which allow finding an additional momentum for starting projects which would establish sustainable initiatives for making rural areas desirable places to live once again. The aim of this paper is to explore the possibilities of the young people engagement in the service learning to support social entrepreneurship venture initiatives, particularly in rural areas in Croatia. This represents a review work based on the method of multiple case studies which are comparatively analysed. First cases are extracted from the literature review whilst the last two cases encompass data collected in the authors' field

research. The data were acquired through in-depth semi-structured interviews which were conducted with Croatian social entrepreneurs from rural areas by using the method of phenomenological interviewing. The next chapter defines what we consider under the terms social entrepreneurship and service learning and then presents state of these in the Republic of Croatia. Third chapter brings case studies from different settings to harvest on lessons learned. This is followed by the analysis and the discussion of the implications for further research and possibility of stronger implementation of best practice into Croatian rural areas.

## **2. SOCIAL ENTREPRENEURSHIP AND SERVICE LEARNING IN CROATIA**

Social entrepreneurship is a process that includes the identification of a specific social problem seen as an opportunity and a specific solution to address it, the development of a sustainable business model and the evaluation of the social impact which altogether ultimately results in the creation of an entity that pursues double or triple bottom line (Robinson, 2006). Fowler (2000) differentiates between the integrated and complementary social entrepreneurship. While integrated refers to the surplus-generating activities that at the same time create social benefits, complementary social entrepreneurship is seen as a surplus-generating activity that does not produce social benefits but uses the profit to cross-subsidy the social activities that are in themselves not economically sustainable. In the European Union the dominant model of social entrepreneurship is integrated. According to the European Commission (2011, p. 3), the term social enterprise covers two types of businesses: “businesses providing social services and/or goods and services to vulnerable persons (access to housing, health care, assistance for elderly or disabled persons, inclusion of vulnerable groups, child care, access to employment and training, dependency management, etc.) and/or businesses with a method of production of goods and services with a social objective (social and professional integration via access to employment for people disadvantaged in particular by insufficient qualifications or social or professional problems leading to exclusion and marginalisation) but whose activity may be outside the realm of the provision of social goods or services”. The development of social entrepreneurship in Croatia may be seen as a combination of the Croatian civil society initiatives and the social economy concepts that were introduced from the more developed EU members. In 2015, the Government of the Republic of Croatia has adopted The National Strategy for the Development of Social Entrepreneurship for the period 2015-2020. Although the Strategy predicts the creation of a list of Croatian social enterprises, the official list of social enterprises is still not publicly available. In one research that took the wider perspective on social entrepreneurship, there were 90 social economy protagonists in Croatia in 2014 (Šimleša et al., 2015). If those entities were subjected to the stricter social enterprise criteria from the Strategy, the number would be much lower. Thus, social enterprises are rare in Croatian economy, although there are some examples of organizations with steady and substantial growth which are mostly concentrated in a few cities such as Čakovec, Osijek and Zagreb. Although the phenomenon of social entrepreneurship in Croatia is modest in numbers, Croatian academia has recognized the benefits of social entrepreneurship for the society and decided to include courses on social entrepreneurship and social innovation in the curricula (e.g., Faculty of Economics, Faculty of Law and Faculty of Organization and Informatics, University of Zagreb; Faculty of Economics and Tourism “Dr. Mijo Mirković”, Juraj Dobrila University of Pula; Faculty of Economics, University of Osijek; University of applied science VERN' in Zagreb; Zagreb School of Economics and Management etc.) (EMS, 2014). The research based on the sample of business students from five European countries (Kedmenec et al., 2016) showed that there is a positive association between the “know what” component of social entrepreneurship education and both the desirability and the feasibility of social entrepreneurship, while the “know how” component is positively associated with the feasibility of social entrepreneurship.

The obtained results suggested that social entrepreneurship education should include gaining some experience in volunteering, activism and making donations because these activities draw students' attention to social problems and enable them to find proper solutions. Service learning (SL) is sometimes also called community based or community engaged learning. McIlrath et al. (2016) define it as "an innovative pedagogical approach that integrates meaningful community service or engagement into the curriculum and offers students the academic credit for the learning that derives from active engagement within community and work on a real world problem." This is the way for students to apply their theoretical knowledge in real life and contribute to the development of their community. It is also recognized as an effective way of connecting students and higher education teachers with civil society and the community and as an important impetus to finding the first job after schooling completion. It differs from volunteerism which is focused on the service being provided and its benefits for the community. On the other hand, it differs from the practice which is focused on the personal and professional development of students by acquiring practical experience in extra-curricular environments. SL puts equal focus on students' learning and the community mutual benefits (Mikelić Preradović, 2015). Considering the fact that in Croatian society one of the main problems is youth unemployment and increasing passivity of citizens, SL can be a new direction for the sustainability of the society. It encourages the personal development of young people and provides knowledge for more active citizenship. The application of this model in the Republic of Croatia is still in its infancy. Modić Stanke & Putarek (2016) based on the Europe Engage - Croatia National Report show that only 13 courses in Zagreb University programmes had the component of SL in the academic year 2013/2014, with a total of 24 teachers and 466 students involved in these courses. However, it wasn't possible to determine if the lack of courses with SL component was a result of the lack of motivation of university staff or due to the lack of interest of students to participate in such a course. The latter was the topic of their research, which indicates that students of the University of Zagreb - regardless of gender, year and field of study - are interested in service learning because they see it as important and necessary method to develop their own competences. Nevertheless, most of them state that the final decision on enrolment in such courses would depend on other teaching obligations. Therefore, the study proposes to include SL component in at least one of the compulsory courses into each study programme if possible. It is also proposed to give more information on SL method to student population through career centres, because it further contributes to the development of socially more respectful and active individuals (Modić Stanke & Putarek, 2016). As Roglić (2013) states, the main characteristic of social enterprises is that they operate locally, employ locally, and buy locally. Consequently, they are the most important for the local communities and appreciated because they are meeting the local social needs in a sustainable, economical and socially acceptable way, thus improving the quality of life in these societies. For this very reason, the development of SL can be a chance for new ruralisation and decentralization. SL can serve not only as a method for acquiring knowledge, but also as a method which allows younger educated people to develop the willingness to meet the social needs of their local communities. SE as a tool that can solve two fundamental problems – first, it can respond to the needs of the local community (such as rural depopulation); and second, it can enable poor and discouraged people to provide for themselves.

### **3. CASES OF RURAL DEVELOPMENT INITIATIVES**

Since Croatia shows low level of both SE and SL in everyday practice, by this work we want to line out positive examples to raise awareness of the people about the potentials that exist even in rural areas. Showing successful examples as role-models, and maybe some unsuccessful ones as basis for learning from a failure, gives us the chance to work on this awareness. For the presentation of examples, the case study method was used because it explores contemporary

phenomena in their real context, especially when the boundaries between the phenomenon and the context are not clear (Yin 2003). This method of research can include both quantitative and qualitative evidence from multiple sources and benefits from a literature review that provides a theoretical framework for carrying out research and data analysis. Gillham (2000) lists six sources of data relevant to the case study: 1) documents (letters, political declarations, regulations etc.); 2) records (data that go back to the past); 3) interviews; 4) independent observation (the observer does not interfere, but observes the participants as seamlessly as possible); 5) observation with participation (more commonly in a case study); and 6) physical artefacts (e.g. sketches, models, materials, etc.). In our work we used documents and interviews with application of a phenomenological approach in the process of collecting and analysing empirical data. The basic aim of the interpretative phenomenological analysis is to examine in detail how participants shape their personal and social world to gain insight into the specific experiences, events and states of the actors of a particular interaction context (Halmi, 2005, p. 389). In this context, the researcher's involvement should be minimized through a profound, "flexible" structured interview (Cope, 2005). In this preliminary communication we only presented short description of cases, whilst complete phenomenological analysis will be applied in further work. Interviews were performed in spring 2016.

### **3.1. Cases from the literature review**

Kolehmainen et al. (2016) presented a few different cases which emphasize the importance of including communities into the classical "triple helix" model of economic development (cooperation of universities, business and public sector) and thus turn it into the "quadruple" helix". The South Ostrobothnia region is characterised by lower than average population density and primarily agricultural and traditional micro businesses (such as food, metal or wood processing). The people there have been very pragmatic and appreciate hardworking attitude and handicraft skills. However, the regional authorities have long put much effort into bringing higher education institutions into the region (even since 1960s). In 1980s the Institute for rural research and training at University of Helsinki started the dislocated centre in the region and its work created the link between academic research in agriculture and forestry and the economic features of South Ostrobothnia. The crisis of the 1990s and the upcoming ICT industries were threatening to leave South Ostrobothnian economic development behind. Local media, active individuals and private organisations joined efforts as a fourth part in addition to triple helix and created a programme-agreement of 2001 to make considerable investments in research which resulted in fresh enthusiasm. One of the results is a joint strategy process called "Sustainable food systems" which is very important for the region's smart specialisation strategy. The strategy yielded in new ways of creating innovations by innovation platforms, like living-labs, e.g. for the agro-food machinery, that involves ever more individual consumers as well as the greater number of small independent firms in innovation activities in the food systems of the bio-economy. The exploration of entrepreneurial opportunities in rural areas requires the development of the supporting entrepreneurial infrastructure. Kovács and Zoltán (2017) presented the case of enterprise hub development in Noszvaj which is a village located in the north-eastern part of Hungary. Despite being a part of a region that is threatened by ageing and emigration, Noszvaj is attractive to young families which now account for approximately 50 percent of its inhabitants. The local community started to work on the project of community's co-working space development in the abandoned old school building. Students of the Architectural Designer master course of the University of Pécs, Faculty of Engineering and Information Technology, were engaged in the old school building refurbishment. They worked in a cooperation with future hub users and decision-makers of the village. The students included the co-working space, a coffee shop, fitness facilities and a day-care for children since quite a few young mothers planned to work there during their maternity leave.

The challenging part of the refurbishment plan was the integration of modern technology in the older infrastructure. The benefits of the rural area which usually lack in urban hubs were also included in the design, e.g. working in the yard under a covered deck and thus freeing workers from the desk. The design provided both spaces for interaction and spaces for focused individual work. In the end, due to the high cost to form enterprise hub from the old building, the process was stopped. They had planned to apply for funding in the field of creating incubators but these calls for proposals were addressing only bigger settlements and Noszvaj could not apply for the funds. The experience reflected a strong entrepreneurial spirit and emphasized the inclusion of the stakeholders. Based on the Fuzi's study (2015), Kovács and Zoltán (2017) remind that smaller settlements may make co-working a profitable and sustainable option by integrating it into existing infrastructure such as art centres, coffee shops etc.

### **3.2. Cases from the field research**

The first case within the field research in Croatia is a social enterprise that was founded by the association which was dealing with prevention of domestic violence and abusing of women. They have noticed that women often suffer from violence due to economic dependence so they decided to help women to earn extra income by working at home and at low investment, or to offer an alternative to become financially independent. For this reason, a social enterprise for production of an agricultural product was launched. From the interview with the social enterprise manager we have found out that particularly after the war, numerous companies were closed in the northeast of Croatia. There has been a collapse of the economy, the number of jobs has decreased, the educational structure was below the Croatian average. Social entrepreneurship was recognized as an acceptable model that could not solve, but could contribute to improving the situation and creating new opportunities for people who need to solve their existential issues. This social enterprise took a legal form of a social cooperative. The social cooperative gathers agricultural producers and is in some way a supportive institution for people, members and associates, that gives them advice and organizes education. The cooperative can help its members to survive on the market because it is not the classical intermediary whose goal is to make profit, but wants the producers themselves to benefit from their production. The first project offered an informal education of women for the greenhouse production of vegetables, and they also attended psychology workshops that empowered them by giving them more self-esteem. A project of economic independence of women in rural areas supplied the beneficiaries with 25 plastic greenhouses (100 square meters each) and was funded by the World Bank. Women had the freedom to independently choose what they want to produce. Thereafter, within the second project, the association organized an education in 3 verified programs after which the women received the certificate of qualification. One was a training program for caregivers for the care of the elderly, the second program was for the production of vegetables and the third program was the production of spicy peppers. Upon completion of the project, the association registered its agricultural product, with the Croatian Intellectual Property Office. They have made the souvenir packaging and have actually created a brand and a story. Members of the social cooperative have the right to use that brand when selling their products which increases their visibility and recognition on the market. An interview with a member of the social cooperative has shown that a lady who has finished only primary school now runs an agricultural business that provides for her family. Her daughter studied the agriculture and will join mother's business. She is also satisfied with the organized educations because this is what enabled her to extend production from the quantities for their family to reach enough to supply for the market. She is also still in contact with other participants in this project and they serve as additional support for each other. From the interview with the founder and manager of the second association included in the field research

we found out that the belonging social enterprise was founded in 2003. They wanted to connect and mutually support the parents of the children with disabilities. Through the years the activities increased because growing-up of these kids brought new needs and new challenges. It is also situated in the eastern part of Croatia where employability in general is low, let alone the employability of the people with disabilities. The association members attended different kind of educations and thus widened the social services that association could offer. They have mainly been financed by different projects funded from national and European sources. The association also provides services of half-day stay, help with psychosocial assistance both at the association's space or and at users' homes and self-contained housing community for disabled persons. In the year 2007 the association has founded a social cooperative which is involved in the social entrepreneurship. They now have a few fields where they grow spice and medicinal herbs, and have ecological vegetable production. The cooperative has also rented a parcel with a house from Croatian forest company (cca. 4000 square meters) in 2012, where they started their ecological garden. In 2016 they were officially certified as the ecological producer. At the beginning they have started mostly with spice and medicinal herbs (lavender, sage, marigold, marshmallow), but then the draught of 2014 destroyed the crops and they had to start all over again. On the part of the land they have been growing seedlings because the plants have to be ecological. Then they planted the beans and other vegetables such as pepper, tomato or collard. It wasn't much, but beans grew in large quantities so in the spring of 2015 it was offered to kindergartens, nursing homes, private persons and people have recognized it as a very good produce. Some of the unsold tomatoes were cooked and sold as tomato sauce. In the meantime, they have got the permission to make some traditionally preserved food for winter for sales, all based on ecological principles. Their further goal is to earn enough money to permanently employ one or two persons with disabilities, but lots of work at the moment still asks for volunteers. This agricultural work usually goes on through spring and summer, so during the winter the people with disabilities are doing traditional crafts, such as weaving, learning the embroidery, weaving the wool so that they do not lose their skills. The association and the cooperative want to make them occupied constantly because that way they actually develop and maintain some of their physical and mental abilities at a certain level. They believe that every person has the right to work. The association and the cooperative work on further projects to educate assistants or work assistants, working across the local community in groups with mentors, maintaining the green areas by schools, cleaning the nursery, engaging the users in such different jobs to strengthen their capacities. The idea is for them to gain new knowledge and skills, to be competitive in the labour market, and the skills could be offered as a service through the social cooperative and become some form of employment for persons with disabilities. Their users are mainly persons with intellectual disabilities, but also some with Down syndrome, or people with some form of autism disorders. They still don't earn enough money to cover all the expenses, so the employees and volunteers of the association make handcrafted products with their original design (such as bags, collection dolls, some ceramic or textile products). Design was developed as a result of a former project and they sell the products through small souvenir shops. But this is in small quantities. This money then supports the activities of both, the association and the cooperative together. The cooperative's last project resulted in opening of a pancake house which is open on weekends.

#### **4. DISCUSSION AND CONSLUSIONS**

Based on the presented cases from the literature review and our own research we have seen that remote rural areas often have no easy access to a university or a research institution and the companies also may be more dispersed and not so prone to innovate. This all together hinders the local development opportunities. In such regions, local action groups and communities of civil society may often play an important entrepreneurial role.

As stated by Kolehmainen et al. (2016) the community gathers the interested parties and then serves as the part of a quadruple helix. In rural and less-favoured areas the issues considering regional development come more into touch with personal lives of the region inhabitants compared to the urban areas. This is why the communities seem to have an ever more important role in innovation activities and regional development. Croatian experience in remote and underdeveloped regions shows that people are willing to invest efforts to improve social issues in their local communities, and they even manage to attract the younger generations. However, the examples of the social entrepreneurs are generally sporadic and primarily located in urban areas. The social cooperatives that deal with social entrepreneurship present a good model for rural areas and communities that are poorly connected with some of the larger urban centres. Social entrepreneurs are meeting the local social needs in a sustainable and socially acceptable way, which improves the living standards in these communities. The development of SL can be a chance for new ruralisation and decentralization, because it raises awareness of younger educated people about the social needs of their local communities and can develop their willingness to be more proactive. As an innovative educational method SL can encourage students to learn through practice, critical thinking, analysis and engagement, so it teaches them that they are strong and capable enough to initiate the needed changes in their local communities. The experiences and the will to be proactive and change the course of things resulted in the application of a project "Pop-up rural socially innovative hubs" funded by the European Social Fund (<http://ruralhubs.net/>). The project connects local action groups, civil society members, social entrepreneurs and tertiary education students in order to establish a model of service learning that functions as an occasional event in the local community. All the interested stakeholders or development initiatives and projects are invited to join to direct educated students to start and/or help the development of entrepreneurial ventures with social purpose.

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## MARKET COMMUNICATION IN AN INTERCULTURAL ENVIRONMENT OF THE SERVICE SECTOR

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### ABSTRACT

*One of the definitions of marketing communication focuses on different media that companies adopt to exchange the information about their goods and services to the customers. Earlier definitions of cross-cultural management express its behavioural aspects and underline the importance of interaction among people from different cultures. Looking at the particular subject of marketing from the "dual" perspective, it is possible to notice that many products – mainly service products – have quite a big potential for creating cross-cultural interactions when services are produced in different cultures or/and are consumed in different cultural contexts (e.g. tourism products). It is mainly connected with simultaneous production and consumption on the one hand and the consumer's participation in both processes on the other. Specific features of service products (e.g. intangibility) create a cross-cultural dimension both in the production and consumption process as it requires knowledge and experience exchange between cultures in an international environment: these features have to be recognized a priori in order to be placed on the market with the service product. On the other hand, services have to be produced according to the identified consumer expectations in different cultures and selective information should be delivered to particular market segments according to cultural diversity. The aim of the study is to present selected aspects of service products which could be a source of cross-cultural interactions and require a special approach to marketing communication. This article discusses a cultural diversity of the international environment of the market as a factor shaping marketing communication. The research problem results from the fact that most service products are produced in different cultures and are offered to particular consumers representing their cultures on a global market; it imposes a differentiation of marketing communication according to the cultural criteria of market segmentation. Desk research is applied for solving the following problems: can cross-cultural interactions be a subject of marketing if service enterprises expect growth of demand for their integrated products? Does the specific nature of consumer experience as a product make it necessary to stress that the question is not one of the techniques but a new marketing concept in the world of cross-cultural market interactions? Do cross-cultural interactions shape a consumer's interpretation of the evidence? It is expected to justify that all the changes in the service sector involve both producers and consumers who create a new relationship that is often based on different cultures on a global market; the economic success of service transactions depends on an appropriate marketing communication that respects differences in the attitudes and behaviours of societies in a particular cultural environment.*

**Keywords:** *forms of communication with a customer, intercultural environment, marketing communication, service market*

### 1. INTRODUCTION

Today a dynamic growth of modern communication and information technologies is an important premise for the development of the global market and it significantly contributes to

changes in the functioning of service providers. The process of developing communication technologies has a significant impact on the functioning of communities. A new category has been created – information society. This category means a process of establishing a civilization based on a new production factor – information. The information society can collect, keep and transfer information and has access to information practically at any distance. Thus in the global information society that is being created communication technologies are implemented in the service economy. The service market forces different entities that operate in this market to adjust communication technologies and tools to the customer's perception and expectations of other users. Thus it is reasonable to ask to what extent modern communication and information technologies contribute to changes in marketing communication. Modern forms of communication between the service company and the market are difficult to understand (including the function of this communication) not only to observers but also to researchers who are trying to go into the nature of phenomena that cannot be put within the frameworks of current definitions and theories. Therefore it happens that an attempt to simply describe the existing state, i.e. the new media, fails (Biały, 2010, p. 57). In (domestic and foreign) source literature we find works dedicated to different aspects and forms of market communication. This paper presents an overview of recent publications on issues concerning new forms of communication in the service market, including references to sectors such as tourism or the hospitality industry. An analysis of literature enabled to answer the following questions:

- What forms of communication with the customer are used in service activities?
- To what extent and scope are the new forms of marketing communication used in the service market?

In order to find answers to the questions above, the role of innovativeness and innovation in communication with the customer in the service market must be specified.

## **2. COMMUNICATION BETWEEN SERVICE PROVIDERS AND THE MARKET: EXAMPLES FROM LITERATURE**

A preliminary exploration of literature available in the digital version suggests that many currents can be distinguished in the academic discourse on issues reflected in the title of this paper. In the analysed publications the following aspects of communication have been reflected in the service sector (Marciszewska, Rapacz, 2017):

- online communication;
- word of mouth communication;
- visual communication;
- non-standard forms of communication: ambient media and guerilla marketing;
- persuasive communication;
- integrated/strategic communication;
- short-range communication;
- relations between communication and effectiveness in tourism;
- communication through advertising.

The first form of communication – online one – is widely reflected in literature both as a channel for the information flow and promotion. Blogs, business websites, Google search engines and social media, including the use of mobile devices are discussed as media that are favourably inclined in the institutional market and are willingly used by consumers as sources of information about products (Marciszewska, Rapacz, 2017). Another mentioned form of communication – verbal one – is often mentioned in literature as popular and effective, but it is not widely reflected in the discourse as a subject of studies concerning services, except for a few examples.

This research gap in service marketing draws particular attention as a potential subject of research because experiences after the consumption of services and the personal message about a specific product might be a strong stimulus for future purchase decisions. Visual communication as a channel that is informative and promotes services is rarely taken up by researchers as a problem that needs to be analysed. This state concerns both Polish and foreign literature, where except for several works (Li et al., 2016, Marciszewska, Marciszewski, 2012) it is hard to find a review of the significance of non-conventional forms of visual communication for transferring the social function of many types of services (e.g. tourist services) or for promoting a specific offer (except for the classic forms of advertising or billboards). On the other hand, few research initiatives that incorporate visual communication as a means for expressing ideas can be found. In Poland there is a broad space for this type of research – a precisely formulated research problem could be an entrance point for common projects of service market researchers and visual artists. Although non-standard forms of communication that use e.g. street art, are an important marketing segment, there are few studies in this area (Urbański, 2012; Marciszewska, Marciszewski, 2015). Persuasive communication is strictly connected with the persuading function of promotion and may be stimulating during the purchase decision-making process. Thus it more concerns the pre-consumption stage and is important particularly in relations service provider – new customer. Recent literature presents studies that analyse the role of persuasive communication in the development of service markets more and more frequently (Kim et al., 2016; Tang et al., 2012; Goessling, Buckley, 2016). The integrated/strategic communication discussed in literature (Iosim, Popescu, 2015, Морщинина, 2015; Stefko et al., 2015;) underlines multi-directional communication with other entities of a sector. This multi-directional establishing of communication creates conditions for maintaining a relationship in a long-term perspective. From the point of view of a quick access to information, an important function for the contemporary customer, in particular for the young generation, is performed by short-range communication that has recently been a subject of interest of, for example, tourism researchers (Pesonen, Horster, 2012; Han et al., 2016). Studies on the identification of relationships between communication and effectiveness in tourism (ERCİŞ et al., 2015) as well as advertising as a means of communication (Martin et al. 2013), which in the time of intense marketing development has not always been assessed positively – both among customers and in the academic discourse, are conducted. The directions of studies on communication in the service sector presented above do not exhaust all new initiatives. However, they identify preferable aspects in the academic discourse on new forms of communication in the service market which partially reflect the popularity of these forms in the modern market – both among companies that offer complex and simple service products. Thus it is reasonable – both from a theoretical and practical point of view – to conduct empirical research that intends to identify preferences of Polish service providers concerning the using of new forms of communication with the market.

### **3. INNOVATIVENESS IN SERVICE DELIVERY PROCESS**

The phenomena of innovativeness and innovation are quite broadly described in literature (including economic literature) of the recent decade, but the service sector occupies a relatively modest place in this discussion. The interest in innovativeness is probably connected not only with the aim to develop knowledge about new possibilities for developing phenomena, products, processes and relationships between them, but also with insufficiency of many natural resources to effectively create and consume products in a satisfying manner, including service products. In this discussion some authors incline to combine innovation with knowledge and practice (Begg 1997, p. 341; Bukowski et al., 2012), others pay attention to the effort of organisations to introduce new products or new uses as the core of innovation. Innovation is also an implementation of a new marketing or organisational method that redefines the manner

of work or relations of a company with the environment; in this context it is a tool for building a competitive advantage by adding new features to marketing communication. Innovativeness is not identical with creativity. Innovativeness focuses not only on coming up with new ideas, but also on deciding which ideas should be chosen and implemented in order to create values (so-called value innovation). In this concept there is a strong focus on creating new markets. Innovations, therefore, include a process of generating new ideas in order to change them into a market offer or to modify the market offer. Innovativeness interpreted in such a way may be a criterion for assessing the competitive capacity of a service company. Innovation is closely related to entrepreneurship, the ability to interact with entities and the ability to adapt to changes in the environment and customer needs (Wanagos, Smalec, Małachowski, 2017, p. 701). Customer service starts within the market, and more precisely, within the market space containing an offer, including in the company that offers a service through different media. When responding to information about the offer, the customer asks the service provider directly or by using a medium (e.g. the Internet) for additional information or to enter into a transaction. The process of using services by a consumer is a component of a widely understood exchange because consumption can result in complaints. The fulfilment of customer objectives often requires an assessment with hindsight – therefore we cannot assume that the customer leaves a market when the purchase transaction is completed. The using of a service – regardless of its complexity, duration or the intensity of affecting a person – takes the form of a process defined as a series of activities arranged in time. Therefore service delivery means a specific phenomenon whose elementary feature (core) is the freedom of making a purchase decision and the possibility to fulfil the needs identified by the customer. Given the fact that individual customers have unequal capacities to fulfil their objective for which they purchase a service (because of different social and economic conditions, among other things), their expectations vary, e.g. the nature and quality of service. The main determinant of consumer satisfaction becomes the degree of "similarity" between motives for using a service and the obtained (tangible and non-tangible) effects, which depends, among other things, on the manner of communication with customers before, during and after the delivery of a service. Cultural determinants of this process are part of a group of factors that shape both the production, exchange and consumption of services. Product innovations have a wide scope, they involve several layers in the broadly defined structure of the service product similarly as in the case of a specific form of the tourist product (Dryglas, 2009, pp. 168-169). In the aspect of service, the main focus is put on the customer and different types of service offers are created for the customer, including innovative solutions for the process of service. Thus what is customer service? According to A. Panasiuk (2008, p. 55) "customer service is a reliable delivery of goods and services in an agreed time and place that is compliant with the customer's expectations". As we already know, customer expectations are much individualised. E.g. when travelling a wide range of services is offered, from information given in the travel agency to customer service during the trip, e.g. in the plane, hotel or restaurant (Panasiuk 2008, p. 178). On each stage of the process, the customer meets various service providers and requires that they deliver services according to his/her expectations. As regards quality, we can say that it is some kind of level for meeting expectations. Customers can identify it as low, good or perfect. When assessing the quality of a provided service, the customer is guided by a series of factors that affect the assessment. We can distinguish technical and functional quality. The former is mainly connected with things that the service provider has to offer to the customer. These can be material things that are used during the delivery of services, e.g. a mode of transport or a hotel room. The functional quality, on the other hand, is a method of customer service. A significant function is performed by the staff and their soft skills. A determinant of quality is competencies, professionalism in fulfilling their duties and the manner of service that determines the satisfaction of the customer.

We must remember that customers, when analysing service quality, take into account the entire process of providing the service. They are not able to divide it by the tangible means used or by participation of the human factor. Thus it is important so that they are compatible with each other (Kachniewska, 2010, p. 54) because then the process of service delivery results in a fuller satisfaction of the consumer.

#### **4. CULTURAL CONTEXT OF SERVICE PRODUCTION AND CONSUMPTION**

Services are produced in different cultures and are offered to different consumers representing particular cultures on a global market. Service product innovations have become an important factor influencing market development in many branches of the economy. The dynamics of the global service market influences managers' attitudes towards consumers: they have to be able to predict many future processes in the market; it requires experience development and knowledge management on the one hand and an understanding of internal relationships between employees on the other; the functional structure of service products on the market becomes a crucial factor in meeting consumers' needs. The management process and product development are connected with the culture of a particular society. Changes in the organisational process of work and its cultural environment build a service product and intensify demand according to specific cultural features of potential consumers. This suggests that modification of the service product plays an important role as a marketing tool for a given society. It is also important that the cooperation of entities has an inter-regional and international dimension (Studzeniecki, Soares, pp 135-158). On the global market all the changes in the service product involve both producers and consumers who create a new relationship that is often based on different cultures (Marciszewska, Grobelna, 2015). In this context marketing management in the service sector has to focus on intangible features of services in the communication process on the market. Marketing communication in the service sector considering cultural diversity of producers and consumers has to recognize the necessity of research into this field in relation to service products as they play an important role in the dynamics of the development of an individual human being and society as a whole. (Local or regional) culture influences people's needs and demand; it becomes a stimulating factor for participation of individuals and enterprises in the market. On the other hand, participation in culture outside a place of living, attending different cultural attractions and events bring an opportunity to create new emotions and experiences, build new relationships and help to recognize differences in attitudes, behaviour, tastes, tradition and habits (Marciszewska, Grobelna, 2015). Culture perceived from the market perspective can be seen as a factor involving the customer in such a way as to create a memorable event and to stage a positive experience. Unfortunately, negative influences of sellers' and customers' behaviour on the market are also possible. This is a challenge for managers responsible for market communication: how to create a common platform of an appropriate understanding of each other. Creativity of producers/sellers should therefore be perceived as a condition of consumers' satisfaction and a space for cross-cultural interaction of managers. Taking into account that special relationships are formed between managers and customers in a process of exchange, the cross-cultural aspect has to be seen as a pre-condition of successful market communication. International market development requires an understanding of differences in culture of nationalities and their relationships with the natural environment because the culture of people's behaviour is a determinant of sustainability. A marketing approach to the service product considering its cultural components should therefore take into account different cultural context of consumers' attitudes, particularly when they represent different socio-demographic groups from more than one country (Marciszewska, Marciszewski, 2012). The cross-cultural competency of managers becomes not only a condition of a successful selling but also a factor creating positive consumption experiences.

## 5. CONCLUSION: INTERACTIONS BETWEEN CULTURE AND MARKET COMMUNICATION

The understanding of culture in a wide sense comprises a complex of distinctive spiritual, material, intellectual and emotional features that characterise a society or social groups; it contains also modes of life, the fundamental rights of the human being, value systems, traditions and beliefs (Marciszewska, Grobelna, 2015). The cultural background of people participating in the service market is usually a component of a process creating social experience through dynamic interactions between people and tangible or intangible elements of cultural evidence. Both sellers and customers do not live apart from the cultural environment in which they live. Cross-cultural interactions on the international market are often a source of new behaviours or attitudes and change personal features. It can lead to a building of new market segments. This suggests that cross-cultural interactions have to be a subject of marketing communication if service enterprises expect a growth of demand for their products. Marketing itself is able to create positive relationships between different entities on the market.

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## COMPETITIVENESS OF THE OLOMOUC REGION WITH RESPECT TO FUTURE REGIONAL DEVELOPMENT POSSIBILITIES

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### ABSTRACT

*Regional competitiveness is an important factor in regional development. There is an effort to take advantage of the strengths of the region and to fully develop their potential. Regions, cities and municipalities compete together in creating, attracting, retaining and supporting economic subjects. Competitiveness of the region is dependent on the economic level and, on the contrary, the economic level of the region is based on its competitiveness. Increasing the competitiveness of the regions and reducing interregional disparities in the Member States is one of the main priorities of the European Union. Average and slightly below-average regions are suitable candidates for drawing EU subsidies. The article addresses the issue of the regional competitiveness. The aim of the article is to compile the evaluation of the competitiveness of the Olomouc Region within the nationwide comparison and to present possible directions of development and projects to support this development. Special indicators were set to assess the competitiveness of the regions: economy and productivity, labour market and unemployment, population income, construction industry and infrastructure and socio-economic potential. The results of the research in all these indicators show that the Olomouc Region reaches average or slightly below-average values within the nationwide comparison. For reaching a better position in this comprehensive assessment, the region should focus primarily on supporting the investments which have a positive impact on the future development of the area. The structure of the investments made represents an important link between economic growth and competitiveness.*

**Keywords:** *Competitiveness, Indicators, Olomouc region, Regional development*

### 1. INTRODUCTION

As a primary objective, EU policy has decided to reduce socio-economic disparities between individual Member States and their regions. This results in an effort to promote economic and social development in the underdeveloped regions, where the predominant majority of subsidies flow. The most important provider of funds for the Czech Republic is the European Union.

The overall development of the region can be expressed on the basis of regional development indicators such as gross domestic product or employment. Their time course is regularly monitored and their values can be obtained from the surveys of the Czech Statistical Office. This data serves as input value for the calculation of indicators and their subsequent interregional comparison. The article concentrates on the Olomouc Region, whose evaluation is carried out using four thematically focused indicators and one overall indicator. Based on the calculated score, the succession of the regions and their competitiveness were determined. Competitiveness comparison results serve as the starting point for setting up the vision of the Olomouc Region, which outlines the future development possibilities of the region.

## **2. LITERATURE REVIEW**

Regional policy represents all public administration interventions designed to minimize socio-economic disparities between the regions. An EU initiative helping the underdeveloped regions achieve a higher standard is also referred to as regional policy (Capello, 2010). The primary objective of the regional policy is undoubtedly the development of regions where these regions focus on increasing their competitiveness and cohesion. The effort is to take advantage of the strengths of the regions and to fully develop their potential. Various tools are available in order to meet the intended objectives. These tools are often aimed at attracting entrepreneurs and their capital to the region, stabilizing the population and making use of internal resources (Armstrong, 2005). The economic level of the region is the result of many variables that take on different forms and have, for example, economic, social or environmental character. From these statistical values a competitiveness scale in individual areas was compiled. It can be said that competitiveness of the region is dependent on its economic level and vice versa, the economic level of the region is based on its competitiveness and depends on the use of regional potential (Thissen, 2013). The scope of development is given both by economic indicators such as GDP, and somewhat more abstract terms such as the degree of mutual self-estimation and respect, freedom of decision-making and the satisfaction of basic human needs (Higgins, 2017). However, not only these form the rate of development of the region, substantial move forward can also be represented by investment in raising the standard of living (Kocourková, 2016). Differences in the economic, social and other spheres of life compared to a particular territory or region can be described as regional disparities. Based on these differences, one can find, on the one hand, regions with a high standard of living that are prospering and, on the other, regions that are lagging behind with social and economic problems (Stimson, 2006). Causes of these differences can be due to unfavourable geographic conditions, the structure of population to the historical background (Capello, 2010). Regional differences can be described not only verbally, but they can also be expressed using different indicators. Based on them, subsequent ranking and comparison is facilitated. Basic indicators rank from economic structure, gross domestic product, unemployment to income per capita. In 2003, the European Commission approved the list of structural indicators known as the Lisbon Strategy. These are criteria that are divided into 6 groups, the overall economic environment, employment, innovation and research, economic reform, social cohesion and the environment (Ivan-Ungureanu, 2006). An abridged list of 14 structural indicators was adopted in 2004. However, all 46 structural indicators are used to assess various areas and sectors and their values are available from the European Statistical Office (Thissen, 2013). Based on the regional disparities, competitiveness of the region is then determined. Competitiveness is defined as an effort to make full use of the potential that is embedded in the region and which thus enables subsequent development. Regional competitiveness can be determined either by a qualitative or quantitative description of the competitiveness sources or by measuring the competitiveness factors, i.e. measuring the overall indicators (Aria, 2018). Exploiting the competitiveness of the region leads to a higher quality of life and higher living standard in the region.

### 3. METHODOLOGY

A wide range of methods is used for comparing regions. The Point Method, complemented by the graphic Semaphore Method was chosen as the most appropriate method for processing the requested analysis. These methods process specific statistical data and subsequently allow to convert the data into a user-friendly table or chart. These methods were chosen based on relatively good information ability and not very large computational demands at the same time (Döpke, 2017). The Point Method works on the principle of searching for a region that achieves the maximum or, minimum values. The maximum value is required in the case of the growth of the relevant value, while for the minimum value the progression is considered to be a decrease in the value of the monitored indicator. The basic formula for determining the points in the case of a maximum is:

$$B_{ij} = \frac{x_{ij}}{x_{i \max}} \quad (1)$$

In the case of a minimum is:

$$B_{ij} = \frac{x_{i \min}}{x_{ij}} \quad (2)$$

Where  $B_{ij}$  is the point value of the  $i$ -th indicator for the  $j$ -th region,  $x_{ij}$  corresponds to the  $i$ -th value indicator for the  $j$ -th region,  $x_{i \max}$  is the maximum value of the  $i$ -th indicator,  $x_{i \min}$  is equal to the minimum value of the  $i$ -th indicator.

Within the point range, the best region receives 1,000 points and subsequently the others are ranked in the range of 0-1,000 points depending on the amount of per mille determined on the basis of Formula 1, respectively 2. For making the resulting indicator more precise, significance of the individual indicators is adjusted by determining the weights. This makes it possible to express the importance of individual inputs based on the needs and judgment of the researcher. Individual indicators with different units are converted to dimensionless ones and it is allowed to sum them, compare their development or determine their order within the assessed regions (Döpke, 2017). The Semaphore Method is only used as a complementary method for highlighting the values achieved by the Point Method. This is a special form of scale evaluation, where a three-colour scale is used. A set of colours (green, orange, red) is set based on the semaphore, allowing the observer easier navigation through the processed tables (Döpke, 2017). The dark green colour is typical for the maximum or, respectively, the best-rated regions, on the contrary, the deep red points to low-rated regions. The Olomouc Region is one of the fourteen regions of the Czech Republic, which in the context of the Czech Republic belongs among the regions with long-term below-average values in the framework of the statistical surveys carried out. Therefore, similar results can be expected from the following evaluation (BrzÁková, 2017).

### 4. RESULTS AND DISCUSSION

The evaluation of the competitiveness of the Olomouc Region was divided into several thematic units which compare the region from various points of view. Specifically, they are: economy and productivity, labour market and unemployment, population income, construction industry and infrastructure and socio-economic potential indicators. Evaluation was carried out in the 2005-2016 period and the input data for the evaluation was obtained from the Czech Statistical Office.

#### 4.1. Economy and productivity indicator

Four statistical variables were selected for determination of the competitiveness in the area of economy and productivity, for which a different weight was set out as can be seen from Table 1. Individual scales were determined on the basis of literature (e.g. the Lisbon Treaty) and author's own judgment. The most important criterion was the share of construction production on the total GDP value, as development in construction industry production is one of the primary indicators of the economic development and investment activity. The total value of GDP per capita is a relatively significant indicator that clearly defines the activity of the region.

*Table 1: Entry values of economy and productivity indicator (author's own processing)*

Name	Weight
Share of construction production on the total GDP value	0,40
GDP per capita	0,30
Net disposable income per capita	0,20
Number of construction companies with more than 50 employees	0,10

On the basis of the inputs, an indicator of economy and productivity was compiled, calculated using Formula 1. The indicator includes development in 2006-2016 period. Table 2 shows comparison of the average values of the economy and productivity indicator.

*Table 2: Comparison of the average values of the economy and productivity indicator (author's own processing)*

Name	Order	Name	Order
Capital city of Prague	1	Hradec Králové Region	12
Central Bohemian Region	5	Pardubice Region	11
South Bohemian Region	2	Vysočina Region	9
Plzeň Region	7	South Moravian region	3
Karlovy Vary Region	4	<b>Olomouc Region</b>	<b>10</b>
Ústí nad Labem Region	6	Zlín Region	13
Liberec Region	14	Moravian Silesian Region	8

It can be clearly seen from the monitored period that the best evaluated region is the Capital City of Prague, which achieves the highest rate of the indicator each year. The only variable that does not reach the highest values is the share of construction output on the GDP. If the ranking was compiled within the average achieved values, the Olomouc Region would rank on the 10<sup>th</sup> position. It is ranked among the below-average regions and its strongest weakness is the total number of construction companies based in the region. On the contrary, the average values were reached when assessing the share of construction work on the GDP. In order to improve the current situation, it is advisable to support the functioning or creation of new construction companies in the Olomouc Region. This could lead to increase in the share of construction work on the GDP, and thus increase in the point evaluation for this indicator.

#### 4.2. Labour market and unemployment indicator

Four statistical variables together with the assigned weight were chosen in the competitiveness rating indicator as listed in Table 3. The key indicator is the ratio of employees in the construction sector, as it is very often reported that the loss of one workplace in the construction

industry causes a loss of 2.2-2.5 jobs in other industries. Comparable significance is attributed to the registered unemployment rate and the economic activity rate.

*Table 3: Entry values of the labour market and unemployment indicator (author's own processing)*

Name	Weight
Employment in the construction industry	0.30
Registered unemployment rate	0.25
Economic activity rate	0.25
Number of applicants per job	0.20

Using Formulas 1 and 2, it was possible to calculate the labour market and unemployment indicator from the variables which allows comparison of the regions in the monitored 2005-2016 period. Table 4 shows the values achieved in individual years.

*Table 4: Comparison of the average values of labour market and unemployment indicators (author's own processing)*

Name	Order	Name	Order
Capital city of Prague	1	Hradec Králové Region	11
Central Bohemian Region	3	Pardubice Region	5
South Bohemian Region	2	Vysočina Region	7
Plzeň Region	4	South Moravian region	8
Karlovy Vary Region	13	<b>Olomouc Region</b>	<b>10</b>
Ústí nad Labem Region	12	Zlín Region	6
Liberec Region	9	Moravian Silesian Region	14

The capital city of Prague can again be described as a region that is performing best compared to the competitiveness on the labour market and unemployment. Olomouc Region ranked on the 10th position in the ranking of regions. The least successful region in this area was the Moravian Silesian Region which shows an under-average rate of economic activity and a low employment rate in the construction sector. If the Olomouc region maintains low unemployment rate in the forthcoming years and the share of construction workers increases, the labour market and unemployment indicator of the region will grow. As a result, this area may become more attractive to investors and continue to increase its potential.

#### **4.3. Income and expenditure of the population indicator**

The potential for income and expenditure of the population was determined on the basis of three statistical variables listed in Table 5. Average wages in general and average wages in the construction industry were valued at the same level of importance as their development is quite similar and their impact on the indicator somewhat overlaps. On the contrary, the increasing total monthly household costs for housing represent the major load mainly for the inhabitants of large cities.

*Table 5: Input values of incomes and expenditures of the population (author's own processing)*

Name	Weight
Monthly household costs for housing	0,40
Average gross monthly wage	0,30
Average gross monthly wage in the construction industry	0,30

Formula 2 was chosen for the point evaluation of the cost item. Formula 1 was chosen for the point evaluation of the average monthly wages. The income and expenditure indicator of the population in 2005-2015 was created after the significance assignment and summing of the points. Following Table 6 shows the values achieved in the years under research.

*Table 6: Comparison of the average values of the income and expenditure of the population indicator (author's own processing)*

Name	Order	Name	Order
Capital city of Prague	1	Hradec Králové Region	8
Central Bohemian Region	7	Pardubice Region	5
South Bohemian Region	4	Vysočina Region	2
Plzeň Region	3	South Moravian region	9
Karlovy Vary Region	14	<b>Olomouc Region</b>	<b>6</b>
Ústí nad Labem Region	12	Zlín Region	10
Liberec Region	13	Moravian Silesian Region	11

Although the capital city of Prague won the ranking, it is not as clear as in previous comparisons. Housing costs are high in larger cities, which is the case of the capital, given that this region has only a few rural areas, the rents are very high there. The Vysočina Region achieved a very good position in the comparison mainly due to the lowest cost of living, but also above-average wages in the construction sector. Even the Olomouc Region was ranked the 6<sup>th</sup> in the interregional measurement. The main reason for this is the low cost of housing compared to the national average, while at the same time they have a relatively slow growth rate. In addition, wages in the construction industry in the Olomouc Region are around the national average. Due to the location of the Olomouc Region, the aim is to maintain its current position and continue to support the wage growth not only in the construction sector but in general. Together with the slow pace of housing cost growth, the region would continue to be ranked among the average or slightly above average region in this assessment.

#### **4.4. Construction and infrastructure indicator**

Construction and infrastructure sector is the last thematic area for determining the indicator. The input database consists of four indicators that fall within the selected segment. Table 7 shows the indicators together with the assigned weight. The highest degree of significance was obtained by the highway and road network density indicator, since good accessibility is an important prerequisite for future development. Number of building permits issued shows the construction activity in the region, regardless the amount of the investment, the total value of the construction work carried out is also part of the evaluation. The last criterion is the proportion of households connected to the sewerage system, which is important not only from the point of view of the infrastructure but also from the point of view of the EU environmental requirements.

Table 7: Input values of construction and infrastructure indicator (author's own processing)

Name	Weight
Density of the road network	0,35
Number of building permits issued	0,30
Share of households connected to the sewerage system	0,20
Cost of construction works performed in the region	0,15

The input values for construction and infrastructure were determined on the basis of Formula 1, which was supplemented by an element of importance and converted into the required indicator for the 2005-2016 period.

Table 8: Comparison of the average values of the construction and infrastructure indicator (author's own processing)

Name	Order	Name	Order
Capital city of Prague	14	Hradec Králové Region	6
Central Bohemian Region	1	Pardubice Region	8
South Bohemian Region	7	Vysočina Region	5
Plzeň Region	9	South Moravian region	2
Karlovy Vary Region	12	<b>Olomouc Region</b>	<b>10</b>
Ústí nad Labem Region	3	Zlín Region	13
Liberec Region	11	Moravian Silesian Region	4

In this comparison, Prague occupied the 14<sup>th</sup> place, because there is the lowest density of the road network in this region which is up to four times lower than the national average. On the contrary, nearly 100% of households in the capital are connected to sewerage system; however, this input had a lower degree of significance in this survey. Table 8 shows that the Central Bohemian Region, which has the densest transport network of the regions of the Czech Republic, occupied the 1st position and it can also be considered the most active one in the number of building permits granted. However, the proportion of households connected to the sewerage system which was only 72% in 2016, reaches the critical level. Another unexpected result, in contrast to the previous comparison, is the 4<sup>th</sup> place of the Moravian-Silesian Region. This result was achieved on the basis of the above-average values for all inputs. The Olomouc Region is on the 10<sup>th</sup> position, due to the slightly below-average number of building permits, along with the average density of the road network. The lowest share was also occupied by the Zlín Region along with the Karlovy Vary Region, as the value of the construction work carried out in both regions was very low, together with a very low number of building permits issued. The density of the road network in the Olomouc Region will increase after completing the D1 motorway, which will also increase the point rating in this area. If construction activity was actively promoted in this region, it could be placed on higher positions in the future years.

#### 4.5. Socio-economic potential indicator

This indicator is not focused exclusively on one sector of the economy or a specific issue, but combines statistical inputs from many fields. The aim of the socio-economic indicator is to combine the previously mentioned values together and to supplement them with other important factors of sociological and environmental nature. A relatively complex evaluation tool has been created, which inputs together with the weights are listed in Table 9. The weight distribution took into account not only the significance of these values from the economic point of view,

but the author's own judgment also played its role, supplemented by the knowledge from the study of the given issue.

*Table 9: Input values of socio-economic potential indicator (author's own processing)*

Name	Weight
Gross domestic product per capita	0,110
Density of the road network	0,095
Total increase per 1,000 inhabitants	0,090
Registered unemployment rate	0,070
Employment in the construction industry	0,070
Number of inhabitants per 1 physician	0,070
Total expenditure on science and research	0,070
Net disposable income per capita	0,070
Production of municipal waste per capita	0,060
CO <sub>2</sub> emissions per km <sup>2</sup>	0,060
Share of households connected to the sewerage system	0,055
Number of seniors per bed in social care	0,055
Share of households with Internet connection	0,050
Number of libraries per 10,000 inhabitants	0,045
Number of cultural facilities	0,030

As in all previous cases, the 2005-2015 time period was selected. It was necessary to use both Formula 1 and 2 due to different assessment of the input values, and then to sum the point scores to produce a socio-economic potential indicator whose values are listed in Table 10. Due to the wide range of inputs, minor differences in the results were expected. The reason for this claim is the fact that each region is different and in some cases it is referred to as a below-average, and on the contrary in a different comparison as a strongly above-average region. There is still a presumption that the capital city of Prague ranges as one of the top scores even in this evaluation. On the other hand, the Olomouc Region was in every previous comparison below the average or average region and this status was expected here as well.

*Table following on the next page*



Table 10: Indicator of socio-economic potential (author's own processing)

Region	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Comparison of average values
Capital city of Prague	561,2	569,1	640,1	653,2	624,9	603,0	604,1	612,8	599,2	672,0	662,6	2
Central Bohemian Region	582,0	602,6	653,4	676,5	638,0	636,0	622,2	633,9	632,4	654,1	657,3	1
South Bohemian Region	556,0	563,2	607,2	624,7	600,3	586,3	602,3	607,4	607,7	616,1	619,7	3
Plzeň Region	527,8	541,1	580,4	615,0	577,4	579,3	604,9	610,8	606,3	625,6	628,4	4
Karlovy Vary Region	506,9	532,4	560,9	593,4	565,1	554,2	572,3	574,4	573,2	599,8	605,7	9
Ústí nad Labem Region	490,8	491,2	541,3	542,0	533,9	546,1	550,1	540,9	537,3	543,7	549,2	12
Liberec Region	500,5	499,7	517,2	530,8	527,6	531,4	524,9	524,3	526,9	542,1	549,5	13
Hradec Králové Region	544,2	541,9	564,2	582,4	577,8	580,2	581,4	575,9	571,7	596,6	600,3	7
Pardubice Region	522,3	538,4	567,7	588,3	564,6	558,9	579,8	575,5	566,1	593,3	591,5	8
Vysočina Region	546,3	547,4	576,3	597,6	571,7	572,9	578,0	579,0	580,6	600,8	610,0	6
South Moravian region	522,0	538,3	579,1	591,1	590,7	585,2	589,9	601,3	609,2	628,2	633,5	5
Olomouc Region	491,7	509,6	537,4	540,6	547,9	543,9	548,5	546,9	550,9	561,3	562,1	10 - 11
Zlín Region	486,0	507,6	533,7	564,5	536,7	533,4	544,5	540,6	552,7	567,4	577,2	10 - 11
Moravian Silesian Region	437,4	451,1	477,1	489,9	482,0	473,1	487,4	486,4	487,9	498,6	506,9	14

Based on the evaluation of Table 10, clearly all assumptions can be classified as true. The highest level was occupied by the Central Bohemian Region, which gained its leading position before Prague mainly thanks to its dense road network. The Olomouc Region occupied the divided 10<sup>th</sup>, respectively the 11<sup>th</sup> place, sharing it with the Zlín Region. The reason for this ranging can be found in slightly below-average values achieved in all inputs. The worst value was reached in the number of cultural facilities in the region; on the other hand the Olomouc Region is above average in the number of physicians and the share of employment in the construction industry. Due to the complexity of this indicator, it is not appropriate for the Olomouc Region to focus only on one or two indicators and thereby improve its position within the Czech Republic. Efforts should lead mainly to maintain growth rates and support investment in the region. The investments made always have a positive impact on the region which result, however, is not visible immediately.

## 5. CONCLUSION

Special indicators consisting of several variables were developed to assess the competitiveness of the regions. Generally said, the Olomouc Region was subject to evaluation of four thematic units and in the end to one comprehensive one. The region reaches average to slightly below-average values for all specialized indicators. The location within the previous indicators has created the premise that the Olomouc Region would be ranked close to the 10<sup>th</sup> place. This expectation was fulfilled as he was placed on a divided 10<sup>th</sup> position together with the Zlín Region, which forms a cohesion region with Central Moravia. The region should focus mainly on investment promotion for better ranking in this comprehensive assessment. The investments made always have a positive impact, which however, is usually not immediate but has a long-term character. The European Union has identified the reduction of interregional disparities in the Member States as one of its main priorities. The Olomouc Region is generally referred to as the average to slightly below-average region within the Czech Republic and therefore represents a suitable candidate for obtaining subsidies from EU funds or from other providers. From the number of grant programmes available in this region, those for reducing the energy performance of buildings should be mentioned as an example.

Construction of municipal sewerage system, construction of the cycle path and the region's very important completion of the section of the D1 motorway are representatives of the investments in the infrastructure and transport. Active employment policy has been applied at job seekers when, for example, applicants are paid money for projects dealing with problem groups integration such as disabled people or racial minorities. Implementation of these projects is perceived as beneficial not only for the citizens of the Olomouc Region, but also for future generations

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## ECONOMIC SECURITY OF CHINA IN 21ST CENTURY: SWOT ANALYSIS

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### **ABSTRACT**

*The paper raises the issue of Chinese economic security understood as a long-term ability of the economy to achieve a relatively fast and sustainable economic growth. Due to the economic reforms initiated in the late 1970s, China has been developing rapidly and has been quickly bridging the development gap separating it from highly developed economies. However, nowadays we are witnessing an economic slowdown, because the current engines of growth are slowly losing their power to drive the Chinese economy. China needs new growth impulses to maintain stable economic growth and avoid the middle income trap. The aim of the research is to identify the most significant internal and external factors affecting the economic security of China. In this paper, the author defines the concept of economic security and with the help of SWOT analysis presents the strengths and weaknesses of China's economy, opportunities and possible threats to its stability.*

**Keywords:** *Chinese economy, economic growth, economic security, middle income trap, SWOT analysis*

### **1. INTRODUCTION**

China belongs to the fastest growing economies in the world, with a significant economic, demographic, and military potential, as well as a growing international position. Within one generation China has transformed from a poor rural country into one of the main economic powers. Furthermore, during the 2008 economic crisis China's economy was one of the few which continued growing. However, nowadays we are witnessing an economic slowdown, because the current engines of growth are slowly losing their power to drive the Chinese economy. China needs new growth impulses to maintain stable economic growth and avoid the middle income trap. The aim of the research is to identify the most significant internal and external factors affecting the economic security of China. In this paper, the author defines the concept of economic security and with the help of SWOT analysis presents the strengths and weaknesses of China's economy, opportunities and possible threats to its stability.

### **2. ESSENCE AND MEASUREMENT OF ECONOMIC SECURITY**

Economic security of the state is one of the main elements of the national security system. It gained a special significance after the global economic crisis in 2008. Economic security has many definitions. It is most frequently defined as a state that guarantees smooth development of the national economy (Table 1). The chance to achieve the desired status of the country's economic security should be mainly seen in internal strengths and consistently and wisely pursued an economic policy. At the same time it should be noted that the level of economic security is not stable and is likely to change. Therefore, only the ability to use strengths of the economy and external opportunities, at the same time dealing with weaknesses and threats coming from the international environment will guarantee economic security in the long term perspective.

*Table following on the next page*

*Table 1: Overview of the definitions of state economic security*

Author	Essence of economic security
Z. Kołodziejak, [1996]	the ability of a state's economic system to use internal development factors and international economic co-relations in a way which would guarantee its undisturbed development
B. Buzan [1991]	economic security concerns access to the resources, finance and markets necessary to sustain acceptable levels of welfare and state power
E. Halizak [1997]	situation in which the economy can develop, generate incomes and savings for investment, and in which there are no external dangers which can disturb the economy
K.M. Księżopolski [2011]	the undisturbed functioning of the economy – preserving its basic development indicators and a comparative balance with the economies of other countries
M. Perczyński [1990]	the susceptibility of a country to negative changes in its economic environment, including external political and economic attempts to destabilise its socio-political system, development, and defence capability
K. Raczkowski [2012]	relatively balanced, internally and externally, state of functioning of the national economy, where the risk of occurring imbalances is kept within acceptable organisational and legal norms and principles of social coexistence
Z. Stachowiak [1994]	a state of national economy, which ensures its highly effective functioning through the proper use of internal development factors and the ability to effectively oppose external pressure, which can disturb its development
R. Włoch [2009]	a situation which guarantees economic conditions necessary for survival, prosperity, and balanced social development within the borders of a given state, as well as for the preservation and efficient functioning of the state's institutions
Jiang Yong [2007]	the ability to provide a steady increase in the standard of living for the whole population through national economic development while maintaining economic independence

Considering Table 1 it should be noted that there is no generally accepted definition of economic security. Still, it is possible to identify certain features that provide an overall picture of what this concept means. Economic security should be understood as the ability of the economy to achieve a relatively fast and sustainable economic growth and create favourable conditions for raising the level of broadly understood well-being of citizens under free trade and free flow of factors of production (especially the capital in the form of foreign direct investment). It should be emphasized that at the current stage of development of the world economy it is impossible to ensure economic security and overcome developmental barriers across the country or region. Moreover, it often requires taking global action. Although the shape of the economic security strategy still largely depends on internal factors, such as economic policy, amount and structure of natural resources, capital, and human resources. Economic security of a given country is also dependent on the international economic and political situation, relations with neighbours and membership in international economic, political, and military structures.

Table 2: Components of state economic security (author's own compilation based on K.M. Księżopolski 2011, T.M. Mkrtchyan 2015, N. Reznikova 2016)

<b>Economic component</b> is the key functional component of economic security and can be defined as a country's capability to achieve positive macroeconomic trends, preserve or renovate production facilities, implement independent monetary policy, and provide stable functioning of the financial system.	<b>Political component</b> of economic security is linked to the existence of the body of legal acts protecting territorial integrity and political independence.
<b>Demographic component</b> of economic security refers to human capacities in a country, measured in absolute figures and trends of its population. Its impact is dependent on the available workforce, the effectiveness of workforce employment and the quality of human capital.	<b>Military component</b> of economic security refers to economic management of the military sector in a country.
<b>Social component</b> of economic security is the body of legal and moral norms guaranteeing protection of human rights and freedoms, sanctity of moral values and material assets.	<b>Information component</b> of economic security refers to the relations to assure legal framework and guarantees of accessibility and reliability of various categories of data used in strategic planning across the economy and protection of the existing information resources.
<b>Ecological component</b> of economic security refers to the body of regulatory acts on environmental protection.	<b>Commercial component</b> of state economic security represents a possibly large assurance of diversification in the country's export and import trade structure.
<b>Science and technology component</b> of economic security refers to the measures aimed at introduction of competitive technologies and keeping up with the optimal balance between global gains in innovation field and domestic technological capacities.	<b>Food and raw material component</b> of state economic security implies economic assurance with necessary amount of food and raw material.
	<b>Energetic security</b> implies stable supply of sufficient amount of required energy for domestic consumption. From this perspective, the main problems facing the state are the diversification of energy imports system, as well as energy-saving technology transfer.

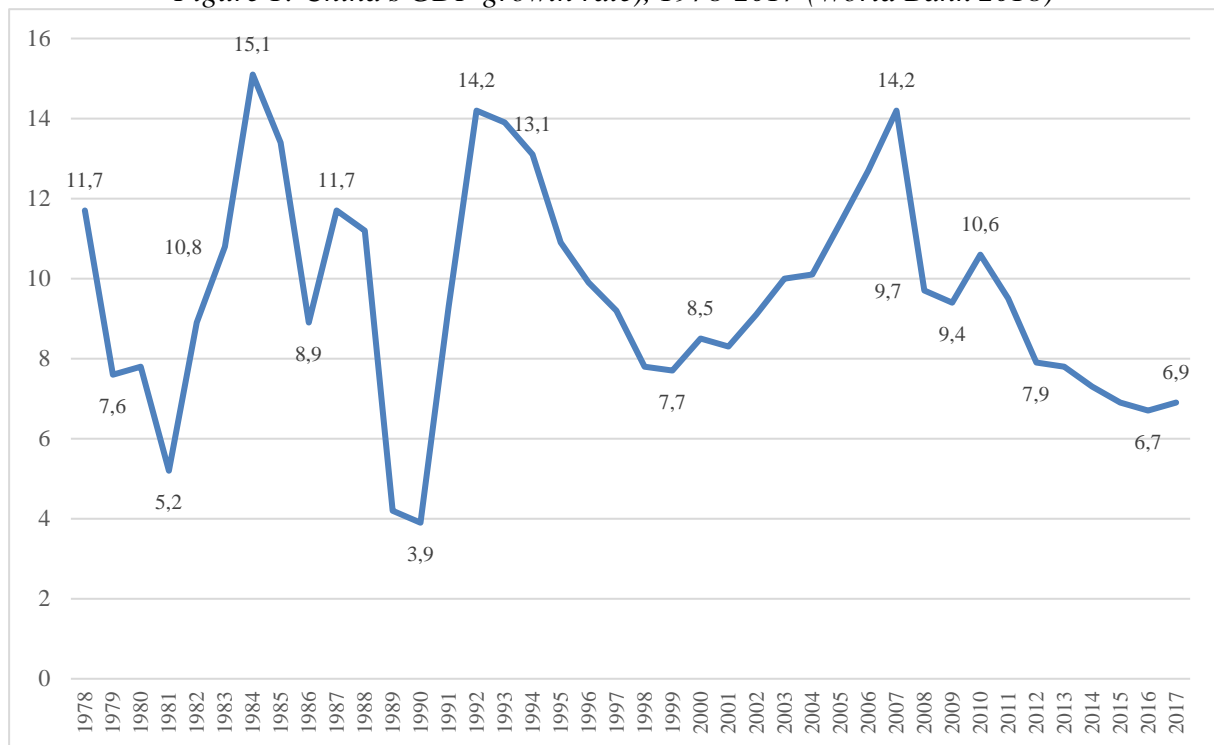
Economic security of the state is a complex and multidimensional issue (Table 2). It encompasses various issues which are essential for economic development and for the existence of a state. So, it should be analysed not only from an economic point of view but also from a political, legal, military, demographic, social, technological, and environmental perspectives. Since economic security includes many components, its measurement is a complex issue. Moreover, it refers not only to current situations but also to future situations, making its measurement much more difficult.

### 3. INTERNAL AND EXTERNAL DETERMINANTS OF CHINA'S ECONOMIC SECURITY

China is an undisputed leader in the global economy in terms of the gross domestic product (GDP) dynamics. Since 1978, it has been the fastest growing country in the world with the average annual GDP growth rate approaching 10% (see Figure 1). China has been developing rapidly and has been quickly bridging the development gap separating it from highly developed economies. Therefore it is worth wondering about the sources of the economic success of a state which halfway through the last century played no role in the world economy and now is one of the main players on the international stage. China has been undergoing an economic transformation from a centrally planned economy to a market economy since the late 1970s. The major feature of the pre-reform Chinese economy was a non-market economic system, characterized by centrally planned allocation of resources, production, and services, as well as the predominance of state-owned means of production. The allocation of means of production, i.e. capital, manpower, and technology was organized by the state with hardly no involvement of market forces.

At the beginning of systemic transformation the Chinese economy featured faulty industrial structure, which was not compatible with factor endowments and an endowment structure China had at that time. An industrial structure was characterized by an overdevelopment of the heavy industry and underdevelopment of the light industry. Furthermore, overdevelopment of the heavy industry inhibited the development of other sectors of the economy [Lin 2014, Chow 2015]. Since the beginning of the 1980s China has been trying to overcome structural deformities inherited from the centrally planned system.

Figure 1: China's GDP growth rate), 1978-2017 (World Bank 2018)



A turning point in the Chinese economic development was the end of the 1970s, as in 1978, Deng Xiaoping initiated the process of bold economic reforms that opened China to the world and laid the foundations of today's successful economy. The government understood that the country cannot develop in economic isolation and that in order to accelerate the pace of development it is necessary to engage in international trade and obtain foreign direct investments. The sources of the success of China's economy can be found first and foremost in the government's effectively implemented economic policy aiming to integrate China with the world's economy, the use of foreign capital to modernise the national economy and the use of the comparative advantage in the form of unlimited cheap labour resources [Kostecka 2009]. In the early stage of a country's development and because of the nature of its endowments, comparative advantage is usually found in resource-intensive and labour-intensive industries [Lin 2012]. That is why for many years, the Chinese export-oriented model of development based on FDI and the exports of cheap goods with low added value was effective. China has become the world's largest exporter and holder of foreign exchange reserves, one of the largest importers and exporters of foreign capital in the form of FDI. Moreover, it has developed at an impressive rate which was unattainable for the world's largest economies [WTO 2018, IMF 2018, UNCTAD 2018, World Bank 2018]. China has achieved a significant increase of the GDP and competitiveness. Moreover, a development gap between China and high income countries has been steadily decreasing. However, the past success does not guarantee the future success. In the case of China, there are a number of factors which can have a negative influence

on the economic security of the state. The analysis of strengths and weaknesses of China's economy presented in Table 3 and opportunities and possible threats to its stability presented in Table 4 suggests that economic development in China is facing a turning point with many similarities to the countries which have fallen into the middle income trap. The middle income trap means that the economic growth of developing economies slows down after a period of relatively rapid growth. Once they have achieved the middle income status such countries are not able to follow the trajectory of economic growth to achieve the status of high income countries [Eichengreen, Park and Shin 2011; Felipe, Abdon and Kumar 2012].

*Table 3: Overview of strengths and weaknesses of China's economy*

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• large foreign exchange reserves</li> <li>• over 1.3 billion potential consumers</li> <li>• access to strategic resources, including rare earth metals</li> <li>• high position in rankings of attractiveness for investors</li> <li>• improving quality of market economy institutions</li> <li>• increasing importance of the service sector</li> <li>• high adaptability of Chinese companies</li> <li>• availability of investment capital for new technologies</li> <li>• significant R&amp;D spending (public and private)</li> <li>• increasing number of companies involved in R&amp;D</li> <li>• increasing employment in high and mid-high technology companies</li> <li>• increasing education levels (including graduates of foreign universities)</li> <li>• high numbers of university and doctoral students</li> <li>• high number of higher education specialties</li> <li>• high activity in obtaining access to resources in foreign markets</li> <li>• high biodiversity and diversity of natural values</li> </ul>	<ul style="list-style-type: none"> <li>• hidden unemployment (Chinese statistics do not include rural areas)</li> <li>• pollution</li> <li>• low awareness of intellectual property issues</li> <li>• in manufacturing an imitative approach prevailing</li> <li>• increasing non-wage labour costs</li> <li>• overly high participation of the state in the economy</li> <li>• relatively low participation of high-tech in export</li> <li>• the economy specialises in the production of goods of relatively low technological advancement level</li> <li>• local companies base their competitiveness on low prices</li> <li>• low quality legal systems and problems with executing contracts and property laws</li> <li>• relatively low numbers of people with higher education</li> <li>• low health care expenditures</li> <li>• poor position of Chinese higher education institutions worldwide</li> <li>• underdeveloped continuing education</li> <li>• growing local government debt</li> </ul>

In the case of China there are a number of factors which can have a negative influence on the economic security of the state and interfere with future economic growth contributing to China falling into the middle income trap (Table 3, Table 4). On the other hand, there are also many factors allowing China to enjoy undisturbed economic growth in the future and perhaps avoid the middle income trap and join the highly developed world economies. Moreover, analysing the conditions of the Chinese economic security one should pay particular attention to the conditions in its economic environment, because only by successfully seizing opportunities and minimising threats can China avoid the middle income trap and have the opportunity to join the highly developed economies. Threats necessitate a change in China's development model. China is aware of its weaknesses and threats facing it and is changing its hitherto development strategy. Increasing economic growth at any cost is no longer a priority for the Chinese leaders, who now put stress on more balanced development (co-called new normal).

*Table 4: Overview of economic opportunities and threats*

<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• influx of foreign direct investment</li> <li>• increasing competitiveness of Chinese companies, which can compete with foreign businesses both in China and in international markets</li> <li>• investment expansion during the crisis and access to strategic assets; China is one of the largest outbound direct investors in the world</li> <li>• increasing numbers of university students</li> <li>• improving adaptation of universities to the needs of the labour market</li> <li>• investments in China's own R&amp;D sector</li> <li>• increasing willingness of global companies to build high-tech centres in China</li> <li>• creating Chinese R&amp;D centres and technology parks helps improve innovation in economy</li> <li>• decreasing technology gap</li> <li>• increasing environmental awareness</li> <li>• expansion of economy based on a sustainable development paradigm</li> <li>• biofuel production, alternative energy sources</li> <li>• as response to an ageing population China expanded its former one-child policy to a limit of 2 children per family in 2015</li> <li>• opportunities arising from the Belt and Road Initiative (increased energy security, increased access to markets along the trade routes for Chinese companies, opportunity for China to move up the global value chain</li> <li>• Made in China 2025</li> <li>• to boost domestic consumption and leisure spending China has begun implementing an official policy for a 4.5-day work week</li> </ul>	<ul style="list-style-type: none"> <li>• global financial crisis and slowing global economy</li> <li>• continuing reliance on exports (susceptibility to fluctuations in global economy)</li> <li>• trade war with United States</li> <li>• income disparity between agriculture and other sectors</li> <li>• lack of breakthrough and key technologies</li> <li>• influx of out-dated technology</li> <li>• dependence on foreign technology</li> <li>• increase in real wages leading to investors withdrawing</li> <li>• increasing non-wage labour costs</li> <li>• increasing demand for resources caused by economic growth</li> <li>• increasing energy demands</li> <li>• improper exploitation of natural resources</li> <li>• negative consequences of fast economic growth (e.g. pollutions, regional disparities)</li> <li>• decreasing environmental quality</li> <li>• high costs of environmental policy</li> <li>• ageing society</li> <li>• increasing health-care costs</li> <li>• high demographic burden indicator</li> <li>• reduction in the number of professionally active people in relation to pensioners</li> <li>• fast population growth, threatening food security</li> </ul>

The global financial crisis of 2007-2008 has shown that the dependence of the Chinese economy on foreign markets proved to be too high and risky. As the global economic situation deteriorated leading to a decrease in exports and foreign direct investments, the economic growth in China has slowed down visibly. Thus, 2007/2008 global financial crisis revealed a serious weakness of the export- and investment-driven growth model applied by China [Kostecka 2011]. China's annual GDP growth rate dropped from the average rate of 9.6% in the period 1978-2017 to 6.9% in 2017. In 2017, the GDP in China was worth 12.2 trillion US dollars which makes China the world's second largest economy after the US. Moreover, it should be emphasized that despite the economic slowdown China generates around 15% of the global GDP [World Bank 2018]. Basic macroeconomic indicators allowing the evaluation of an overall economic situation in China in 1978-2017 are presented in Table 5. It should be stressed that the slowing down of the Chinese economy is not only the result of a deterioration in global economy, but also of serious structural problems which the Chinese economy has struggled with for years.



The economic growth mechanism, which relies on the availability of cheap labour and low production costs, exporting labour-intensive products of low added value, artificial undervaluation of the yuan, foreign direct investment, foreign technologies and intense inward investment loses its effectiveness and cannot guarantee a sustainable growth of the economy [Kostecka 2009].

*Table 5: Selected macroeconomic indicators of China, 1978-2017 (World Bank 2018)*

Year	GDP (billion US\$)	GDP growth (annual %)	Agriculture	Industry	Services	Exports	Imports
			(value added, % of GDP)			(% of GDP)	
1978	149.54	11.7	27.7	47.7	24.6	4.6	5.1
1980	191.15	7.8	29.6	48.1	22.3	5.9	6.5
1985	309.49	13.4	27.9	42.7	29.4	8.3	12.4
1990	360.86	3.9	26.6	41.0	32.4	13.6	10.7
1991	383.37	9.3	24.0	41.5	34.5	14.5	11.5
1992	426.92	14.2	21.3	43.1	35.6	15.7	14.5
1993	444.73	13.9	19.3	46.2	34.5	16.7	19.4
1994	564.32	13.1	19.5	46.2	34.4	18.5	17.2
1995	734.55	10.9	19.6	46.8	33.7	18.0	16.3
1996	863.75	9.9	19.3	47.1	33.6	17.9	15.9
1997	961.60	9.2	17.9	47.1	35.0	19.5	15.0
1998	1029.04	7.8	17.2	45.8	37.0	18.3	14.1
1999	1094.00	7.7	16.1	45.4	38.6	18.2	15.4
2000	1211.35	8.5	14.7	45.5	39.8	20.9	18.5
2001	1339.40	8.3	14.0	44.8	41.2	20.3	18.2
2002	1470.55	9.1	13.3	44.5	42.3	22.6	20.1
2003	1660.29	10.0	12.4	45.6	42.0	27.0	24.8
2004	1955.35	10.1	12.9	45.9	41.2	31.1	28.4
2005	2285.97	11.4	11.6	47.0	41.3	33.8	28.4
2006	2752.13	12.7	10.6	47.6	41.8	36.0	28.4
2007	3552.18	14.2	10.3	46.9	42.9	35.4	26.7
2008	4598.21	9.7	10.3	46.9	42.8	32.5	24.9
2009	5109.95	9.4	9.8	45.9	44.3	24.5	20.1
2010	6100.62	10.6	9.5	46.4	44.1	26.3	22.6
2011	7572.55	9.5	9.4	46.4	44.2	26.5	24.1
2012	8560.55	7.9	9.4	45.3	45.3	25.4	22.7
2013	9607.22	7.8	9.3	44.0	46.7	24.5	22.1
2014	10482.37	7.3	9.1	43.1	47.8	23.5	21.4
2015	11064.67	6.9	8.8	40.9	50.2	21.3	18.1
2016	11190.99	6.7	8.6	39.9	51.6	19.7	17.4
2017	12237.70	6.9	7.9	40.5	51.6	19.8	18.0

Therefore, in order to avoid the middle-income trap and secure sustainable economic growth, China needs to climb the global value chain ladder and move toward high-tech industries. In 2015, the Chinese government announced the Made in China 2025 strategic plan to increase China's manufacturing capacity in high-tech industries.

This strategy targets virtually all high-tech industries that strongly contribute to economic growth in advanced economies: automotive, aviation, machinery, robotics, high-tech maritime and railway equipment, energy-saving vehicles, medical devices and information technology to name only a few [Wübbecke, Meissner, Zenglein, Ives, Conrad 2016]. In the early 1980s, China became attractive for foreign direct investment (FDI) which helped restart the economic growth. Over the course of time, China became an open economy involved in the global value chains (GVCs), highly dependent on exports. The emergence of the GVCs creates opportunities for an economic growth in developing countries and an ability to enter the GVCs is a vital condition for their development. Becoming a part of the GVCs is an important step towards economic development, but it should be stressed that to achieve a sustainable economic growth not only should developing countries increase their participation in the GVCs but also move them up. The position of a country in the GVCs affects its ability to produce and retain value as well as a degree to which it benefits from the participation in the GVCs. China has not been satisfied with its position in the GVCs and is interested in improving its position within them. In order to stimulate growth and competitiveness China is applying many different instruments for changing its role and position in the GVCs (e.g. Made in China 2025) and is trying to attract FDI in activities that require higher added value. FDI is an extremely important element from the point of view of economic development, that is why it is essential to create favourable conditions for their influx. Although the level of investment attractiveness of the Chinese economy is steadily improving, one of the main factors attracting foreign capital to China have still been relatively low labour costs. It should be emphasized that the influx of cheap labour-seeking FDI perpetuates the current development model. So, the hitherto model of development, based on low labour costs and access to cheap resources is disadvantageous in the long run and cannot be the basis of permanent economic security and prosperity, and can even strand China in the middle income trap. The adopted model of development is also burdened with high risk, because the increase in wages reduces competitiveness and attractiveness of the market for foreign capital. Therefore, low wages and cost-based competition have become an essential structural problem for the Chinese economy and it requires immediate in-depth reforms, the lack of which is going to prevent China from joining the group of the highly developed economies. It should be stressed that FDI flowing into China and a focus on exports are not what the economy needs and may entrench a disadvantageous economic structure, which may be a threat to future development. Moreover, analysing the role of foreign direct investment in the development of a particular economy we have to remember that it changes along with the development of the economy. At the current stage of China's economic development, the inflow of each foreign direct investment has lost its significance. Much more important from the point of view of economic development is the quality of the investment and the level of technological advancement. In the long-term perspective, it is possible to induce the changes in the structure of the economy by targeting investments at the desired areas of production. Therefore, the policies to attract foreign investors should be more selective. Within the last three decades direct foreign investments flowing into China have played a significant role in the economic growth, because they provided the Chinese economy with access to finances, advanced technologies, or modern management methods. However, in the upcoming decades the investments by the Chinese companies abroad are going to acquire much greater significance. In 2000, the Chinese government initiated the Go Global policy, which encourages the Chinese companies to take up operations in foreign markets in order to acquire strategic resources, necessary in the process of industrial upgrading, structural transformation and economic growth. The objective of the government is to increase the level of China's outward FDI, because it is considered as an important tool in supporting the economic development of the country. The Chinese government actively supports outgoing FDI through financial incentives, technical support, and economic diplomacy (e.g. Belt and Road

Initiative, 16+1 Initiative). Nowadays Chinese companies invest both in underdeveloped and developing countries, as well as in developed economies. The main motive for China's global expansion is gaining access to natural resources (investments in Latin America, Africa, and Australia), new markets, and strategic resources such as advanced technologies, strong brands, and know-how (investments in North America and Europe). Moreover, China has announced the idea of reconstructing the antique Silk Road, which reached from Asia to Europe and Africa. The Belt and Road Initiative (BRI) is a response to China's internal economic problems and an attempt to alter the existing system of global interdependencies. The BRI proposed by the Chinese president will undoubtedly bring many positive outcomes, but its main objective is to stimulate the growth of Chinese economy. In order to grow China needs other states since it is unable to switch from its export-oriented growth model to domestic consumption-driven one in a short period of time. Therefore, China is interested in boosting trade with Asia and Europe. China plans to create a network of transport corridors, modern infrastructure, new railroad connections, port facilities, and logistics centres in order to gain access to resources and facilitate distribution of its products in Asia and Europe. Moreover, the projects realised under the Belt and Road Initiative, will further help Chinese companies operate in foreign markets. During the period of rapid economic development many companies were established in China, which are increasingly active and invest all over the world. China has the largest foreign currency reserves in the world (over 3 trillion USD) and have just started significant global financial, investment, and banking expansion. The main motive behind the BRI is the development of infrastructure. Therefore, numerous structures are built for the purposes of the New Silk Road: roads, railways, ports, pipelines, etc. This creates demand for both design and construction work, as well as building equipment and materials. Involvement in the New Silk Road would help utilise surplus production capacity, which appeared in some branches of the Chinese heavy industry. Furthermore, it should be stressed that already in the preparations stage demand arises for design services. China has expertise in this area, because the Chinese economy has long been developing thanks to internal infrastructure investments on a grand scale. Furthermore, since China is an important partner in international institutions created to finance the BRI projects, it has influence over the selection of both projects and contractors. Therefore, one should expect Chinese companies to be treated favourably. At the same time the involvement of Chinese institutions in financing infrastructure projects speeds up the rise of the Chinese Yuan as an international currency. The Belt and Road Initiative is also an attempt to strengthen the Chinese influence in the world and remake the world order. This concept is an important element of the creation of a Chinese new world order, alternative to the current one dominated by the USA [Tarnawski, Zaleski and Kostecka-Tomaszewska 2016].

#### **4. CONSLUSION**

Guaranteeing long-term economic security is a priority for the economic policy of any state. The effectiveness of any strategy of building economic security is largely dependent on recognising and optimising the utilisation of internal and external conditions. In 2018, China is celebrating the 40th anniversary of its reform and opening-up which has led to spectacular growth and impressive reduction of poverty. Over the past 40 years, Chinese strategy of ensuring economic security has been successful. China has undergone tremendous changes from a centrally-planned to market economy that have transformed an impoverished country into an economic power. Currently, the Chinese economy is an unattainable role model for many developing countries. However, the analysis of the level and structure of GDP, trade and FDI, labour productivity, demographic situation, degree of innovativeness, quality of institutions and international competitiveness suggests that China is facing a turning point with many similarities to the countries which have fallen into the middle income trap. Moreover, we can observe that the economy of China is slowing down, because sources which were the

foundation of the growth are slowly losing their driving power. In order to retain stable economic growth and avoid the middle income trap China needs new impulses to stimulate its economic growth. That is why China has gradually changed its development strategy. In order to stay on its path towards development China continues economic reforms and modifies its development model: from a resource intensive model to a more sustainable one, from a model based on imported technology to technological innovation, from a model based on low-value-added manufacturing to high-value-added manufacturing, from an export-led growth model to one based on domestic demand, from a foreign investment based model to one based on the export of capital. In addition, in order to ensure economic security in the long run, maintain a stable economic growth and avoid the middle income trap China has introduced Made in China 2025 and BRI. It should be stressed that the main motive behind the Chinese Belt and Road initiative is to develop transport and energy infrastructure which will allow China to gain access to natural resources and new markets. An efficient transport network will facilitate trade, while energy infrastructure will prevent problems with energy and resource supply, which the Chinese economy needs. The New Silk Road concept aims to use the advantages of the Chinese economy and the states participating in the initiative to stimulate its economic growth. Therefore, it is a strategy of providing long-term economic security.

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## REGIONAL DISPARITIES IN THE CONTEXT OF UNEMPLOYMENT AND STUDENT TESTING RESULTS IN THE SLOVAK REPUBLIC

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### **ABSTRACT**

*This paper explains the impact of the quality of education and the unemployment rate in general and explores their relation on the basis of data for various regions in Slovakia. The general objective is to determine the relationship between the school testing results of primary and secondary education graduates and the unemployment rate in the given region. The research took into consideration the basic characteristics of the Slovak labour market, while focusing on the position of young people. The educational results were taken from the National Institute for Certified Educational Measurements' database of annual state exams taken by 9th graders (last year of primary education) and of the results of the external part of the secondary school-leaving examination. The overall unemployment rate in the region was taken as the unemployment rate. The common view is that regions with worse school testing results tend to have a higher unemployment rate than regions with better testing outcomes.*

**Keywords:** *Education, School Testing Results, Unemployment, Youth Unemployment*

### **1. INTRODUCTION**

The youth unemployment, which is a cause of various problems for the economy and society, is directly linked to the education system. The skills and qualities of the graduates, of either secondary or tertiary education, of a certain country are one of the reasons why the youth unemployment levels vary among the countries. The transition between school and work is a critical period in the life of young people because their first access to the labour market can have a significant impact on their employment career over the entire course of their lives (Korpi et al., 2003). However, the transition from education to working life cannot not be seen as one single step but as a sequence of various procedures. (Brzinsky-Fay, 2007, referenced by Barbieri et al., 2016). Therefore, it is necessary for the state institutions to provide conditions for as easy transition as possible, regardless of the education level attained. If the state fails to do so, it can lead to a high youth unemployment rate and a whole generation of youth, having problems while searching for a job position suitable for their achieved education. Or formulated differently, there might be a relatively big group of young people who will have long-term issues on the labour market. The reason why the state should prevent young individuals from being unemployed is the fact that if young individuals experience unemployment, it may alter their attitudes and they may become more discouraged about their chances of finding work, and this spills over into their job search behaviour (Lynch, 1989). Hence, the longer the period of unemployment with accumulation of unsuccessful attempts to find a job, the lower one's expectations of success and the less effort devoted to finding employment (Kulik, 2001). The duration of non-employment in the first 3 years after leaving education increases the likelihood of exiting employment in the subsequent time period and the results also implied that non-employment in youth has a scarring effect on later employment chances of the young individual (Luijkx and Wolbers, 2009). On the other hand, the unemployment of young individuals has not only a negative effect on these individuals but also on the society as a whole because it is

one of the determinants of market income inequalities (Huber and Stephens, 2014). When whatever group, including the group of young people, stay outside the economic mainstream, it creates social and financial costs to the country because by not employing these people or undervaluing them, the society fails to capitalise on a source of productive human capital, and a scarce capital of public and philanthropic funds are used to support many people who are actually capable of supporting themselves (Saxunová and Schurmann, 2011). The key question is why the level of youth unemployment rate varies among the countries in the European Union. Generally, youth unemployment depends on the system of education and legal regulation of the labour market. It can be said that greater emphasis on specific skills and a closer link between schools and employers lead to an easier transition from education to the labour market because they send a very clear signal to employers about the potential productivity of a given job-seeker in the job that the employer wants to fill (Breen, 2005). The youth unemployment depends on the labour market characteristics. The reason why it is so is that the youth population have lower levels of labour capital, skills and generic and job-specific work experience (Ghoshray et al., 2016). According to the OECD report of 2005 the abovementioned characteristic leads to lower youth productivity and makes them more exposed to long-term unemployment, unstable and low-quality jobs, even social exclusion. As was already mentioned, the educational system is one of the key factors how to avoid youth unemployment. An easy transition process from education, regardless if secondary or tertiary, into the labour market is necessary to avoid or minimise youth unemployment. For a low youth unemployment rate, it is crucial to have corresponding supply and demand sides of the labour market. That does not necessarily mean that the state should try to maximise the number of young individuals with higher education. This could possibly lead (Holmes & Mayhew, 2016) to a situation when graduates are going into jobs that were once done by non-graduates. That would only deepen the social inequalities in the labour market. Countries with strong vocational training systems tend to have lower levels of social inequality because young people with lower academic skills can get well paid employment due to the skills obtained in the vocational education or training (Estévez-Abe et al., 2001, referenced by Busemeyer and Jensen, 2012). The more time a young individual spends in education, the more likely it is that he will choose academic over vocational education (Busemeyer & Jensen, 2012). However, there is a difference between general and specific professional vocational training or education. The evidence from Sweden proved that longer and more general vocational education has not significantly reduced the risk of experiencing unemployment. Therefore, it can be assumed that the specific content of vocational education or training can have a positive impact on the youth unemployment rate, especially when the vocational education reflects the current and future labour market needs (Hall, 2016).

## **2. DEVELOPMENT OF YOUTH UNEMPLOYMENT**

The youth unemployment rate is generally higher than the overall unemployment rate. Its development trend in Slovakia is the same as in most of the EU countries. Actually, 2018 is the first year after the crisis with lower unemployment rate values compared to the pre-crisis period. In August 2018, the youth (note: the EU counts as youth persons between 15-24 years) unemployment rate was 14.8% in the EU-28 and 16.6% in the Euro Area, compared with 15.6% and 15.5% respectively in 2008. In August 2018, the lowest rates were observed in Germany (6.2%), the Czech Republic (6.3%) and the Netherlands (7.7%), while the highest were recorded in Greece (39.1% in June 2018), Spain (33.6%) and Italy (31.0%). For comparison see Figure 1.

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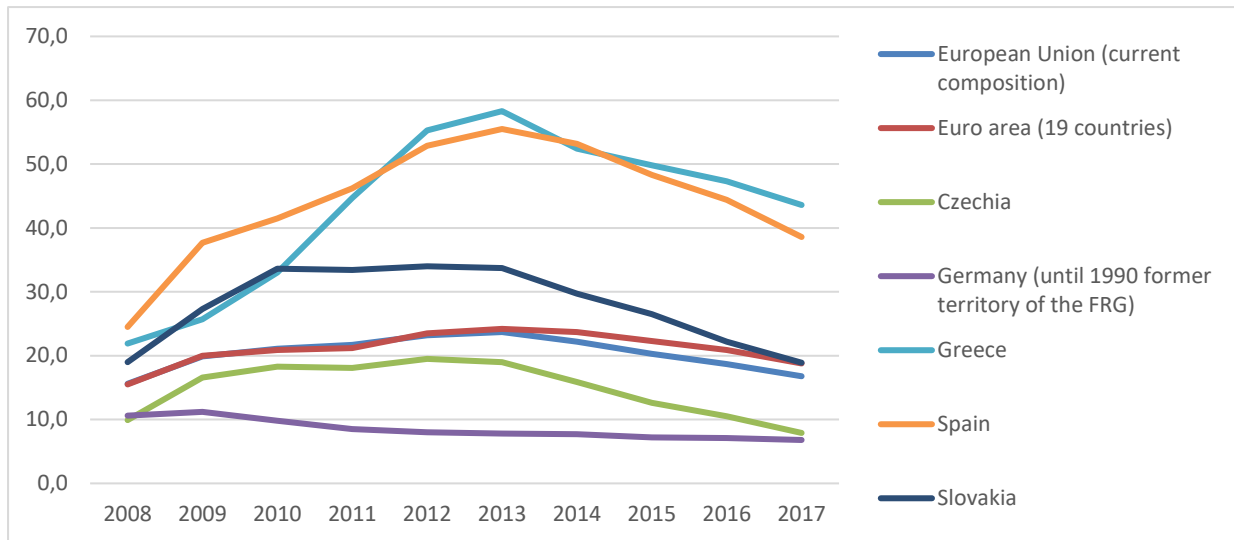


Figure 1: Youth unemployment rate (15-24 years) – comparison of the chosen EU countries (2008-2017, in %) (Source: Eurostat)

High youth unemployment rates in general reflect the difficulties faced by young people in finding jobs. However, this does not necessarily mean that the group of unemployed persons aged between 15 and 24 is large in absolute numbers, as many young people are studying full-time and are therefore neither working nor looking for a job.

## 2.1. Youth Unemployment – Case of Slovakia

The development of youth unemployment in Slovakia is no exception within the EU. The unemployment rate of youth is higher than the overall unemployment rate (Figure 2). The development of both follows more or less the same scenario, so recently the expansion of the Slovak economy is reflected also in the declining rates of unemployment irrespective of age groups. Based on the data of the Slovak Central Office of Labour, Social Affairs and Family, it is clear that there is an imbalance between the attained level of education of the job-seekers and the required education level of the free job positions in the economy (Figure 3). This is quite a serious problem pointing out to the fact that the education system does not reflect the labour market needs. The biggest problem concerns the upper secondary education level, where the offer of free workers is much bigger than the needs of the labour market. The problem of the big number of job-seekers in that group could result from the production of graduates in fields that are not interesting in the labour market. The problem of Slovakia are missing students of technical studies. They are necessary for two reasons: better position of young people in the labour market, as well as the positive effect on the Slovak economy as a whole, which is very industry-focused; it is crucial that it has a sufficient number of graduates of technical studies. It is clear that participation in education is not an end in itself. The solution to the problem of youth unemployment is not prolonging the period of studies for young people. What matters for people and for the economy are the skills acquired through education. It is the competence and character qualities that are developed through schooling, rather than the qualifications and credentials gained, that make people successful and resilient in their professional and private lives.

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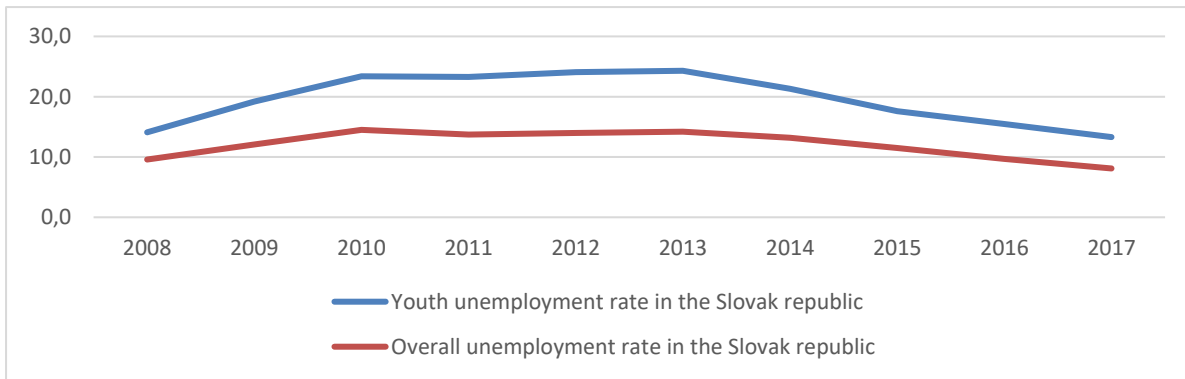


Figure 2: Unemployment rate (15–29 years) – youth vs. overall in the Slovak Republic (in %) (Source: Eurostat- a)



Figure 3: Required education level for the free job positions vs. attained education level of the job-seekers (September 2018) (Source: UPSVAR-a)

Looking at the attained education level of fresh graduates, the majority of them have finished upper secondary education (Figure 4).

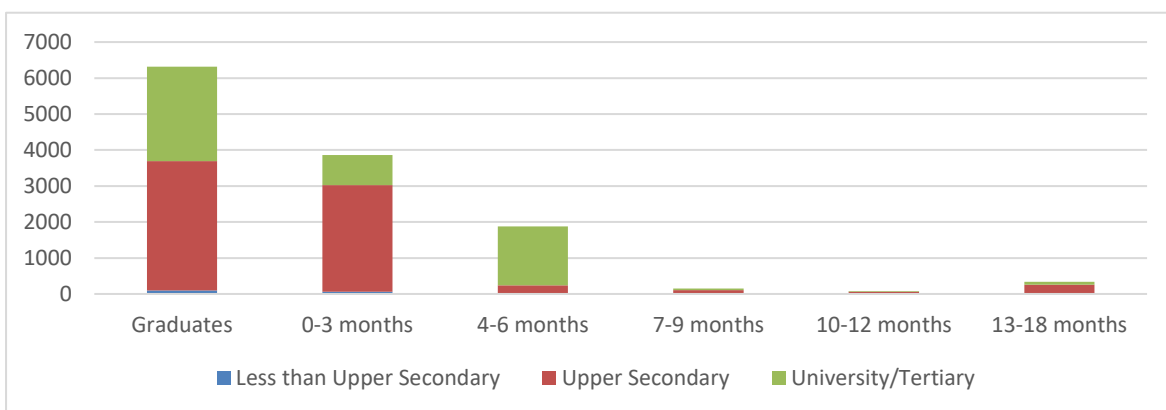


Figure 4: Job-seeker graduates – based on the attained level of education (September 2018) (Source: UPSVAR-b)

The good news is that, in general, the majority of graduates are unemployed less than 3 months (this duration of unemployment is not a real problem for the economy). The problem starts when young people are not able to find a job for more than one year. The data for September 2018 reflect the good condition of the Slovak economy.

The big problem in the EU countries is the group of young people neither in employment nor in education or training (NEET). The NEET group may be subdivided into those who are unemployed and those who are considered economically inactive (in other words, they do not have a job and they are not actively seeking employment), in other words, it provides information on the transition from education to work and focuses on the number of young people who find themselves disengaged from both education and the labour market. The NEET rate for young people is closely linked to economic performance and the business cycle, which explains its increase during the economic crisis (see Figure 5). An analysis for three different age groups of young people for the EU-28 shows an increasing NEET rate with ageing (in 2017 the NEET rate was: 15.5% for age 20–24; 17.7% for age 25–29; 18.1% for age 30–34). There is also a difference between genders, as women have much higher rates in all age groups than men. This pattern may be linked, at least in part, to the growing number of women who postpone childbirth, the low share of men who interrupt their careers to help raise a family, and a range of difficulties faced by women who wish to integrate a professional career with their maternal role. (Eurostat-b)

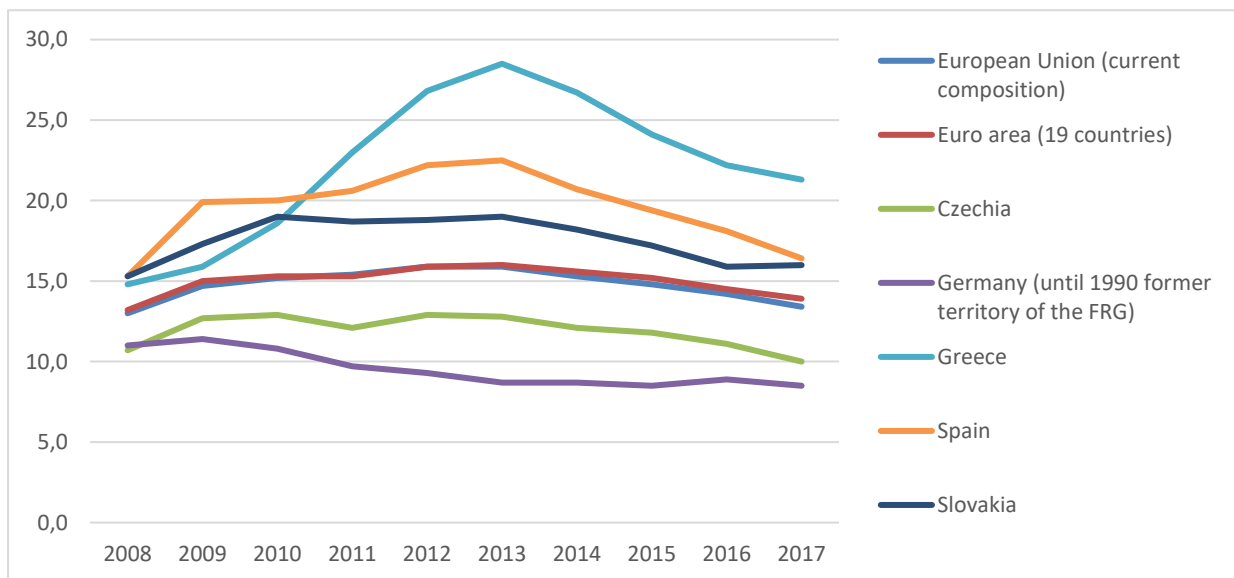


Figure 5: NEET rates – comparison of the chosen EU countries (2008-2017, in %) (Source: Eurostat-b)

## 2.2. Programme for International Student Assessment

The Slovak Republic has been experiencing a decline in performance in all main subjects (mathematics, science and reading) tested in the Programme for International Student Assessment (PISA tests). The performance of Slovak students in science, mathematics and reading is below the OECD average and has been declining since 2009. In the latest evaluated PISA tests from 2015 (the 2018 PISA test has not been evaluated yet) around 6,400 Slovak students from almost 300 schools took a test in science, mathematics and reading, as well as in financial literacy and problem-solving. There has been a decline in all 3 main subjects tested in the previous PISA tests. However, the decline in these 3 subjects between the 2015 and 2012 cycles was lower than between the 2012 and 2009 cycles.

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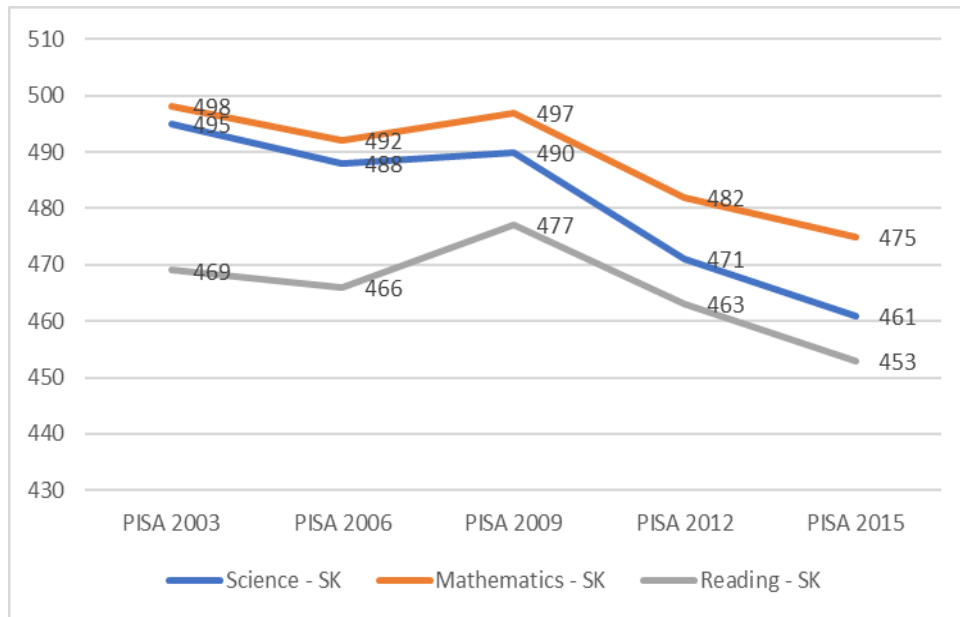


Figure 6: PISA tests results of Slovak students (Source: NÚCEM-a)

As can be seen in the Figure 6, Slovak students are gradually getting worse PISA test scores in all main subjects. In the 2009 cycle, there was an upgrade in the results but since then there has been a continuous decline, even the results in all 3 subjects are worse than in the 2003 cycle. Slovak students continuously get the worst results from reading, however the biggest decline since 2009 was observed in science (by 29 points). When looking closely into the individual subjects, Slovakia has the worst results in all 3 main subjects among the Visegrad 4 countries and all of these results are below the OECD average. Since the beginning, Slovak students have achieved the worst scores in reading. Even though reading is a subject with the long-term lowest scores also at the OECD average level, the difference between the subjects is not as dramatic as in the Slovak Republic. Even the scores in reading at the OECD level in the last two cycles were higher than in mathematics. Slovak students were also tested from financial literacy and problem-solving. The results of Slovak students from financial literacy are below the OECD average and have worsened since 2012, when financial literacy was tested for the first time. As can be seen in Figure 7, the gap between the OECD average PISA test scores and the Slovak PISA test scores is widening. The smallest difference between Slovak results and the OECD average was achieved in the 2009 cycle. Since then the “scissors” between Slovak results and the OECD average results are widening and the difference in the 2015 cycle was almost 3 times bigger. At the level of individual subjects, the biggest difference between the OECD average and Slovak results was in 2015 in reading – 40 points, whereas in science this difference was 32 points and in mathematics 15 points.

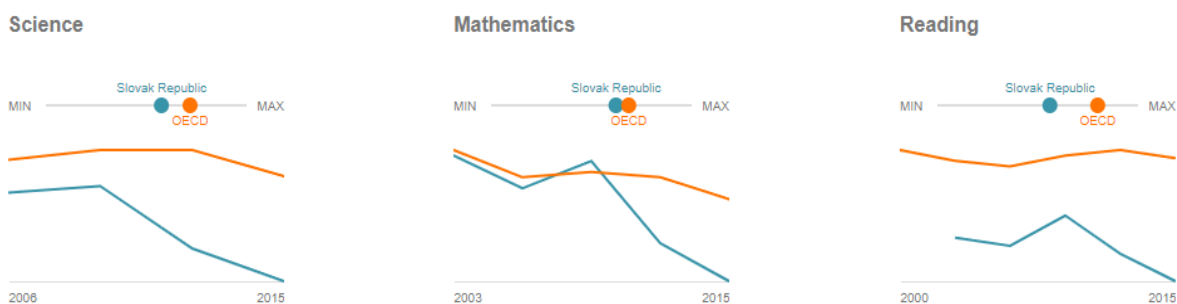


Figure 7: Average performance in three subject areas – comparison of Slovak Republic vs. OECD (Source: PISA 2015)

### 2.3. Slovak National Test Results

There are three student tests conducted each year at the national level in the Slovak Republic. External testing of fifth-graders at primary schools and external testing of ninth-graders at primary schools are carried out each year in order to detect the individual level of pupils' knowledge of mathematics and the national language (NÚCEM, 2018). The third test performed at the national level is the external part of the school-leaving exams done by the students usually in the last year of their secondary education. As this article concentrates on the position of young individuals in the labour market, we will look more deeply only at the last two mentioned national level tests – external testing of ninth-graders at primary school and the external part of the school-leaving exams.

#### 2.3.1. External Testing of Ninth-Graders at Primary Schools

The external testing of ninth-graders at primary schools is done in 5 subjects – Mathematics, Slovak Language and Literature, Hungarian Language and Literature, Slovak Language and Slovak Literature (conducted by pupils in schools with a different language of instruction than the Slovak language) and Ukrainian Language and Literature. In 2018, the external tests of ninth-graders at primary schools were taken by more than 36,000 students at more than 1,400 schools in Slovakia. Unlike the PISA tests, the scores of pupils have been improving in the last 5 years as can be seen in Figure 8.

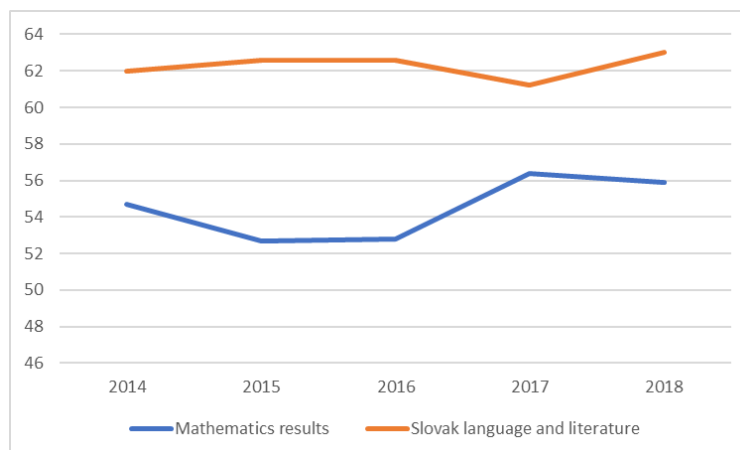


Figure 8: Results of external testing of ninth-graders at primary schools in Mathematics and Slovak Language and Literature from 2014 to 2018 (Source: NÚCEM-b)

In 2018, the average success rate in Mathematics was 55.9%. The differences between the regions were not significant. The best results were achieved by pupils in the Bratislava Region (average success rate of 59.4%), the worst in the Banská Bystrica Region (average success rate of 51.7%). However, at the district level there were significant differences between the big cities and rural areas. The best results in Mathematics were achieved by pupils in big capitals of regions, whereas the worst results were achieved by pupils in secluded or less developed rural areas of the Slovak Republic. The difference between the best district and worst district in Mathematics was 29.8%. The results in Slovak Language and Literature were slightly better in 2018 than in Mathematics, with a 63% average success rate. The differences between the regions were again not significant. The best results were achieved by pupils in the Bratislava Region (average success rate of 65.6%), the worst in the Košice Region (average success rate of 60.6%). Again, at the district level there were significant differences between the big cities and rural areas. It must be taken into consideration that in some areas of the Slovak Republic the native language of the pupils is not Slovak, but these pupils could still attend schools with Slovak as the language of instruction (the test in Slovak Language and Literature is done only

by pupils at schools with Slovak as the language of instruction). Figure 9 shows the results of the correlation analysis in both Mathematics and Slovak Language and Literature in the last 5 years at the regional level.

Mathematics	2018	2017	2016	2015	2014
r	-0.6888	-0.6373	-0.71518	-0.65122	-0.60718
SLandL	2018	2017	2016	2015	2014
r	-0.9286	-0.81885	-0.89691	-0.64533	-0.85714

*Figure 9: Correlation analysis of the average success rate and overall unemployment rate at the regional level from 2014 to 2018*

The results in Figure 9 show that there is a negative correlation between the average success rate of pupils in the external testing of ninth-graders at primary schools in a region and the overall unemployment rate in that region. The correlation analysis was done using the average success rate in a given subject in a region and the overall unemployment rate in that region. The overall unemployment rate in the given region in September of the given year was taken as the unemployment rate. In the last 5 years the correlation in both, Mathematics and Slovak Language and Literature has increased. The correlation in Mathematics is weaker than in Slovak Language and Literature, except for 2015, when the correlation was very strong. The mixed ethnicity of the population (Slovak, Hungarian, Roma) in some regions could be one of the explanations of the stronger correlation in Slovak Language and Literature. Whereas in Mathematics the role of proper understanding of the language in which the subject is taught, is not so important, in Slovak Language and Literature the meaning and content of the language needs to be understood thoroughly. The regions and especially districts with mixed ethnicity of the population (which are at the same time the districts with the worst results in external testing of pupils) are those with the long-term highest unemployment rate.

### *2.3.2. External Part of the School-Leaving Exam*

The external part of the school-leaving exam is done in 7 different subjects – Slovak Language and Literature, Hungarian Language and Literature, Ukrainian Language and Literature, Slovak Language and Slovak Literature (at schools with Hungarian as the language of instruction), Mathematics, foreign languages at level B1 or B2 (English, German, Russian, French, Spanish and Italian) and the second language of instruction at bilingual schools at level C1 (English, German and Russian). The external part of the school-leaving exam was conducted by almost 43,000 students from 700 schools across Slovakia. Most exams were done from Slovak Language and Literature (almost 40,000 students conducted this exam), English at level B1 (more than 20,000 students), English at level B2 (almost 14,000 students) and Mathematics (almost 5,500 students). In this article we concentrate on tests in subjects conducted by most students in the Slovak Republic, that is Slovak Language and Literature, Mathematics, English at level B1 and English at level B2.

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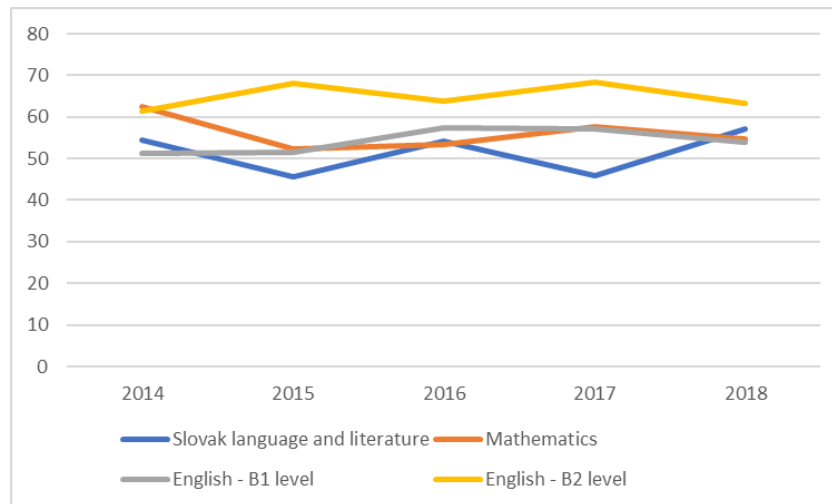


Figure 10: The national average success rate from 2014 to 2018 (Source: NÚCEM-c)

Compared to the average success rate of external testing of ninth-graders at primary schools, the average success rate in Mathematics is higher than the average success rate in Slovak Language and Literature. The highest average success rate in last five years was achieved in English at level B2, which is the more difficult level of English.

MAT	2018	2017	2016	2015	2014
r	-0.22804	-0.17152	-0.04081	-0.28324	-0.05163
SLaL	2018	2017	2016	2015	2014
r	-0.47395	0.15536	-0.58412	-0.62226	-0.43965
AL -B1	2018	2017	2016	2015	2014
r	-0.72476	-0.72965	-0.46997	-0.50742	-0.42124
AL -B2	2018	2017	2016	2015	2014
r	-0.65583	-0.65986	-0.7036	-0.78784	-0.7771

Figure 11: Correlation analysis of the average success rate and overall unemployment rate at the regional level from 2014 to 2018

Again, the correlation analysis was done using the average success rate in a given subject in a region and the overall unemployment rate in that region. Just as in the previous correlation analysis, the overall unemployment rate in the given region in September of the given year was taken as the unemployment rate. All correlations are again negative and the correlations of the external part of the school-leaving exam are lower than the correlations of the external testing of ninth-graders at primary school. The strongest correlations are in English, especially at level B1 where the correlation is strong. On the other hand, the correlation is the weakest in Mathematics where it is insignificant. If we compare the correlation in 2014 and correlation in 2018, except English at level B2, all correlations have increased. Again, it can be concluded that in the regions with a lower average success rate there is a higher unemployment rate.

### 3. CONCLUSION

The evidence presented in this paper suggests that education results have a big impact on the smoothness of transition from the school to work, which persists for a quite uncertain period for many young people in Slovakia. Nonetheless, the unemployment rate of youth is declining, reflecting the overall development of the Slovak economy. The situation between Slovak regions remains different, pointing out that regions with worse school testing results tend to have a higher unemployment rate than regions with better testing outcomes.

Data used in the performed research prove that the quality of education (measured via the school testing results of primary and secondary education graduates) plays a crucial role in the position of young people in the labour market.

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## ORGANIZING WORK AND MOTIVATION OF OPEN INNOVATION PROVIDERS ON CROWDSOURCING PLATFORMS

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### **ABSTRACT**

*Crowdsourcing platforms (CPs) enable innovative organizations also companies, and people to apply new values, innovative solutions which are created for them by the creative crowd members (open innovation providers) on the Internet. Open innovation arises from complex interactions and knowledge based collaboration between individuals, firms-partners of the network and participants of their markets during the implementation of innovation processes, also on the Internet on CPs. Organizing work and connection it with motivation of the crowd by the managers of CPs is the basis of efficient collaboration with open innovation providers and using their willingness, competences, abilities and knowledge during solving challenges, problems, creating innovative solutions, also new products for open innovation seekers on the Internet. The purpose of this paper is to propose the model of organizing work and motivation of the crowd during open innovation development on CPs, and also to conduct the research of existing CPs' websites to verify this model application on the Internet. The paper characterizes an idea of open innovation process on CPs and participation of the crowd members in its execution on the Internet. It determines rules and ways of organizing individual and team, networked work of the crowd members, also describes their collaboration with other users of CPs, that is the platform manager(s) and open innovation seekers. The paper present classification and characteristics of the crowd motivation kinds on CPs. The author proposes the process model of organizing work and motivating the crowd during development of open innovations on CPs and next - describes and analyzes the own research results which were conducted for 44 existing CPs websites in 2018 to verify the proposed model in the economic practice.*

**Keywords:** *Crowdsourcing platform (CP), Crowd, Internet, Open innovation, Organizing work, Motivation*

### **1. INTRODUCTION**

Engaged and creative work of the crowd (the Internet's community) during open innovation development is the basis of market success of crowdsourcing platforms (CPs). Crowdsourcing is a form of IT-enabled open innovation development on the Internet and managers of CPs enable organizations also companies and people (open innovation seekers, consumers and/or purchasers of open innovations) to learn how receive innovative solutions from the creative crowd members (open innovation providers, creators, solvers, innovators) and next apply them in the economic practice and/or to advantage of the society. The crowd (social network) members create individually and/or co-create innovative solutions in teams, also with other kinds of CP participants that is seekers of open innovations and managers on CPs, and sometimes with proposed by the managers of the platforms – their external partners (consultants, facilitators, patent owners, designers, specialized firms). The aim of CP performance is to engage members of open networked communities (the crowd) that has both the willingness, capacity and ability to solve challenges, create and use knowledge during development of open innovations on the Internet. The market success of CPs is connected with their manager's ability to organizing work and motivating the crowd to active, creative participation in development of open innovations in accordance with orders and requirements of seekers.

Different forms of motivations encourage the crowd members to efficient work during open innovation development on CPs. The purpose of this paper is to propose the model of organizing work and motivation of the crowd during open innovation development on CPs, and also to conduct the research of existing CPs' websites to verify this model application on the Internet. The paper characterizes participation of the crowd members in open innovation development on CPs. It determines conditions, rules and ways of organizing individual and team, networked work of the crowd members, also their collaboration with the managers and open innovation seekers on CPs. The paper present classification and characteristics of the crowd motivation kinds and connected with them advantages to open innovation providers on CPs. The author proposes the process model of organizing work and motivation of the crowd during development of open innovations on CPs. Next the research results which were conducted for 44 existing CPs websites in 2018 are described and analyzed in this paper to verify the proposed model application in the economic practice.

## **2. PARTICIPATION OF THE CROWD MEMBERS IN DEVELOPMENT OF OPEN INNOVATIONS ON CROWDSOURCING PLATFORMS**

Open innovation arises from complex interactions and knowledge based collaboration between individuals, firms-partners of the network and participants of their markets during the implementation of innovation processes, also on CPs on the Internet. Contemporary organizations evaluate from close (firm - centric) innovations and using internal resources of knowledge, innovative solutions towards open innovations that are centered on external resources of knowledge, and innovative solution development within outside networks also by the crowd members on the Internet (Dolińska, 2017b, p. 110). In the network approach, an innovation is considered as a solution to the problem experienced by its users. This process on CPs involve several actors who combine and adapt their resources to develop the innovation (Goglio-Primard, Crespín-Mazet, 2015, p. 137). CPs offer the crowd members the opportunity to resolve challenges, problems and to create knowledge, open innovations in accordance with orders and requirements of innovative solution seekers. Using Internet in open innovation development has transformed people from consumers of products to engaged participants in value, knowledge, ideas, innovations creation on CPs. The Internet's high degree of openness and connectivity make possible virtual communication and collaboration of CP managers with open innovation providers and seekers from the whole world. Crowdsourcing is a production platform through which people and firms send requests and other people (the crowd) return responses. CP connects people, employs their skills, and/or aggregates their knowledge, with the responding crowd being strategically managed by the firm for the purpose of open innovation elaboration, or problem solving (Saxton, Oh, Kishore, 2013, p. 5). The platforms offer own clients (open innovation seekers) the opportunity to resolve the presented by them challenges, problems and propose them in accordance with their expectations: presenting new values, elaborating projects, designing and/or creating new products, services, technological solutions by open innovation providers, and collaboration with them during application and/or promotion, and/or selling of the best innovative solutions. Crowdsourcing is the strategy of service provision by an organization or individual, normally rendered against payment by gainfully employed persons, by means of an open call on a group of unknown actors, where the crowdsourcer and/or the crowdsourcers gain freely usable and direct economic advantages (Mladenow, Bauer, Strauss, 2014, p. 80). Publishing an open call on the Internet, crowdsourcers invite contributors to submit solutions for a specific problem. Contributors then decide to contribute a potential solution in a voluntary fashion (Blohm, Zogaj, Bretschneider, Leimeister, 2018, p. 123). Creative members of the crowd on CPs may be professionals that is experts, researchers, specialists, representatives of commercial entities also students, or dedicated amateurs who submit innovative solutions to challenges on the platforms.

The members of the crowd work individually or in teams, networks during execution of open innovation processes activities in accordance with assumptions of the CP managers. Open innovation process on crowdsourcing platforms may consist of different activities and each platform may serve one or more, or all of these activities. Providers are engaged in execution of the following (one, a few, all) activities of open innovation process: (1) presentation of expectations, (2) generation of new ideas, (3) evaluating design ideas, (4) innovation elaboration, testing, (5) innovation application, development, (6) innovation promotion, sale, diffusion (Dolińska, 2017c, p. 195). Crowdsourcers have the possibility to influence open innovation, also new product development on the Internet, according to their own expectations, needs and also as consumers on innovation markets. They participate in creation of new values, design ideas, innovative solutions, products, services, evaluating them, or applying and testing them, and/or in promotion, sale of the best innovative solutions in an active way, also online. The contribution of the crowd members to the development of open innovations varies strongly. Therefore, the identification and selection of the competent, engaged and creative members, with the relevant knowledge, abilities, experience, interests and also organizing for them work connected with efficient motivating them to performing tasks on CPs, play a critical role in open innovation development on the Internet. The strength of CPs is to deliver the value unit in a more efficient, effective, reliable, personal way, because crowd members on the Internet can solve certain problems faster, better, and cheaper than companies they are able to do it in house. By encouraging external innovators to contribute to value creation, crowdsourcing platforms have the capability to grow significantly in size and revenue without equally increasing its costs (Blohm, Zogaj, Bretschneider, Leimeister, 2018, p. 122; Kohler, 2018, pp. 98, 99).

### **3. MOTIVATION OF THE CROWD ON CROWDSOURCING PLATFORMS**

The success or failure of CPs is connected with their manager's ability to motivate the crowd to active, creative participation in development of open innovations (Füller, 2010; Battistella, Nonino, 2012). The managers determine rules, possibilities and ways of the crowd work on CPs, and simultaneously motivate solvers to effective development of open innovations for seekers and/or for their mutual satisfaction and benefits. Being motivated to work means for the crowd to be encouraged to be active and creative participant of open innovation process on CPs. The motivations ought to be fitted into different solvers, take into consideration their engagement and participation in open innovation development, and also their competencies, knowledge, expectations and interests connected with solving challenges and problems on the determined CPs. Motivations and incentives for the crowd's participation and tasks for execution by them on CPs should be considered very carefully, presented clearly and fitted into their possibilities and abilities. On the one hand, there are crowdsourcing projects where active participants act rationally and only contribute if they are compensated correspondingly. Then solvers may get financial prizes and/or have access to valuable information, knowledge. Payments for participating should also be considered, particularly if a group of contributors with specific skills are included within the broadcast search, for example, design professionals. On the other hand, there are many crowdsourcing projects without these incentives. In these cases, volunteers are typically motivated by the desire to experience something new, to collaborate, share knowledge with others, or to accomplish important for people goals. Sometimes they want to receive social recognition, for instance, take part in sensible and creative work for the society, the fun, enjoyment associated with collaboration with other participants and performing tasks in team projects (Battistella, Nonino, 2012; Blohm, Zogaj, Bretschneider, Leimeister, 2018; Füller, 2010; Mladenow, Bauer, Strauss, 2014). Previous studies report different effects of motivational factors on online communities. They characterize financial and not financial, intrinsic and extrinsic, also social and individual motivations, which are very important for users' participation in open innovation development and their

opportunities to learn on CPs. Reputation and career of solvers is important when there is a chance of being recognized in the community on CPs. Motivational factors are often considered to be general construct with online participation, an individual's desire to be the part of social setup, but individual solvers also create value as members of online communities and develop social culture (Hoyer, Chandy, Dorotic, Krafft and Singh, 2010; Sukaini, Mohammed, Zhang, Albazooni and Ghanim, 2015; Dolińska, 2017a). The distinction between different types of motivations is based on an analysis of attitudes, intentions and goals that lead people to act and behave in a certain way (Battistella, Nonino, 2012, p. 559), which is beneficial for them and also profitable for CPs. The proposed framework of the crowd members is determined on the basis of the conducted research results of CPs' websites, which are analyzed in this paper.

CPs may use the following forms, kinds of provider motivations:

- financial motivations – propositions of financial advantages for individual and/or team providers of open innovations,
- and not financial motivations, which may be split into:
  - individual (personal) motivational factors, which offer the crowd members personal advantages and opportunity to improve efficiency of own work, enable them to use and/or develop individual engagement, creativity, knowledge, abilities, interests, personal learning, also strengthen professional position, career, and sometimes express individual enjoyment, entertainment, altruism,
  - social (team, networked) motivational factors, which refer to sense of cooperation and social identity, sensible collective work during collaborative innovation development, also include the social sphere of mutual development of the crowd members, and their benefits of interorganizational cooperation and learning, working in teams, networks, consider building social, relational capital during elaboration of innovative projects in teams, networks, and mutual creating benefits for the economy and the society.

Organizing work of the crowd members and motivating them to open innovation development enable CPs' managers to run own business, improve crowdsourcing competencies, offer seekers innovative solutions which are competitive on the innovation markets.

#### **4. ORGANIZING WORK AND MOTIVATION OF THE CROWD DURING OPEN INNOVATION DEVELOPMENT ON CROWDSOURCING PLATFORMS**

The process of organizing work of open innovation providers characterizes forms, ways and rules of doing by them work, motivating them and mutual collaboration with the CP managers and innovative solution seekers during open innovation development. It is concentrated on accomplishing the following goal - effective open innovation development and improvement of CP competitive position on the innovation market on the Internet. The managers of CPs cooperate with the crowd members with specific skills (e.g., design professionals or individuals with a specific technical background), demography (e.g., age or income), or past performance (e.g., collaborators that have successfully completed similar tasks in the past) (Blohm, Zogaj, Bretschneider, Leimeister, 2018, p. 129). They must understand and learn how to organize work for the crowd members and motivate them to effective work in accordance with aims and assumptions of CP development, and also orders of innovative solution seekers. Seekers should develop precise definitions of the crowd contribution requirements to ensure that results of its work can be implemented by them in practice. Managers determine challenges, problems for solving, innovative solutions for elaboration, also engage the crowd in anticipating evolution of markets and creating new values for consumers. They present primary material, guidelines, which are used by the crowd members for innovative solution elaboration and rules of taking part by them in development of open innovations (Dolińska 2017b; Dolińska 2017c). Solvers read the challenge and assumptions of collaboration with CP managers, register on CP website

and within a determined timeframe send back the elaborated solutions to managers. The crowd members verify own possibilities of participation in execution of open innovation development taking into consideration own interests, competencies, knowledge, experience, and offered by CP conditions of achieving by them also own purposes, financial and/or nonfinancial benefits, individual and/or social conditions of professional development. The following conditions of organizing work of the crowd members on CPs are analyzed in the proposed model:

- a) CPs organize work for determined kinds of innovative solution providers:
  1. individual members of the crowd (solvers are experts, researches, specialists, students, dedicated amateurs who submit open innovation solutions to challenges on CPs),
  2. team(s) of the crowd members,
  3. institutional open innovation providers or their employees that is: (1) companies, (2) research institutions, laboratories, universities, colleges, (3) other institutions, also non-profit organizations,
  4. other partners in open innovation development (consultants, patent owners, other facilitators) on CPs.
  
- b) Different forms of CPs' management, which are used in practice:
  1. the managers of CPs are also the company owners of the platforms and open innovation seekers, and use innovative solutions of providers for own benefits,
  2. the managers (working as the independent firm-agents of online crowdsourcing) organize and integrate collaboration between open innovation solvers and with the determined (one), a few, or many open innovation seeker(s).

The process of organizing work and motivation of open innovation providers may consists of the following stages:

1. Encouraging the crowd members to beginning and/or continuing collaboration with the determined CP. The following tasks may be performed in this stage:
  - Presentation information about CP activity, its partners, own solvers, the best (top) solvers;
  - Presenting previous success stories, news and important events in CP activity, cases studies on implemented innovation solutions by the seekers, publications on CP achievements, e-books offered on CP website;
  - Organizing workshop, training offer for the crowd members;
  - Offering access to: its blog, online communities of the proposed social media, magazine(s), newsletter(s) subscription;
  - Answering questions CP users (the crowd members, seekers of innovative solutions and other CP users);
  - Presenting profitable support of CP from well-known partners in the area of innovation, governmental institutions, famous magazines, because they create trust to CP activity.
  
2. Determining possibilities, ways, rules of the crowd taking part in development of open innovations. Components of this stage may be actions:
  - Determining challenges, new problems for solving, innovation solutions for designing, projects for elaboration, services for providing by the crowd members on CPs;
  - Presenting primary material for elaboration by solvers;
  - Determining right and ownership of the crowd collaborators after the submission design ideas until the end of contest, implementation and sale of innovative solutions.
  - Comprehensive categorization, presentation of incentives, tasks for the crowd by the managers in accordance with assumptions and orders of open innovation seekers;
  - Creating or co-creating open innovation by providers in teams, networks (of participants

- with diverse skills, innovative abilities, level of professionalism, knowledge);
- Connecting all the diverse ideas together (which were elaborated by the crowd) and are elements of the final innovative projects;
  - Offering crowdsources access to accumulated knowledge resources on CP, and/or are offered by external CP partners.
3. Organizing participation of the crowd members in execution of open innovation process:
    - Defining terms of elaborating innovative solutions, solving challenges, providing determined services,
    - Presenting contest and judging rules,
    - Determining submission guidelines, rules;
    - Offering the crowd specialist software for designing and/or testing of innovative solutions;
    - Determining how providers ought to upload a complete design of accepted innovative solution;
    - Determining rules of choosing winners of the contest;
    - Evaluating, commenting of submitted design ideas by the engaged crowd members;
    - Providing voting as a market test before implementation of the best innovative solution.
  4. Organizing collaboration and communication by the managers with innovation seekers and providers, and between them during execution of activities of open innovation process:
    - Facilitating interactions, information, knowledge exchanges along open innovation process,
    - Offering financial and marketing analysis of new solution application by the seeker;
    - Organizing participation of the crowd in application of the best solution by the seeker;
    - Involving the crowd in (a) online promotion of the best innovative solutions via own community and/or social media channels, (b) sale of innovations via online and/or physical channels.
  5. Using relevant forms, kinds and ways motivating the open innovation providers to effective work during open innovation development on CPs (see Table 1).

## **5. RESEARCH RESULTS ON ORGANIZING WORK AND MOTIVATION OF OPEN INNOVATION PROVIDERS ON CROWDSOURCING PLATFORMS**

The research on organizing work and motivating the crowd during open innovation development was conducted by the author into 44 websites of CPs on the Internet in 2018. The analyzed CPs' list is presented in this paper appendix. This paper tries to answer the following research question:

- Can organizing work and motivating the crowd members during development of open innovations on CPs be used in accordance with the proposed (above) in this paper process model.

*Table following on the next page*

*Table 1: Forms and ways of motivating open innovation providers on crowdsourcing platforms (Battistella, Nonino, 2012, p. 559; Dolińska, 2017a, p. 78; Dolińska, 2017b, p. 197; Mladenow, Bauer, Strauss, 2014, p. 80)*

Form of motivation	Kind of motivation	Advantages of using the relevant motivation for providers
financial motivations	individual or team motivations	<ul style="list-style-type: none"> <li>• financial rewards, payments for the best (chosen) solutions</li> <li>• in the form of a revenue share on the sales of new products</li> <li>• free final products, services, cash bonuses, price reductions</li> </ul>
not financial motivations	individual motivations	<ul style="list-style-type: none"> <li>• growth of professional status, career benefits</li> <li>• opportunity to express individual creativity</li> <li>• personal learning</li> <li>• higher reputation by appearing in the list of solvers, innovators, creating personal profiles on platforms</li> <li>• access to news, press, receiving free newsletters, access to valuable information, knowledge, innovation software, attending conferences, innovation submits, meetings</li> <li>• enjoyment, fun, entertainment</li> <li>• altruism, using own resources to do something good, beneficial for people</li> </ul>
	social motivations	<ul style="list-style-type: none"> <li>• establishing relationships with other professionals of the crowd, consultants, partners of the platforms and exchange information, knowledge with them</li> <li>• sharing and building social capital with collaborators of the platform</li> <li>• building relationships (networks) and working with external innovators, working together</li> <li>• social identity and responsibility in project, working in interorganizational teams</li> <li>• benefits of collective, interorganizational learning</li> <li>• sensible and creative work during collaboration in open innovations with the crowd members, the seeker(-s), the managers, other partners of the platform</li> </ul>

The managers organize work for determined kinds of open innovation providers on CPs. Most (78.95%) the analyzed CPs collaborate with individual the crowd members, and 63.16% of them – with teams of the crowd members, and 50% of them – with other institutional providers. Most (72.73%) CPs are managed by independent firm-brokers of crowdsourcing on the Internet and fever (27.27%) CPs are managed by innovative companies that are their owners and seekers of open innovations (also new products). The analyzed CPs perform the following actions in the stage of encouraging the crowd members to beginning and/or continuing collaboration with the determined CP:

- most analyzed CPs, that is: 70.43% of CPs - present information about CP activity and its partners, and 77.27% of them - about own solvers, the best (top) solvers, 79.55% - about previous success stories, news and important events in their activity,
- most analyzed CPs create beneficial image and trust to own innovative activity and services: 72.27% of them offer their users access to its blog, online communities of the proposed social media, 63.64% - propose own magazine(s), newsletter(s) subscription, and 76.32% - present profitable support from well-known corporate stakeholders that are CPs' partners in the area of innovation, and 63.64% of CPs show cases studies on implemented innovation solutions by the seekers, present publications on own activities and achievements, and/or offer e-books on open innovations,
- fever (22.73 %) CPs offer the crowd workshop and/or training.

The analyzed CPs are engaged in determining possibilities, ways, rules of taking part in open innovation development by the crowd members in the following way:

- all CPs characterize kinds of challenges, problems for solving, innovation solutions for elaboration, services for providing by the crowd members on own websites,

- most CPs that is: 90.91% of them organize cooperation of the crowd members with diverse skills, innovative abilities, levels of professionalism, knowledge in teams or networks during collective elaboration of innovative projects, 81.58% of CPs - determine challenges, problems for solving, innovation solutions for designing, projects for elaboration by providers, 70,45% - present primary material, which is used by the crowd for elaboration also 59.09% - propose crowdsources access to accumulated knowledge resources on CP,
- 56.82% of CPs present right and ownership of providers after the submission design ideas until the end of contest, implementation and sale of innovative solutions,
- and on fever (36.36%) CPs the final innovative projects connect together all the diverse ideas which were elaborated by the crowd members separately.

The analyzed CPs try to organize participation of the crowd members in execution of open innovation process effectively in the following way:

- most CPs that is: 88.64% of them determine submission guidelines, rules, 68.18% of CPS describe selection criteria of chosen solution clearly, 77.27% - offer (a) creating, and/or 59.09% - (b) co-creating innovative solutions by the crowd members, 81.58% - describe how the crowd members ought to upload a complete design of accepted innovative solution by seekers, 63.64% - determine rules of choosing winners, 72.73% - offer evaluating, commenting of submitted design ideas by the crowd members, 68.18% - provide voting on the best solutions by the crowd,
- fever CPs, that is: 43.18 of them offer own software for designing and/or testing of innovative solutions by providers.

The managers organize collaboration and communication with innovation seekers and providers, and between them on CPs in the following way:

- most CPs, that is: 63.64% of them facilitate interactions, knowledge exchange with providers and seekers, between them and/or with other external collaborators along open innovation processes, 72.73% of CPs involve innovative solution providers in online promotion of the best innovative solutions via own community and/or social media channels, and seekers on 81.81% of CPs conduct financial and marketing analysis of innovative solution application,
- 50% of CPs enable the managers to choose accurate, profitable solutions on the basis of the crowd opinions,
- fever (18.18%) CPs offer open innovation seekers possibility of cooperation with providers during sale, diffusion of chosen innovations via online and/or physical channels,

The analyzed CPs use different forms and ways of motivating open innovation providers. Most (72.27%) CPs offers the crowd members financial rewards, payments for the best (chosen) solution so these form of motivations are very important in the work of the crowd members on CPs. Less popular are other financial motivations which are offered by CPs that is only 11.36% of them propose solvers a revenue share on the sales of designed by them new products, and 36.82% of CPs offer solvers benefits in the form of free final products, services, cash bonuses, price reductions. Different individual motivations are very popular and beneficial to providers and influence on effects of their work. 90.91% of CPs enable solvers to express individual creativity during open innovation development, 85.09% of CPs offer them possibilities of personal learning. Most (63.64%) CPs secure solvers access to valuable information, knowledge. Fever CPs offer crowdsources other kinds of individual motivations, that is: 45.45% of CPs present the list of problem solvers, innovators, 47.73% of CPs solvers can treat own work also as enjoyment, fun, entertainment, and on 27.27% of CPs crowdsources become altruists and use own resources to do something beneficial for other people as participants of



innovative projects which are elaborated for the society, 27.27% of CPs make innovation software available to solvers, and only 9.09% of the analyzed CPs organize conferences, innovation submits, meetings for the crowd members. Open innovation providers take advantages from the following social motivations:

- they are participants of sensible, creative work, and have benefits of collective, interorganizational learning during collaboration with the platform managers on 84.09% of CPs, and with seekers on 65.91% of them,
- most (52.27%) CPs enable solvers to share and build social capital with other collaborators of the platforms,
- and fewer (40.91%) CPs enable solvers to take part in team projects and collective development of open innovations, providers on 40.91% of CPs collaborate with external partners of the platforms (laboratories, universities, researchers, specialized companies), and providers on 36.36% of CPs are participants of team innovative projects, and providers 29.55% of them - have opportunity building relationships (networks) with innovation leaders, community of innovators.

The analyzed CPs use financial and not financial motivations. They use many different not financial motivations of open innovation providers, because they influence efficiently on organizing work of the crowd by the managers and are important for innovative development of CPs. The most CPs propose providers richer offer of individual than social motivations. The research results confirm that the process of organizing work and motivating the crowd members by the managers is executed on the analyzed CPs in accordance with the proposed in this paper model. All the analyzed CPs accomplish all stages of the proposed process model and most of CPs execute most of actions which are characterized in consecutive stages of this model. The end conclusion is the following - the proposed in this paper model describe basic and universal assumptions, and also principles of organizing work and motivation of open innovation providers during development of open innovations on the analyzed CPs. Hence the proposed model or its components can be applied and/or improved in the economic practice in accordance with current expectations of open innovation seekers and providers of CPs, and also goals of running crowdsourcing business by managers on the Internet.

## 6. CONCLUSION

Internet allows innovative organizations and people to use new ideas, innovative designs of the crowd members and develop with them open innovations, also new products, services, technological opportunities on CPs. Identification and selection of the right innovative solution providers and motivation of them to effective work is the basis of existing and competitive development of CPs on innovation markets. The paper proposes the process model of organizing work and motivating the crowd during development of open innovations on CPs. The research results which were conducted for 44 existing CPs websites in 2018 makes possible verification the proposed model in the economic practice. These results confirm that the proposed model is build in accordance with assumptions, rules, and ways organizing work and motivation of open innovation providers on the analyzed CPs and its stages are used by the CP managers on the Internet.

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## APPENDIX

The analyzed crowdsourcing platforms on the Internet: Innoget, HypiosCrowdInnovation, 99Designs, Zooppa, Topcoder, Zooppa, LEGO Cusoo, IdeaConnection, MulinoBianco, NineSigma, DellIdeaStorm, OpenIdeo, Userform, Spnnet, MicroWorkers, InnoCentive, Spigit, Opencores, CrowdSpring, Amazon'sMechanicalTurk, BankPomyslowBZWBK, Fiverr, Toptal, DesignCrowd, Peopleperhour, BigIdeaGroup, Innovationexchange, Humagrid, Maemo, Skild, NineSigma, Crowdsite, Spinacz, eYeka, BrainReaction, TopCoder, BrainStore, Threadless, Sourceforge, P&GConnect+Develop, Shopeways, Arcbazar, LocalMotors, Klikworker.

## BEHAVIORAL VS. STRUCTURAL REMEDIES IN EUROPEAN AND SLOVAK COMPETITION LAW

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### ABSTRACT

*Market economy presupposes a proper functioning of competition. Identification of situations potentially harmful for competition is a task for competition authorities. However, how to handle the situation at stake is an issue in itself. Although there is regulation of remedies in EU competition law and a partial regulation in Slovak competition law, especially merger regulation, the question is in what manner, if at all, are remedies applied in practice. This paper deals with these questions in relation to merger as well as antitrust cases. It looks into theoretical background followed by an outline of the European Commission's cases. On top of that, the paper inquiries into the employment of remedies in broader sense in the practice of the Slovak Republic. After presentation of the Slovak regulation of remedies, three recent cases are addressed. The first one is represented by a merger case from the health services sector which was cleared only upon conditions. The situation which triggered the need for remedies is elaborated on, as well as the structural and partially behavioural remedies which were employed. The second one is represented by a case from car industry sector where behavioural obligations were imposed by a decision on commitments in order to solve possible vertical restraints. Although it is less usual to impose remedies in antitrust cases, the case shows how competition law's concerns on vertical market can be solved by obligations of behavioural type. The third one deals with a cartel case in which a behavioural remedy in form of prohibition of participation in tendering procedures was imposed. Therefore, the paper shows how obligations to act in certain manner or to undergo structural change can be employed in practice at Union and national level in order to solve competition law issues.*

**Keywords:** *Behavioural Remedies, Commitments, Public Procurement, Slovak competition law, Structural Remedies*

### 1. INTRODUCTION

Definition of sustainable development usually puts together economic and social development with preserving environment for the next generations. Although emphasis is given on environmental protection goals, it is equally important to ask how to manage economic development. The EU internal market is based on the principles of market economy with the significant role of competition which is the principal and decentralised self-regulator of the market due to the main economic functions it fulfils. Therefore, solving of important economic questions (what to produce and for what price, which production requires optimal costs, what is the optimal allocation of resources etc.) is a task for effective competition (Seldon, Pevance, 1965, pp. 80-82). Some problems of effective market functioning cannot be solved by competition itself. To keep a convenient market structure requires sometimes market interventions or protection of effective competition itself. This is a task for both sector regulators (ex ante regulation) and competition authorities as enforcers of competition law (ex post regulation). However, this separation is not always feasible in practice. (Niels, Jenkins, Kavanagh, 2016, p. 362). „Competition authorities often end up doing supervisory work akin

to what regulators do.“ (Niels, Jenkins, Kavanagh, 2016, p. 362). Competition authorities who are in charge of the effective competition have to identify and analyse competition problems. Yet, it is surely insufficient to investigate the relevant market and to identify a competition problem if „a suitable remedy cannot be found“, because „remedies matter a great deal for the effectiveness of competition law enforcement.“ (Niels, Jenkins, Kavanagh, 2016, p. 360). Due to the importance of remedies, competition law is nowadays more focused on the design of remedies depending on the competition problem to be solved. Remedies can be understood in a wide sense, comprising not only fines imposed to punish an offender and to prevent competition law infringements in the future, but also other remedies intended to either shape undertaking’s conduct or to change the market structure, private damages actions not to be forgotten (Niels, Jenkins, Kavanagh, 2016, p. 360). Except for fines and private damages, recovery remedies are usually categorised to two main types – behavioural and structural remedies. Nevertheless, it shall be stressed that some authors offer another categorisation, finding „four types of remedies: 1) orders to cease the infringement and not to commit it again; 2) behavioural remedies; 3) structural remedies, including break-up remedies; and 4) flanking measures.“ (Ritter, 2016, p. 6). For the purposes of this paper, we will focus on behavioural and structural remedies, behavioural and structural aspects of commitments included. It shall also be pointed out that an obligation to undergo a structural change or to act in a certain manner can be based on various formal acts, such as merger decision, final decision on infringement of antitrust law or decision on commitments bringing to an end a (probable) infringement of antitrust law. Although the last mentioned is not a remedy in its narrow sense, a decision on commitments may bind the undertaking to perform a structural or a behavioural change as well as a final decision on infringement. Therefore, a competition law problem may well be solved by a decision on commitments and, from this substantive point of view, it represents a remedy.<sup>1</sup> When appropriate, we will deal with this type of remedies too. Thus, this paper presents the theoretical background of remedies in competition law. It sets out the EU’s regulation and landmark EU case law related to remedies. On the top of that, the paper analysis how remedies are regulated by the legal order of a Member State of the EU, namely the Slovak Republic, as well as what are the practical examples of their employment in practice. In this manner it offers a complex view on structural and behavioural remedies on both the EU as well as the national level. The paper is organised as follows. The second part is dedicated to the comparison of behavioural and structural remedies, followed up on mergers and antitrust regulation and case law on the EU level. The third part deals with the Slovak regulation of remedies and commitments together with three recent cases from the field of merger and antitrust law. The conclusion sums up the main findings presented by the paper.

## **2. BEHAVIOURAL AND STRUCTURAL REMEDIES**

„A behavioural remedy requires the undertaking concerned to perform certain acts or refrain from certain acts relating to its behaviour on the market, for example with regard to prices, supply obligations, product characteristics, contracts, or internal organisation measures (e.g. Chinese walls).“ (Ritter, 2016, p. 9). Compared to that, structural remedies are intended to change a market structure using different measures (e.g. transfer of property rights, assets, transfer of business unit, dissolution, divestiture etc.) (O’Donogue, Padilla, 2006, p. 731). Unlike behavioural remedies „a structural remedy does not require any further monitoring“, it modifies property rights and is „based on the „clean break principle.“ (Ritter, 2016, p. 10). Although frequently used, dichotomy of structural vs. behavioural remedies has its opponents. Lévêque considers this categorisation to be „*oversimplifying and confusing*“ and he proposes his own criteria of categorisation (2000 In Maier-Rigaud F. P., 2016, p. 209).

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<sup>1</sup> The interconnection between remedies imposed by final decisions and obligations imposed by decisions on commitments is well presented by Whish, Bailey (2012, pp. 256-261).

Controversy of this dichotomy can be shown also based on analysis of the Microsoft Case (Case T-201/04, Microsoft corp. v. European Commission, 2007). This case is often referred to as „Microsoft saga“ and it opened undoubtedly discussion on character of remedies imposed by this decision (Šmejkal, Dufková, 2015, p.144). The Commission contested in its decision two types of Microsoft’s conduct infringing in its opinion Art. 102 TFEU, first, refusal to disclose other companies information and technology indispensable for interoperability of the operational systems, second, prohibited tying of Windows Media Player with Windows operational system for clients’ PC. As far as imposed remedies are concerned, the Commission ordered to provide other competitors with necessary information and to unbundle WMP from Windows operational system distribution. The decision also provided introducing of special supervision mechanism to ensure fulfilment of Microsoft’s obligation (Šmejkal, Dufková, 2015, p.144). A number of questions was evoked by this decision. „Is unbundling media Player from the operating system a structural remedy? It splits up a product, but doesn’t affect the structure of the defendant company... Nor does it affect the structure of the market...“ (Marsden, 2008, p.1). Similarly, “what about the interoperability remedy? Is that structural?” (Marsden, 2008, p.1). Marsden argues, it is not a structural remedy, requiring only access to information, being thus closer to behavioural remedies (2008, p.1). And finally, „so is the case then «after Microsoft» there is no room for structural remedies in Article 82 cases?“ (2008, p.3).

## 2.1. Remedies in Merger Cases

Article 8 of the Merger Regulation enables the Commission to permit a concentration that would otherwise impede effective competition in the common market, if it accepts obligations of the undertakings concerned, eliminating an identified competition problem caused by that concentration.<sup>2</sup> These obligations are first of all structural remedies including often divestment of the existing undertaking participating on the concentration, transfer of business unit to the third party etc. Having in mind advantages of the structural remedies, not requiring further monitoring and bringing final solution of the competition problem changing the market structure, they prevail in merger cases indeed. However, this does not mean they represent an easier solution of the problem as there are many questions to be solved before this kind of decision is adopted. Among them the first question to be mentioned is the choice of a suitable buyer that would ensure the business to be not only viable but also bringing necessary innovations to the market. This is why the Commission stressed the importance of “*up-front buyer principle*“ in merger cases especially after 2015 (Novák, 2018, pp. 13, 14). The principle means that a binding agreement with an approved purchaser shall be done before the merger is put into effect (Commission notice on remedies, 2008, pp. 50, 53, 54, 55). Also „*fix it first principle*“ meaning conclusion of the contract on transfer of undertaking before adopting decision on concentration itself can be applied (Commission notice on remedies, 2008, pp. 50, 56, 57). In any case, structural remedies must be cautiously designed from economic perspective. It is interesting to point out that there are not many European studies on impact of structural remedies in practice, especially on the level of prices post merger (Aguzzoni et al., 2018). However, the impact on prices seems substantial (Friberg, Romahn, 2015). It should be stressed that the Commission has to be circumspect when adopting merger decisions in general. That can be proved by the ECJ decision in Schneider case<sup>3</sup>; this decision is worth of mentioning as far as the contents of objections against notified concentration is concerned as well as damage claim, if the damage is caused by incorrect impact evaluation of complicated business transactions (Šmejkal, Dufková, 2015, pp. 186-189).

<sup>2</sup> Remedies are further developed by Commission notice on remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004 and by Explanatory note of the European Commission Best Practice Guidelines: The Commission’s Model Texts for Divestiture Commitments and the Trustee Mandate under the EC Merger Regulation from 5 December 2013.

<sup>3</sup> Case C-440/07 P *Commission v. Schneider Electric SA* [1974].

## 2.2. Remedies in Antitrust Cases

Power to apply structural remedies in antitrust cases was conferred to the Commission by Regulation 1/2003. Article 7 (1) states that the Commission „may impose ... any behavioural or structural remedies which are proportionate to the infringement committed and necessary to bring the infringement effectively to an end.“ (Regulation 1/2003). But „structural remedies can only be imposed where there is no equally effective behavioural remedy or where any equally effective behavioural remedy would be more burdensome for the undertaking concerned than the structural remedy.“ (Regulation 1/2003, Article 7). And exactly the wording of this provision leads often to the conclusion of preference for behavioural remedies over structural remedies, but „Regulation No. 1/2003 does not prefer or prioritise behavioural remedies over structural remedies.“ (Ritter, 2016, p. 10). Behavioural remedies were employed already in 70s. The case *Commercial Solvents Co*<sup>4</sup> was concerned with abuse of dominance in a form of refusal to supply. The dominant undertaking was obliged to recommence supplies to a former customer. (Whish, 2012, p. 253). The Microsoft case, which is a leading case for behavioural remedies, was already mentioned above. Recital 12 of Regulation 1/2003 describes structural remedies as „changes to the structure of the undertaking as it existed before the infringement was committed.“ R. O’Donoghue and J. Padilla add that these „changes to the structure of a company may range from a complete break-up or dissolution to the divestiture of a particular unit or holding or less intrusive measures such as accounting separation.“ (2006, pp. 731). According to them, structural remedies are subject to three conditions that must be fulfilled cumulatively before any structural remedy may be imposed:

1. “structural remedies are a remedy of last resort, i.e. behavioural remedies would be insufficient;
2. structural remedies must be effective; and
3. structural remedies must be proportionate.“ (O’Donoghue, Padilla, 2006, p. 733).

It means that there must be a substantial risk of a lasting or repeated infringement that derives from the very structure of the undertaking. (Regulation 1/2003, rec. 12). When imposing structural remedies it should be taken into account what are the consequences for the third parties, for efficiencies realised by the firm and for the consumers (O’Donoghue, Padilla, 2006, pp. 734, 735). Equally important question might be if the undertaking can be broken up naturally or if it is a unified company where structural remedy of this kind is impossible<sup>5</sup> (O’Donoghue, Padilla, 2006, p. 736). Although there is still „asymmetry between the relatively frequent use of structural remedies in merger cases on the one hand and their sparse use in antitrust and in particular abuse of dominance cases on the other hand“, there is undoubtedly a significant role for structural remedies in competition law (Maier-Rigaud, 2016, p. 207). Their imposing should be considered in a remedy design stage also from efficiencies point of view (Maier-Rigaud, 2016, p. 222).

## 3. BEHAVIORAL AND STRUCTURAL REMEDIES IN THE SLOVAK CASE LAW

Competition law in Slovakia is regulated by Act No. 136/2001 Coll. on the protection of competition as amended (hereinafter “Competition Act”). The Antimonopoly Office of the Slovak Republic (hereinafter “the Antimonopoly Office” or “the Office”) is the national competition authority enforcing competition law within Slovakia. The legal powers of the Antimonopoly Office are similar to the powers of the Commission, as far as antitrust and merger cases are concerned. The power to impose remedies is not an exception to this general rule.

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<sup>4</sup> Joined cases 6/73 and 7/73 *Istituto Chemioterapico Italiano S.p.A. and Commercial Solvents Corporation v Commission* [1974].

<sup>5</sup> On these grounds the structural remedy in above mentioned Microsoft case was rejected. (O’Donoghue, Padilla, 2006, p. 736).

### 3.1. Remedies in Merger Cases

The Slovak process of ex ante merger control is similar to the Union one. The clearance to a merger can be either granted without objections, or denied completely, or granted under conditions. Conditions may be both behavioural and structural (Kalesná, 2012, p. 88). Section 12 para 3 of the Competition Act suggest that the condition shall be of such nature as to provide that the merger will not significantly impede the effective competition on the market. If the merger has as its object or effect coordination of entrepreneurs on the market, the condition shall prevent such coordination to take place. The Office is empowered to impose obligations related to the conditions mentioned above, such as obligations for securing or controlling the fulfilment of the imposed condition, or obligations for reaching the aim of the imposed condition.

#### 3.1.1. Topolčany Hospital Decision

A recent example of employment of this provision was given by decision of the Antimonopoly Office No. 162/2017/OK – 2017/FH/3/1/008 from 1<sup>st</sup> March 2017. The decision was concerned with an acquisition of a hospital in a Slovak town Topolčany by PENTA INVESTMENT LIMITED (part of the Penta group). The hospital was also provider of transport services to and from health institutions, i.e. ambulances. It is important to note that even before the merger, the Penta group owned several hospitals throughout the country offering both institutional and ambulatory care, one out of three health insurance companies, common examination and medical units, large network of pharmacies, labour health service and transport services to and from health institutions. The Antimonopoly Office analysed in detail how the acquisition of the hospital would influence the situation on the market. Although no problematic parts were identified within horizontal effects of the merger, non-horizontal effects, other than vertical in particular, required deep consideration. As it flows from points 242 et seq. of the decision, in the field of transport services, the Penta group is one of the most important provider of these services. It covers many districts throughout Slovakia, especially in the areas where the Penta group owns a hospital. There are but few providers who are represented in more than two districts. Moreover, the cross ownership of a health insurance company strengthens the position of the Penta group in the transport services' field.<sup>6</sup> The question was whether this merger would not create or strengthen negotiation power of the Penta group as transport services providers vis à vis other two health insurance companies to other transport services providers disadvantage. It was identified in the process of clearance of the merger that one of the other health insurance companies which was also the smallest one had already experienced problems with negotiation of agreements with transport services provider owned by the Penta group. It was claimed that if the latter refused to conclude the agreement, the former would face significant problems with finding a new provider in time.<sup>7</sup> This would be to the detriment of consumers – patients. It was also identified that the Penta group tended to strengthen its position as transport services provider in all areas where it owned a hospital. Therefore, the Penta group would strengthen its negotiation power for the district at stake. Under such conditions, it became necessary to prevent the acquisition of the transport services together with the hospital. The remedies drafted by the Penta group consisted in structural remedies which were supplemented by certain behavioural obligations.<sup>8</sup>

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<sup>6</sup> Transport services providers need to conclude an agreement with health insure company which will refund their expenses to the extent agreed in the agreement.

<sup>7</sup> It was established that any transport services provider needed to have contractual relationship for the particular district with either all three health insurance companies or with the two largest ones. Therefore, no provider would survive in a district where another provider would have contracts with two health insurance companies and the provider himself would have contract with the smallest health insurance company alone.

<sup>8</sup> However, the decision itself designates all the remedies as the structural ones. See decision of the Antimonopoly Office No. 162/2017/OK – 2017/FH/3/1/008 from 1st March 2017, point 306.

The Penta group was obliged to secure the transfer of transport services to an acquirer who would be approved by the Antimonopoly Office on a prior basis. This acquirer shall be independent from the Penta group, solvent, experienced in the field and be motivated to develop the transport services as an active competitor to other providers of the transport services. The transfer was further specified in the decision. Apart from the pure structural obligations, the Penta group submitted itself to provide separation of the transferred activities from the other activities on organisational and personal basis. It was also obliged to allow monitoring of this separation by an independent monitoring trustee. Further obligations were related to the transfer, e.g. submitting of proposal of an acquire fulfilling the criteria; minimising the risk of decrease of the transferred transport services' competitiveness; allowing to perform due diligence by the acquirer; submitting of written reports on negotiation development with the possible acquirer. Finally, it shall be noted that although remedies are not often used in Slovak merger cases law, the divestiture prescribed by the Antimonopoly Office follows the sense of the procedure outlined in the Commission's Best Practices.<sup>9</sup> Naturally, many details of the employed remedies are confidential, thus not all the aspects of the case can be analysed.

### 3.2. Remedies in Antitrust Cases

Pursuant to section 22 para. 1 lit. d) of Competition Act, the Antimonopoly Office is empowered to issue a decision that certain activity of an entrepreneur is forbidden, as well as it imposes an obligation to refrain from such activity and to repair the illegal state. Possibility to issue remedies together with a financial sanction is elaborated in further detail only in relation to prohibition to participate in tendering proceedings. Under section 38h of Competition Act the Antimonopoly Office shall impose a prohibition to participate in tendering procedure for three years, if the infringement of competition law was related to coordination of entrepreneurs in tendering procedures. If the entrepreneur has concluded a settlement with the Antimonopoly Office, the period of prohibition of participation is shortened to one year. However, apart from remedies *stricto sensu*, the Antimonopoly Office is also entitled to impose commitments. Section 38f of Competition Act empowers the Antimonopoly Office to impose commitments by a decision in antitrust cases as well as in other forms of distortion of competition. Commitments may be adopted for determinate time. It flows from the wording of the relevant provisions that it is the entrepreneur at stake which drafts the commitments which might be adopted by the Antimonopoly Office. However, the Office is not obliged to adopt commitments even if they are submitted by the entrepreneur in time. Commitments submitted by an entrepreneur may be tested by the Office in various ways. First, the Office may directly approach natural and legal persons. Second, there is a possibility to publish the commitments, thus make them reviewable to a large number of stakeholders. Third, the Office may test remedies in other ways which are not explicitly mentioned in the Competition Act. If the conditions under which commitments were adopted changed, or if they were adopted based on incomplete or false informative, or the entrepreneur does not comply with the commitments, the Office may change or even revoke the imposed commitments.

#### 3.2.1. MIKONA decision

There are few examples of employment of remedies in broader sense in the recent case law of the Antimonopoly Office. The ones to be mentioned are commitments decisions related to vertical agreements in car industry. The decision of the Antimonopoly Office No. 188/2017/OZDPaVD-2017/KV/2/1/015 from 2 June 2017, addressed to entrepreneur MIKONA (hereinafter "the MIKONA decision"), was related to the field of providing of after-sale services connected to sale of SUBARU motor vehicles in the Slovak republic.

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<sup>9</sup> Explanatory note of the European Commission Best Practice Guidelines: The Commission's Model Texts for Divestiture Commitments and the Trustee Mandate under the EC Merger Regulation from 5 December 2013



It was identified that certain provisions of guarantee may be against Article 101 TFEU and section 4 of the Competition Act. In particular, the guarantee could be refused if the car at stake was serviced in an unauthorised garage, whereas no consideration was given to the quality of the provided maintenance. These guarantee provisions encouraged customers of SUBARU cars to use preferentially maintenance service providers authorised by SUBARU instead of independent maintenance service providers. As it is stated in the MIKONA decision, points 71 and 72, this situation might have impaired competition on the relevant market as well as it might have been detrimental to consumers due to higher retail prices of maintenance services, limited choice of services provider and decreased availability of maintenance services. Following these concerns, MIKONA drafted commitments which should have solved the problems identified by the Antimonopoly Office. MIKONA submitted itself to behavioural commitments which consisted in publishing a notice on website and sending a letter to SUBARU vehicles' purchasers who bought the vehicles from 2013 onwards and concluded an agreement on the type of guarantee. Both notice and letter were supposed to inform customers that the guarantee would not be denied based on a mere fact that a maintenance service provider outside of authorised SUBARU network was used. The key issue is the quality and expertise of the provided services and compliance with procedures and recommendation of the producer. None the less, authorised services are recommended in concluding remarks of both notice and letter. Furthermore, conditions for guarantee were changed in a way that authorised providers were no longer strictly required. Other providers could be used as well. The Antimonopoly Office ceased from testing of the proposed commitments on the market, due to the character of the possible infringement and the direct form of rectification. Decisions similar to MIKONA case were adopted in relation to Opel, HONDA, Mazda, Toyota, Porche and Škoda. MIKONA decision was the most recent one.

### 3.2.2. *DOXX decision*

The second antitrust decision related to remedies is concerned with luncheon vouchers. The decision of the Antimonopoly Office No. 2015/HK/1/1/023 from 11 February 2016, addressed to entrepreneur DOXX – Stravné lístky, spol. S r.o., Edenred Slovakia, s.r.o., LE CHEQUE DEJEUNER s.r.o., SODEXO PASS SR, s.r.o. and VAŠA Slovensko, s.r.o. stated that the listed entrepreneurs coordinated their behaviour on the relevant product market of emitting, distribution and sale of luncheon vouchers and beneficial vouchers, including services related to this. The geographical market was designated as the Slovak Republic. The Antimonopoly Office claimed that, between 2009 and 2014, the entrepreneurs implemented a common commercial strategy which consisted in non-competing strategy. In particular, the entrepreneurs were not approaching clients of competing entrepreneurs and they were not offering them zero fees, benefits and bonuses. The entrepreneurs were also coordinating their acting within public tendering procedures and similar tendering procedures. The Council of the Antimonopoly Office as the appeal tribunal issued decision on appeal No. 31/2017/ODK-2017/KH/R/2/025 on 11 September 2017 (hereinafter "the DOXX appeal decision"). The Council imposed the sanction not to participate in public tendering procedure for three years, even though this sanction was incorporated into Competition Act as of 18 April 2016, i.e. after the first instance decision was issued and before the DOXX appeal decision was issued. However, a similar decision was incorporated in Act No. 25/2006 on public tendering procedures as amended, even before 18 April 2016. Consequently, the Council did not consider imposing of such sanction to be retroactive.

## 4. CONCLUSION

This paper analysed the Slovak and European regulation and practical use of remedies in their broader sense. It can be claimed that the Slovak legal practice does not in general differ from

the EU case law meaning that structural remedies dominate in merger cases rather than in antitrust cases. However, remedies of both kinds are used less often in Slovakia than in the EU. This may be caused either by smaller absolute number of cases assessed by the Antimonopoly Office, or by less number of occasions when commitments could be adopted. In any case, there is a recent example which shows that, even in the Slovak legal environment, commitments in merger cases are used. The example also shows the preference for structural remedies over the behavioural ones, although certain remedies of the latter type were adopted as well. In general, the spirit of the Union's Best Practices is followed here too. In antitrust cases a competition authority usually prohibits conduct infringing the competition rules and impose corresponding fines to punish the present infringement and to prevent its repeating in the future. Other remedies are rare, although there are cases including abusive behaviour in network industries in liberalised markets, where structural remedies might be suitable for a final solution of behaviour detrimental for competition (ECN Recommendation on the Power to Impose Structural Remedies, p.3). This paper showed that there are instances where behavioural remedies may be adopted. MIKONA decision did remedy the situation on the market without necessary fining the undertaking at stake. List of the Antimonopoly Office's cases related to vertical restrictions shows that approximately half of the cases adopted since 2008 was related to car industry and was solved in the form of commitments. Adoption of commitments may be sensible also from economic point of view, as the probability of challenging the decision adopted by the Office is insignificant. This means that sources may be used on investigation of other competition issues. Apart from the commitments decisions, behavioural remedies are employed in cases related to cartels and other coordinated practices, if the infringement was related to tendering procedure. The DOXX appeal decision proved that the prohibition to participate in tendering procedures is fully imposed by the Antimonopoly Office and its Council. Such prohibition may be a strong deteriorating factor for entrepreneurs and, theoretically, loss of their future revenues may be of greater importance than a mere fine imposed in an infringement decision.

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# CONTROL METHODS OF NET WORKING CAPITAL IN THE BRANCH GROUP PURCHASING ORGANIZATIONS

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## **ABSTRACT**

*Security of current financial liquidity is the most important task that business managers face. Without ensuring financial security a company cannot be managed efficiently. In such a situation it is also very difficult to obtain a positive financial result. Positive net working capital is the buffer protecting a company from a loss of ability to pay current liabilities. Maintaining a positive level of net working capital means that a company has financial liquidity. In order to do this, it is necessary to control systematically the level of net working capital and look for solutions that will lead to its optimization. Currently, many different types of multi-entity organizations are being created in the market, e.g. group purchasing organizations. They are set up mainly to make joint purchases. Joint actions in such organizations are to allow them surviving in the market and developing systematically. Functioning within such organizations allows using a certain tool that enables to optimize the level of net working capital. However, the key to successful management is an effective process of controlling its level. The aim of the paper is to present control methods and management of working capital in a multi-stakeholder organization, which is a branch purchasing organization.*

**Keywords:** *working capital, GPO, control*

## **1. INTRODUCTION**

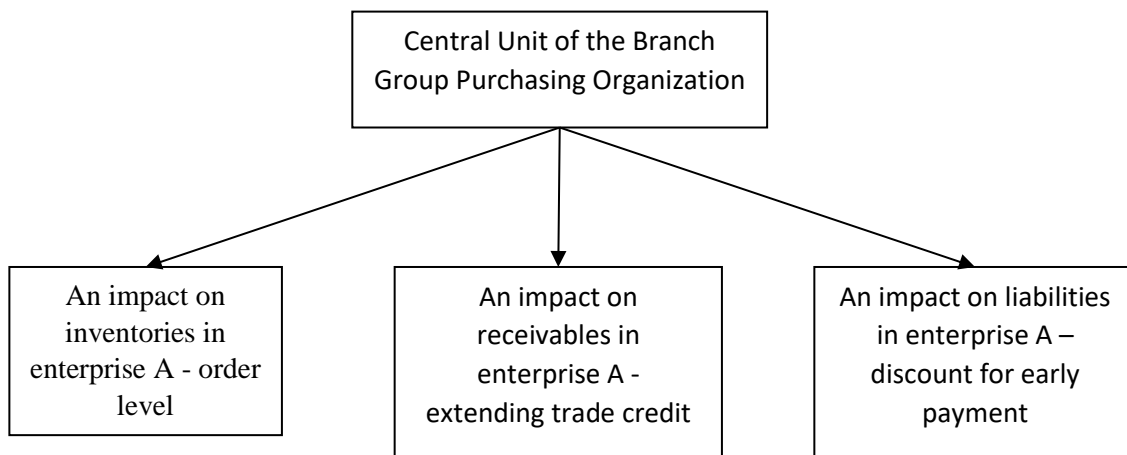
Working capital is the basic element that guarantees companies safe functioning in the market. Many authors claim that only those companies that effectively manage it are able to develop systematically. Working capital management has a direct impact on financial liquidity, profitability, effective management of current liabilities and current assets, as well as the level of corporate indebtedness. Therefore, working capital is a key element directly related to almost all areas of a company. Errors made when choosing the appropriate working capital management strategy will firstly have a negative impact on the financial security of the unit. It will further adversely affect the profitability results. Poorly chosen working capital management strategies increase the level of indebtedness and reduce significantly the effectiveness of current assets and current liabilities management. The choice of the right working capital management strategy is not easy as it is related with several components of current assets and current liabilities. For each of these elements the managers create appropriate management strategies, which is followed by a working capital management strategy. The situation is even more complicated in group purchasing organizations where the central unit of purchasing groups has a big influence on individual strategies of working capital management. It enforces certain behaviors on enterprises in the area of working capital management. In each unit, independent or operating in multi-entity organizations, appropriate tools should be introduced to control working capital, to improve the working capital management process and to select the appropriate management strategy, The information they will provide will allow managers to choose the optimal working capital management strategy.

## **2. GROUP PURCHASING ORGANIZATIONS**

Group purchasing organizations (GPOs) are multi-entity organizations whose main purpose is to exploit the economies of scale. The most important division of GPOs is the division into branch and multi-branch groups.

Branch GPOs have an opportunity to take advantage of economies of scale, which has a positive impact on their financial situation. (Zimon, 2018, pp.87-104) In general, purchasing groups are created in the industry related to health care, vaccines and the construction industry. (Nollet, Beaulieu, Fobbe-Costes, 2017, pp.17-27, Burns, Lee, 2008, pp.7-17, Cowan et al., 2016, pp.5060-5065, Marvel, Young, 2008, pp.1090-1105). In addition to purchasing groups, often other companies only use joint purchases, e.g. in the aviation industry. The most important benefits for companies operating within the groups include a reduction in the cost of purchased goods and an attractive commercial credit (Tella, Virolainen, 2005, pp.161-167). Companies operating within GPOs are managed by a specially created central unit which may be an external entity or a company appointed by all participants of a given group. The most important tasks performed by the central unit are negotiations with the producer and organization of orders and deliveries. These tasks are closely related to current inventories, receivables and liabilities and thus items that have a direct impact on the level of net working capital. The details are presented in chart 1.

*Figure 1: The influence of the central unit of GPOs on the components creating net working capital*



*Source: author's own study*

Very often, in order to realize the appropriate level of purchases, companies order goods with a large margin of security. It causes an increase in the level of inventories in the structure of assets. However, this policy allows getting a low price of purchased goods and a good buyer loan. A long deadline for repayment of liabilities allows building an attractive policy of managing receivables from customers and liabilities to suppliers. Thus, functioning within the purchasing group has a large impact on the choice of control methods for individual elements affecting the level of net working capital.

### **3. METHODS AND TOOLS FOR CONTROLLING WORKING CAPITAL**

The process of controlling the net working capital (NWC) should be carried out using three groups of tools:

- The rate of the level of working capital,
- An initial analysis
- An indicative analysis

The first stage is the process of determining the level of net working capital. The simplest method to determine whether a company has a positive working capital is to subtract current liabilities from current assets.

$$\text{Net working capital} = \text{current assets} - \text{current liabilities}$$

Managers receive information whether the company has a positive, negative or zero working capital level. Then one needs to determine the actual demand for working capital. If the demand is higher than the actual level, then there is a shortage of working capital. One should look for additional sources of asset financing. If we have the opposite situation, when there is a surplus of working capital, then we can give up some sources of financing or treat the surplus as a safety buffer. Information on the demand for working capital is used for the current and future management of the level and structure of elements constituting working capital. Too high level of working capital means high costs. Low is a risk of losing financial liquidity. The demand for net working capital (DNWC) is the demand for financial resources in a company. It is referred to as a financial gap. It can be calculated in the following way:

$$\text{Demand for NWC} = \frac{\text{working capital (wc)}}{\text{Revenues from sales}} * 365 \text{ days}$$

where:

WC – working capital

The ratio informs for how many days of sales working capital is sufficient. The negative result of this ratio informs for how many days of sales working capital is not sufficient or for how many days of sales there will be a shortage of current assets financed in the long term to ensure sales continuity (Wędzki, 2006, p.332). The calculated demand for working capital should be compared with the real level of working capital.

$$\text{Cash conversion cycle} = \text{Receivable conversion cycle} + \text{inventory conversion cycle} \\ - \text{liabilities conversion cycle}$$

This cycle informs for how much trading days net working capital is sufficient. The level of net working capital in days decreases with increasing sales. If, at this time, the level of net working capital does not increase, with increased sales, the risk of losing the company's financial liquidity will increase ( Sierpińska, Jachna, 2006, p.154).

The second stage is a preliminary analysis of individual elements affecting the level of net working capital.

The preliminary financial analysis should be carried out in two areas. In the areas of company assets and sources of financing. Using the data from the balance sheet, managers can conduct a detailed analysis of receivables, inventories and current liabilities, i.e. key components of the balance sheet directly affecting the level of net working capital. It is also worth analyzing other values, for example, in the case of analyzing the dynamics of changes in receivables from recipients, this element should be compared with sales revenues. In general, the situation is well assessed when revenues grow faster than receivables. However, in the group purchasing organizations aggressive strategies for debt collection are generally not used. Companies, thanks to favorable trade credits, also try to extend the trade credit to their recipients, which

may increase the level of receivables. The initial analysis of the volume of changes in assets and liabilities during the audited period is considered based on:

- Numeric data in absolute terms,
- Dynamics ratios,
- Structure analysis

When analyzing the structure in the branch group purchasing organizations the advantage of receivables over stocks is visible. There are many methods of organization of deliveries in the ranch GPOs which allow reducing the level of stocks, for example at least mutual transactions. (Zimon 2018a, pp.811-824).

The third stage is the use of selected financial ratios. The ratio analysis is a simple and convenient financial analysis tool used to assess the financial condition of a company. It is a method of analytical research of information contained in financial statements based on financial ratios derived from reports. The ratio analysis boils down to the calculation of the relation between the values appearing in the balance sheet and the profit and loss account. It is a great tool for controlling all areas of the company. The first ratio that provides information on the effectiveness of working capital management is the operating cycle.

$$\text{Operating cycle} = \text{Conversion receivable cycle} + \text{inventory conversion cycle}$$

The lower the result of this ratio, the higher the efficiency of management of the basic elements affecting the level of net working capital. In companies operating in purchasing groups, the receivables turnover ratio will be higher than the inventory turnover ratio. This is the result of a conservative policy towards recipients. Another ratio is the relation of net working capital to the value of inventories and receivables.

$$\text{The NWC ratio to the value of inventories and receivables} = \frac{\text{net working capital}}{\text{inventories} + \text{receivables}} * 100$$

The desired result is a situation where the net working capital is equal to half of the value of inventories and receivables, that is 0.5. The next ratio is the one of net working capital increase.

$$\text{Net working capital increase ratio} = \frac{\text{increase of net working capital}}{\text{net profit}}$$

This ratio informs about how much the net working capital has increased for PLN 1 of the generated net profit. (Kreczmańska-Gigol, 2010, p.88).

Static evaluation closely related to the level of working capital should be made using ratios derived from other groups. The first of these is the basic ratio for working capital management, it is the current liquidity ratio and the quick ratio (fast liquidity ratio).

$$\text{Current financial liquidity ratio} = \frac{\text{assets}}{\text{short-term liabilities}}$$

The authors indicate that the financial liquidity should be in the range from 1.2 to 2.0. This ratio in the branch purchasing groups will achieve high results, usually they achieve a result above 2. The result is the fact that companies pay fast commitments to suppliers, extend their contractors payment period which directly affects the results which are high. The figure of the numerator of this ratio has always aroused controversy because it includes all current assets

included in the unit, characterized by a diversified level of liquidity, which in some way obscures its true image. Therefore, there appeared a need to eliminate the slowest-convertible component for cash - inventories, which is presented by the ratio also known as fast or high-speed liquidity.

$$\text{Quick ratio} = \frac{\text{assets-inventories-short-term inter-period calculations}}{\text{short-term liabilities}}$$

The elimination of stocks is based on financial liquidity on receivables. This ratio shows the extent to which highly liquid assets, which include receivables and short-term investments, are able to cover current liabilities. It is mainly the relationship between receivables from customers and liabilities to suppliers. In the case of branch purchasing groups and a policy based on settling liabilities on time or using a discount for early payment, this ratio should be high. Further ratios concern the effectiveness of management of the most important elements affecting the level of financial liquidity and are the turnover ratio of short-term receivables, inventories and short-term liabilities.

$$\text{Receivables turnover ratio in days} = \frac{\text{short-term receivables}}{\text{revenues from sales}} * 365 \text{ days}$$

This ratio informs after what time the receivables are collected by a company. The lower the results, the shorter crediting period of the recipients. An important benchmark for this ratio is the turnover ratio of commitments in days. The ideal situation is when the receivables turnover ratio in days is shorter than the turnover ratio in days. In purchasing groups such a situation does not occur as companies use a different policy of managing receivables and liabilities. Another ratio is the inventory turnover ratio.

$$\text{Inventory turnover ratio in days} = \frac{\text{inventory}}{\text{revenues from sales}} * 365 \text{ days}$$

This ratio informs after what time the company renews its inventory, in other words how many days the company freezes its cash in inventories. In GPOs this ratio is on an average level. The last ratio is the debt turnover ratio in days ( short-term liabilities in days).

$$\text{Debt turnover ratio in days} = \frac{\text{short-term liabilities}}{\text{revenues from sales}} * 365 \text{ days}$$

This ratio informs after what time the company settles liabilities. The higher the ratio the better. It also uses a foreign source of financing. However, the high result of this ratio may suggest potential new contractors that it is not worth cooperating with such an entity since it regulates its liabilities after a long time.

#### 4. CONCLUSION

The net working capital is to protect a company against loss of financial liquidity. Therefore, its systematic control is a necessity. Working together in groups purchasing organizations makes managers of a company comply with the guidelines specified by the central unit of the purchasing group. The specificity of these groups is the use of opportunities for additional discounts for the early payment of obligations, extending trade credits to its contractors. All this is possible because the company has free cash. An application of the presented control methods allows an assessment of the applied working capital management policy. When analyzing individual ratios for companies operating in branch group purchasing organizations, the high level of financial liquidity ratios should be treated as correct results and the level of receivables



from recipients over liabilities to suppliers should be better. Also, a faster turnover of liabilities towards suppliers in days on the turnover of receivables from customers in days should be visible. Inventories depending on the strategy chosen may be at a high or low level, depending on the chosen management strategy. However, they should not exceed receivables. The operating cycle will assume high results indicating low efficiency, however this will be due to the effect of scale or purchase with a large margin of security of goods and extension of trade credit. These actions will affect negatively an assessment of effectiveness. However, they will reduce costs by obtaining a low price of purchased goods and will lead to an increase in the level of sales thanks to attractive merchant loans. Summing up the presented control methods allow an assessment whether the selected working capital management strategy is effective, but in many cases as one can see the obtained results may differ significantly from the adopted standards set for companies operating independently in the market. In the group purchasing organizations the effect of the scales and the interference of the central unit of purchasing groups in the policy of managing inventories, receivables or liabilities is evident.

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## PRINCIPAL COMPONENT ANALYSIS APPLIED FOR SOCIO-ECONOMIC STUDY OF RUSSIAN REGIONS

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### ABSTRACT

*In the article some parameters of quality of life of population of 80 Russian regions are examined. The main attention is paid to the difference between regions and variables, thus they are divided into groups according to the territorial characteristics and sense of variables. For analysis PCA (Principal Component Analysis) via singular value decomposition is used. There are tools that allow to analyze, track the dynamics of movement and identify the weakest points for repeated observations in the form of size matrices  $n \times p$ . Assume a set of data  $X_t, t = 1, \dots, k$ . Generally, they can be investigated using time series analysis methods, but there are often cases of mutual correlation between variables, as well as various kinds of relations between objects of observation (geographical, regional, cultural, etc.). In order to level these restrictions or, conversely, to take into account the relationship between objects, it is proposed to use the method STATIS (Structuring Three-way data sets in Statistics) [1], [2]. According to it, a common space is defined for the initial data set. By analyzing a common space, it is possible to track the evolution in time not only for statistical units, but also variables or their groups. Such a common space is called the compromise matrix.*

**Keywords:** Health, PCA, Social sphere, SVD, Quality of Life, Welfare

### 1. INTRODUCTION

The choice of a compromise matrix is one of the main issues within the STATIS method. Among the possible options: choosing a matrix corresponding to the point  $t=l$ ; determining the compromise matrix by averaging data sets by the number of time intervals or by weighing the original data using the components of the eigenvector of the generalized structural component. The main selection criterion is the maximum share of the total variation of the initial features, which is explained by the first principal component of the compromise matrix. After selecting the method for determining the compromise matrix, the singular value decomposition (SVD) is applied to it. SVD allows the projection of the objects of observation on the plane of the principal components.

#### 1.1. Description of data

In the data set for 2004-2016 years under study there are 80 regions of Russia that form the statistical units which can be aggregated to recompose 7 conducted regions (Federal districts). All regions were analyzed in the space of 23 variables. List of variables :

1. Death rate from illnesses of bodies of cardiovascular system (cases per 100000 persons of population);
2. Death rate from illnesses of respiratory organs (cases per 100000 persons of population);
3. Death rate from illnesses of digestive organs (cases per 100000 persons of population);
4. Death rate from infections (cases per 100000 persons of population);
5. Death rate from cancer (cases per 100000 persons of population);
6. Death rate from external reasons (cases per 100000 persons of population);
7. Congenital anomalies (cases per 1000 persons of population);
8. Coefficients of natural increase (per 1000 persons of population);
9. Life expectancy (years);

10. Corrected GDP (per capita);
11. Number of automobiles (on 1000 persons of population);
12. Turn of retail trade and paid services (per capita);
13. Share of the poor (% of all population);
14. Factor of funds;
15. Habitation (square meters per capita);
16. Habitation input per capita (square meters per 1000 persons of population);
17. Rate of alcoholism (cases per 1000 persons of population);
18. Rate of drug taking (cases per 1000 persons of population);
19. Crimes (per 100000 persons of population);
20. Murders (per 100000 persons of population);
21. Suicide rate (per 100000 persons of population);
22. Coefficients of migratory gain (per 1000 persons of population);
23. Unemployment rate (%).

- Health and demography (variables 1 – 9);
- Welfare (variables 10 – 16);
- Social sphere (variables 11 – 23).

Thus, the analysis was lead for two cases of aggregation: aggregation of regions on the whole set of variables and aggregation of variables on the whole set of regions.

## 2. RESULTS FOR THE CASE OF CONDUCTED REGIONS

Since the choice of compromised matrix is one of the main points in the application of PCA to the set of matrices  $X_t$ , let us observe it more closely in terms of analyzing data of Russian regions. As it was mentioned in the description of the method [3], compromised matrix can be defined as mean or median of matrices  $X_t$ , but also one of the original data set can be used as a common space [4]. For illustration we will use sets of data for two aggregated regions (Central and Siberian Federal districts) and the whole list of variables (at the first step data sets are centered and reduced). Percent of explained variance of the first PC is one of the main criteria for the choice of compromised matrix. Also we have to operate with the stability of eigenvalues for  $t$  matrices. The figure 1 gives the plot of eigenvalues for the first PC for the set of matrices containing data for Central Federal district only. The last point on the plot is the eigenvalue for compromised matrix  $M$ . The first PC (for  $M$ ) explains 22% of total variance in the case of defining compromised matrix as the mean for matrices  $t$ .

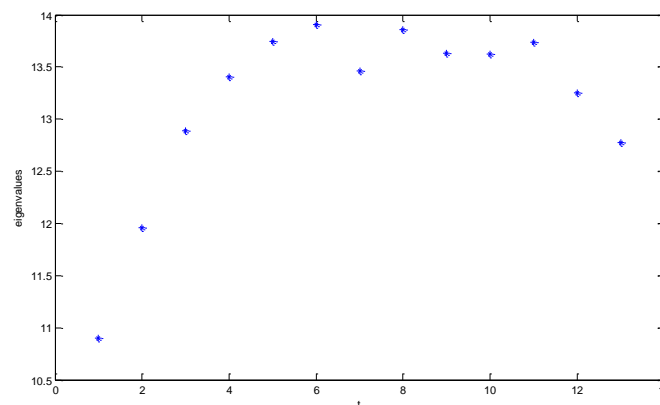


Figure 1: Maximum eigenvalues for set of matrices  $T$  and compromised matrix (Central Federal district)

In case of defining compromised matrix for Siberian Federal district as the mean value, first PC explained only 18% of total variance. By searching through appropriate data sets matrix  $X_1$  (for year  $t = 2004$ ) was chosen (see figure 2), as it provides the highest explanation power of first PC among all other matrices (26%).

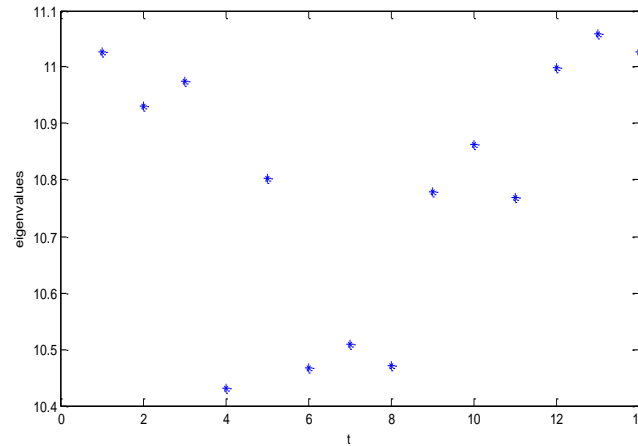


Figure 2: Maximum eigenvalues for set of matrices  $T$  and “common space” matrix  $X_1$  (Siberian Federal district)

It can be mentioned, that interval of eigenvalues at the second case is less then for regions from Central Federal district, but eigenvalues are not so stable. To evaluate coefficients of principal components we plot loadings of all variables for regions of Central Federal district in dimension of the first and second principal components (Figure 3). The results are given for the compromised matrix  $M^1$ .

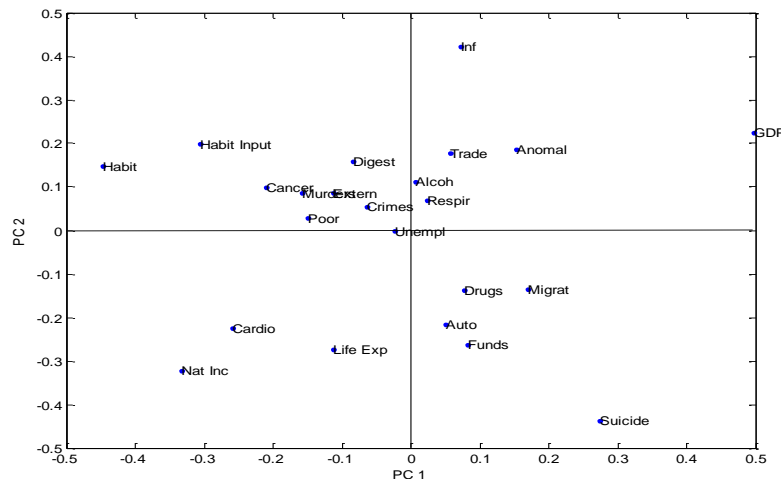


Figure 3: Plot of loadings (Central Federal district)

Group of variables closely correlated to each other can be seen on the plot. This group can be called “Variables of social and health problems”, among them:

- Death rate from cancer, external reasons, illness of digestive and respiratory organs;
- % of poor people in the population;
- Crime rate and murders;

<sup>1</sup> All following results will be given for the compromised matrix  $M$ .

- Alcohol takers;
- Unemployment rate.

Such variables as rate of drug takers and coefficients of migratory gain also make a sub-group of “social problems”. Variables, providing the highest contribution to the axes (in parenthesis are given values from matrix of loadings for appropriate variables):

- Death rate from illnesses of bodies of cardiovascular system (-0.2593);
- Coefficients of natural increase (-0.3328);
- GDP (0.4981);
- Habitation per capita (-0.4472);
- Habitation input per capita (-0.3061);
- Suicide rate (0.2747);

Plot of loadings for regions of Siberian Federal district is given on figure 4.

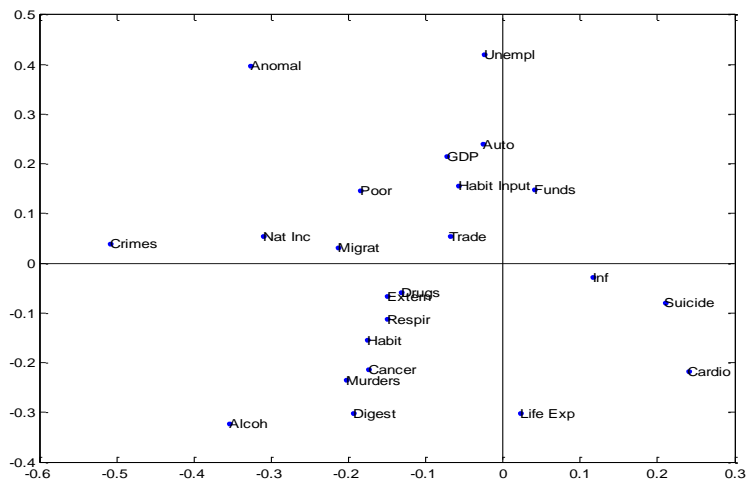


Figure 4: Plot of loadings (Siberian Federal district)

Here we can also see the group of “Social and health problems”, but in contrast to the Central Federal district habitation per capita is also included in this group. Habitation is one of the main problems in regions of Siberian district (that is connected also with specific working activities of population). Variables with maximum loadings:

- Death rate from illnesses of bodies of cardiovascular system (0.2400);
- Congenital anomalies (-0.3264);
- Coefficients of natural increase (-0.3107);
- Rate of alcoholism (-0.3537);
- Crime rate (-0.5082);
- Suicide rate (0.2093);
- Coefficients of migratory gain (-0.2131).

Variables forming axes are quite different from there analogs in Central Federal district. So, in this case we can see more variables of “social and health problems”, such as congenital anomalies, rate of alcoholism, crimes. Suicide rate is included in main variables in both cases, but regions of Siberian Federal district, specially republic of Altai are “leaders”.

## 2.1. Projection on the first PC

For having opportunity to define coordinates of regions in dimensions of first and second principal components (PC) we use matrix of counts. On the figure 5 is presented the plot of counts for regions of Central Federal district.

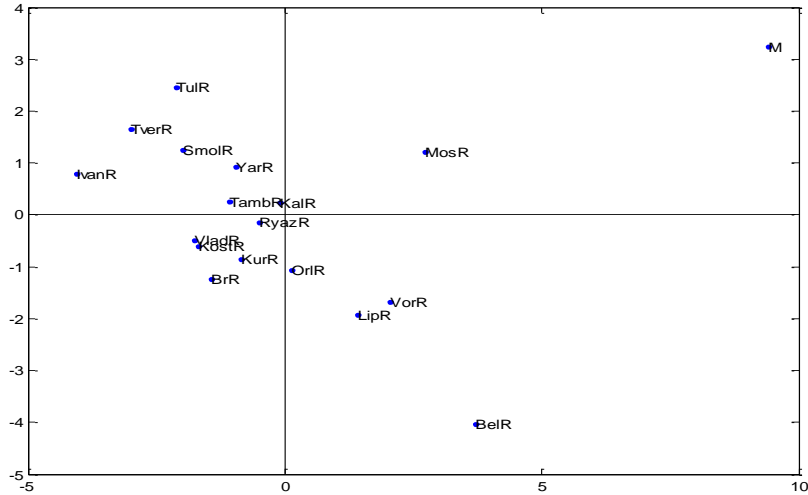


Figure 5: Plot of counts (Central Federal district)

Nine regions form a group of “average” regions. Main outliers are Moscow (M), Moscow region (MosR), Belgorod (BelR) and Ivanovo (IvanR) regions (outsider among regions of Central Federal district). GDP, as the variable with the highest weight, defined coordinates of Moscow within other regions in dimension of first and second PCs, as exactly in Moscow the value of this variable is the highest. For projection of regions of Siberian Federal district see plot 6.

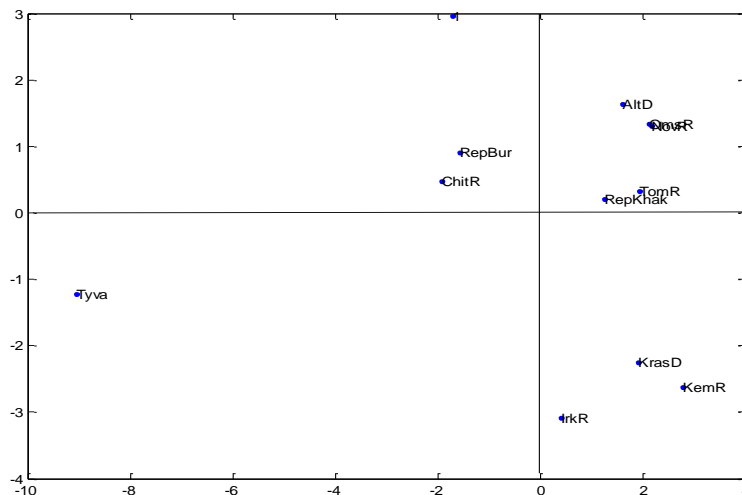


Figure 6: Plot of counts (Siberian Federal district)

Kranoyarsk district (KrasD) and Kemerovo region (KemR) form the main mining industry group of Siberia. Actually, there is only one outlier among all siberian regions – Republic of Tyva (Tyva).

For example if we take a look at plots of three variables (GDP per capita, share of the poor and factor of funds) characterizing social sphere we can see, that Tyva is outsider in all of them.

### 3. RESULT FOR GROUPS OF VARIABLES

Besides analysis made for conducted regions (Federal districts) we also used Principal component analysis (PCA) for three groups of variables:

- Population (variables 1-9);
- Welfare (variables 10-16);
- Social sphere (17-23).

#### 3.1. Population

Nine variables are in the section "Population". They concern death rate from different reasons, basic demographical issues and health. Analysis was made for years 2004-2016. The first step was choice of compromised matrix. In this case compromised matrix was counted as the mean of all data sets. Thus the first PC covered 24% of total variance. The growth of eigenvalues (explanation power of the first PC) was stable, only in year 2014 it decreased (figure 7).

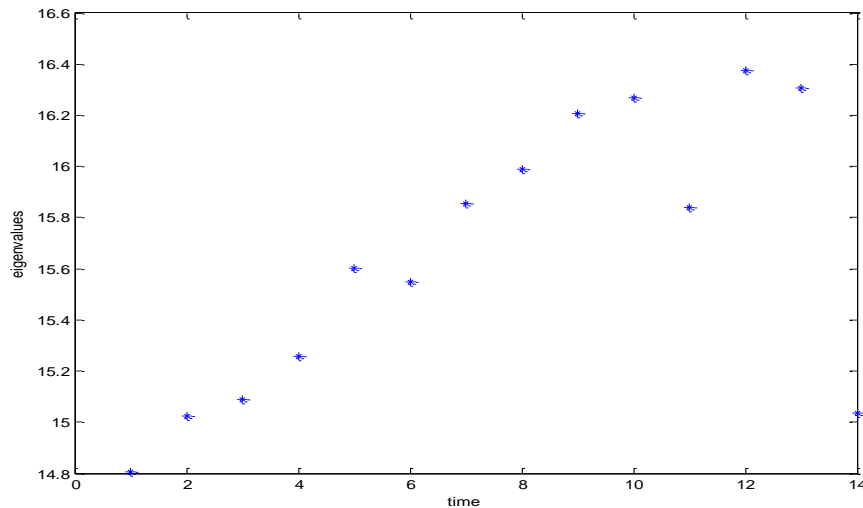


Figure 7: Maximum eigenvalues for set of matrices  $t$  and compromised matrix ("Population")

Taking the matrix for  $T=13$  (year 2015) as the common space provides the highest explanation power of the first PC, but in that case we are not able to analyze evolution of eigenvalues in time.

#### 3.2. Welfare

Variables in the section "Welfare" are connected with:

- Global welfare (GDP and turn of retail trade per capita – variables showing the volumes of produced products (in monetary sense) per capita);
- Material welfare (number of automobiles, habitation, habitation input per capita);
- Income differentiation (share of the poor, factor of funds).

On figure 8 are presented maximum eigenvalues for the set of matrices  $T$  and the compromised matrix.

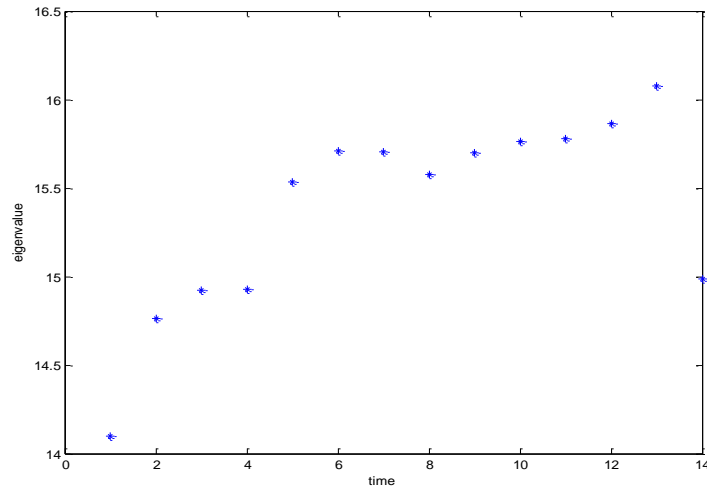


Figure 8: Maximum eigenvalues for set of matrices  $t$  and compromised matrix ("Welfare")

Taking the mean of matrices  $T$  as a compromised matrix gives 30% of explained variation for the first PC. On the plot we can see the evolution of the explanation power.

### 3.3. Social sphere

Variables in the section "Social sphere" are concerned mostly on different problems in social sphere as: alcoholism, drug taking, crimes (most serious – murders), suicide rate, unemployment. And one variable, coefficients of migratory gain is actually between two spheres, social sphere and demography. Figure 9 presents the plot of eigenvalues for set of matrices and compromised matrix counted as the mean of matrices  $T$ .

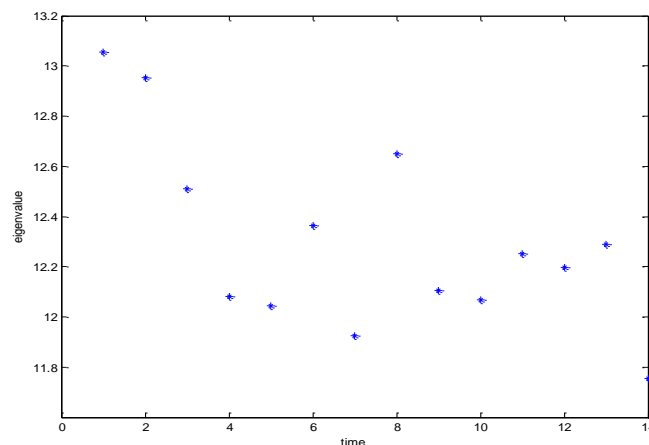


Figure 9. Maximum eigenvalues for set of matrices  $t$  and compromised matrix ("Social sphere")

## 4. CONCLUSION

The influence of different factors or groups of factors for different regions is determined. In particular, it is shown that for the regions of the Central Federal district, which includes Moscow and the Moscow region, the defining parameters (with the maximum load on the first principal component of the compromise space) are: death rate from illnesses of bodies of cardiovascular system, coefficients of natural increase, GDP, habitation per capita, habitation input per capita, suicide rate.



For regions of Siberian Federal district is the lack of influence of the macroeconomic parameter (GDP) is mentioned. At the same time, a larger number of variables reflecting the level of social tension were included in the parameters strongly correlated with the first axis of the compromise space.

**ACKNOWLEDGEMENT:** *Russian Science Foundation, Project 17-18-01080.*

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# CYBER SECURITY FOUNDATIONS FOR COMPLIANCE WITHIN GDPR FOR BUSINESS INFORMATION SYSTEMS

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## **ABSTRACT**

*While the General Data Protection Regulation presents the new and the most important, regulation regarding personal data protection to be passed into law by the European Union, cyber security is considered to be a primary method in achieving compliance within the articles of the GDPR. Fundamentally, it aims to protect the citizen's privacy and security of personal data, and this requirement for protection extends globally, to all organisations, public and private, wherever personal data is held, processed, or transmitted concerning any citizen of European union. In this paper, the author will present the new EU data protection regulation and cyber security compliance of business information systems within GDPR. In it's introduction the paper is giving an overview of the theoretical framework, the principles and rights within GDPR and the key areas of compliance to the cyber security within GDPR with emphasis on security of personal data and data processing in order to avoid penalties as well as to achieve greater efficiency and more cost effective management of business information systems in whole.*

**Keywords:** *business information systems, compliance, cyber security, data protection, DPO, data processing, EU, GDPR, personal data, privacy*

## **1. INTRODUCTION**

New advanced digital technologies are currently being introduced in public communications networks in the European Community, which give rise to specific requirements concerning the protection of personal data and privacy of the user. The development of the information society is characterised by the introduction of new electronic communications services. Access to digital mobile networks has become available and affordable for a large public. These digital networks have large capacities and possibilities for processing personal data. The successful cross-border development of these services is partly dependent on the confidence of users that their privacy will not be at risk. ( Art 5, Directive on privacy and electronic communications) In the past decades, the protection of personal data and protection of citizen's privacy in the new virtual world has become one of the most important topics of scientific and professional discussions opening the new privacy and security challenges. (Boban, 2012, p 576). In the beginning, before bringing this definition into the digital economy surroundings, in order to understand the complexity of the new technologies, it should be observed in relation to the economy, industry, and other categories of social organization, including culture. When it comes to new information technologies and information and communication technologies (hereinafter ICT) then we should also perceive the social dimension of personal data and citizens privacy form traditional perspective but also form »virtual« world. (Čizmić, Boban and Zlatović, 2016, p 50-55). The new, interactive way of communication that didn't have any spatial and/or temporal restrictions has developed the surroundings of the emergence and development of new forms of business and their wider introduction in the daily work in almost all areas threw information and communication technologies. Such operations however do not exclude the traditional forms and methods of work and business, on the contrary, it complements them and improve. Thus, the development and application of high technologies are becoming strategic objectives and commitment of every advanced society, and their implementation in business processes provided economic and every other progress that defines the new information economy (Dragičević,

Dragičević, 2003, p 358). The Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data ((EU 2016/679 - OJ L 119, 4.5.2016-hereinafter GDPR) has put an end to the previous Personal Data Protection Directive (95/46/EC) concerning the processing and free movement of personal data. The Regulation was directly implemented in all EU Member States from 25<sup>th</sup> of May 2018, which means that, by its legal force, it has become the umbrella EU data protection law- That means that it's directly implemented in the legislation of all EU members without the possibility of interpretation. The GDPR requirements are based on rules which demand all organisations to review how they collect, hold and process personal information and how they communicate with individuals. All businesses information systems need to adopt new measures and update their internal processes to demonstrate their compliance with the GDPR., especially in the area of cyber security. The new rules are also backed up by enhanced enforcement powers and new fines. Also effective "revised" legislation is fold out on national and on EU level following the revision of EU data protection framework which must be closely monitored and the relevance of adopting corrective measures must be assessed in the future on national and on European level.

## 2. THEORETICAL FRAMEWORK

The meaning of the term "privacy" is described as "a state in which an individual is not observed or disturbed by other people." (Klaić, 1990, p 1098) Furthermore, privacy can be defined as "a state free of unwanted or unnecessary intrusions or disturbances in private life; freedom from detrimental publicity, public oversight, secret surveillance or unauthorized disclosure of personal data by a government, corporation or individual." (Radić, 2008, p 45-58) As stated in Article 12 of the Universal Declaration of Human Rights (UN, Resolution No. 217 / III / 1948) should not be subjected to arbitrary interference with his private life, family, home or correspondence, or attacks on his honour and reputation. Furthermore, everyone has the right to legal protection against such interference or assault. This emphasized the need for every person to have their own personal space that must be under special protection, under which not only the spatial protection but also the total irresponsibility in the personal sphere of the person as to their honour and reputation, family life, or communication with others. So the notion of personality covers an area that explicitly represents a person and her personal life, and the notion of privacy extends to a wider range of features of a person you take individually, do not have to have a meaning, but associated with a solid structure results in a portrait of a person most often only that person needs to know. Hence, the origin of narrower definitions of the concept of personal data as information explicitly linked to an identified physical person or a natural person, or a person whose identity can be determined directly or indirectly. Also, privacy is one of the bearable values of Western legal culture. It is based, on the one hand, on the belief that every human being has value in itself and, second, on the primordial need for the existence of a certain protected area from which everyone else would be excluded psychologically and materially. By using the term "right to privacy", when defining first and foremost the security methodology of protection, as a set of rules that should encompass the protection of all the features of the condition, conditions and circumstances in which an individual realizes his / her need for inner peace, as I wish and to which, while respecting all social conditions, is right, it should be clear when it comes to normative arrangement (Tuđman, 2003, p 13). According to the European Commission "personal data is any information relating to an individual, whether it relates to his or her private, professional or public life. It can be anything from a name, a photo, an email address, bank details, posts on social networking websites, medical information, or a computer's IP address." (Blackmer, 2016). GDPR brings significant changes to the rules that define personal information and how they can "handle" them (since 1995 on European level). The first Personal Data Protection Act in Croatia was adopted in 2003 (last amendments were in 2012) and this

Regulation is the first departure from the legal definition at EU level in 1995. By definition, "personal data means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, (Art 3. GDPR) and the new Regulation adds, and it is exemplary to include it; " location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person; (Art. 3, GDPR) which defines (and governs!) biometric data as personal data for the first time! As before, the key part of personal data processing is the "privation" of the person to use her personal information as a clear act of authorization. Novelty is the fact that, in the event of a security breach, the company is obliged to notify the competent authorities, but also the individual whose personal information was hurt, as has been the case before. The aim of the GDPR is to protect all EU citizens from privacy and data breaches in today's data-driven world. Although the key principles of data privacy still hold true to the previous directive, many changes have been proposed to the regulatory policies; the key points of the GDPR as well as information on the impacts it will have on business are presented in the following section.

### **3. KEY PRINCIPLES AND DATA SUBJECT RIGHTS WITHIN THE GDPR**

The EU General Data Protection Regulation (GDPR) replaces the Data Protection Directive 95/46/EC and is designed to:

- Harmonize data privacy laws across Europe,
- Protect and empower all EU citizens data privacy
- Reshape the way organizations across the region approach data privacy. (Calder, 2017)

In the process of delivering GDPR it was clearly stated that this reform will increase the fundamental right for citizens and it will allow people to regain control of their personal data. Two-thirds of Europeans (67%), according to a recent Eurobarometer survey, stated they are concerned about not having complete control over the information they provide online. In 2015, seven Europeans out of ten worried about the potential use that companies may make of the information disclosed. The data protection reform will strengthen the right to data protection, which is a fundamental right in the EU, and allow them to have trust when they give their personal data. The new rules address these concerns by strengthening the existing rights and empowering individuals with more control over their personal data. Most notably, these include:

- easier access to your own data: individuals will have more information on how their data is processed and this information should be available in a clear and understandable way;
- a right to data portability: it will be easier to transfer your personal data between service providers;
- a clarified "right to be forgotten": when you no longer want your data to be processed, and provided that there are no legitimate grounds for retaining it, the data will be deleted;
- the right to know when your data has been hacked: For example, companies and organisations must notify the national supervisory authority of serious data breaches as soon as possible so that users can take appropriate measures.<sup>1</sup>

The concept of the term "information" in general we encounter in diverse situations, from everyday use to those in specialized scientific areas. Information is the basic feature of the information age, information science, technology and the society itself. Among the multitude

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<sup>1</sup> Agreement on Commission's EU data protection reform will boost Digital Single Market, European Commission - Press release, Brussels, 15 December 2015, [http://europa.eu/rapid/press-release\\_IP-15-6321\\_en.htm?locale=en](http://europa.eu/rapid/press-release_IP-15-6321_en.htm?locale=en). Retrieved 18. 9. 2018.

of meanings it possesses, in this paper we will deal with the aspect of information that is related to the concept of message as the information carrier. Information is the result of processing, analyzing and organizing data in a way that adds knowledge to the recipient. (Horić, 2007, p 98) In other words, this is primarily the context in which the data is taken. Information as a concept has a multitude of meanings, from everyday to technical use. Generally speaking, the concept of information is still closely related to the notations of limitations, communication, management, data, forms, instructions, knowledge, meanings, mental stimuli, causes, perceptions and representations (Capurro, 1978. p 116). Also, privacy and protection of personal data are the most carrying values of Western legal culture. On the one hand, it is based on the belief that every human being has value in itself and on the other is based on the primordial need for the existence of a certain protected area from which everyone else would be excluded psychologically and materially. The use of the phrase "right to privacy" in determining the first rule, and then the security methodologies protection as a set of rules that should be covered by the protection of all the features of the situation, conditions and circumstances in which the individual realizes his need for inner peace what he himself wants and taking into consideration all social conditions, has the right, it should be clear when it comes to a normative regulation (Brezak, 1998. p 12-13). In the contemporary busy world, the consequence of the threat to privacy is the threat to information personality, which is defined in the narrow sense as an individual, group or institution's requirement to independently decide when and how to surrender information to others. (Westin, 1970, p 7) In a broad, generally accepted meaning of the term information personality actually defines the concept of information security, by which is meant that the individual, in terms of the information society, decide when, to whom, how much and how to disclose personal information, taking into account their rights and needs, but also rights and needs of the community in which he lives. (Brezak, 1998, p 22) The circumstances and conditions of personality rights are defined depending on different variables; depending on the culture, sociological structure or the tradition of the particular society (Tucak, 2007, p 483). European union seeks to respond to the challenges of progressive growth of information and communication technologies at the expense of citizens privacy. Connected to the digital agenda, legal framework of protection of personal data and privacy of individuals presents the constitutional category of Republic of Croatia. (Constitution of the Republic of Croatia, "Official Gazette" no. 56/90, 135/97, 8/98-revised text, 113/2000, 124/2000 - consolidated text, 28/2001, 41/2001-consolidated text, 85 / 2010-consolidated text - hereinafter Constitution, Art. 37). The Constitution of the Republic of Croatia Art. 37 explicitly states that „Everyone shall be guaranteed the security and confidentiality of personal data. Without consent, personal data may be collected, processed and used only under conditions specified by law. The law is governing the protection of data and supervision of the information systems in the country. The use of personal data contrary to the purpose of their collection is prohibited.“(Constitution, Art. 37) Until adoption of GDPR, the legal framework of privacy and protection of personal data of citizens in Republic of Croatia was regulated by the following legislative: Law on Protection of Personal Data, Official Gazette of Republic of Croatia 103/03, 118/06, 41/08, 130/11, 106/12-revised text); Law on Right to Access Information, (Official Gazette no. 172/03,85/15); Law on Information Security,( Official Gazette of Republic of Croatia 79/07) and Law on Personal Identification Number, (Official Gazette of Republic of Croatia, No. 60/08.) (Boban, 2014, p 1689) Also, it is clearly stated at the Article 11 of CPL that disposal of personal information of consumers which prohibits the seller from giving customer personal information to any third party without the prior consent of the consumer, in accordance with the law governing the protection of personal data (CPL, Art. 11). In order to achieve durable results in European union, it was important to determine the main policies based on EU legislation. After more than 7 years of initial initiative and four years of negotiations, the new European Personal Data Protection Framework was finally adopted in April 2016.

The general EU Regulation on Personal Data Protection 2016/679, better known as the GDPR - General Data Protection Regulation, introduces major changes in personal data management methods and applies directly to all organizations that have personal data of EU citizens. Replaces the current EU directive and comes into force on the date of adoption and is directly applicable in all EU Member States. Since the Regulation applies throughout the European Union, in all twenty eight member states, this should simplify the legislative framework and facilitate alignment with companies operating in several Member States. Unlike the EU directive, the regulations don't need to be ratified in the parliaments, but some parts are still left to members to edit them, so in Croatia prior to the implementation of the Regulation, the Law on Implementation of the General Data Protection Regulation (Official Gazette no. 42/18 – here and after LIGDPR) which further regulates obligations and penalties. Furthermore, upon the entry into force of the GDPR on 25<sup>th</sup> of May 2018. the Law on Protection of Personal Data (Official Gazette 103/03, 118/06, 41/08, 130/11 and 106/12 - consolidated text), the Regulation on Management of registry of personal data (Official Gazette no. 105/04) and the Regulation on the manner of storage and special measures for the technical protection of special categories of personal data (Official Gazette no. 139/04). By LIGDPR, the surveillance is given to the Croatian Personal Data Protection Agency (PDPA). Arguably the biggest change to the regulatory landscape of data privacy comes with the extended jurisdiction of the GDPR - increased territorial scope, as it applies to all companies processing the personal data of data subjects residing in the Union, regardless of the company's location giving new extraterritorial applicability to GDPR. Previously, territorial applicability of the directive was ambiguous and referred to data process 'in context of an establishment'. This topic has arisen in a number of high profile court cases. GDPR makes its applicability very clear – it applies to the processing of personal data by controllers and processors in the EU, regardless of whether the processing takes place in the EU or not. The GDPR also applies to the processing of personal data of data subjects in the EU by a controller or processor not established in the EU, where the activities relate to: offering goods or services to EU citizens (irrespective of whether payment is required) and the monitoring of behaviour that takes place within the EU. Non-EU businesses processing the data of EU citizens also have to appoint a representative in the EU. Furthermore (and unlike the former Directive) the Regulation also applies to organizations based outside the European Union if they process personal data of EU residents which wasn't the case before. (Art. 3. p.2, GDPR) The Regulation does not apply to the processing of personal data for national security activities or law enforcement ("competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, including the safeguarding against and the prevention of threats to public security"). This regulation is clearly stated in Art 1 p.1 of Directive (EU) 2016/680 of the European parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA, which has followed GDPR.

### **3.1. Data Subject Rights**

#### *3.1.1. Right of access by the data subject*

Part of the expanded rights of data subjects outlined by the GDPR is the right for data subjects to obtain confirmation from the data controller as to whether or not personal data concerning them is being processed, where and for what purpose. The data subject shall have the right to obtain from the controller confirmation as to whether or not personal data concerning him or her are being processed, and, where that is the case, access to the personal data and the following information: (a) the purposes of the processing; (b) the categories of personal data concerned;

(c) the recipients or categories of recipient to whom the personal data have been or will be disclosed, in particular recipients in third countries or international organisations; (d) where possible, the envisaged period for which the personal data will be stored, or, if not possible, the criteria used to determine that period; (e) the existence of the right to request from the controller rectification or erasure of personal data or restriction of processing of personal data concerning the data subject or to object to such processing; (f) the right to lodge a complaint with a supervisory authority; (g) where the personal data are not collected from the data subject, any available information as to their source; (h) the existence of automated decision-making, including profiling, referred to in Article 22(1) and (4) and, at least in those cases, meaningful information about the logic involved, as well as the significance and the envisaged consequences of such processing for the data subject. (Art 15, p 1, GDPR) Further, the controller shall provide a copy of the personal data, free of charge, in an electronic format. This change is a dramatic shift to data transparency and empowerment of data subjects.

### *3.1.2. Right to be erased („right to be forgotten“)*

The right to be forgotten entitles the data subject to have the data controller erase citizens personal data, cease further dissemination of the data, and potentially have third parties halt processing of the data. The conditions for erasure, as outlined in article 17, and include the data no longer being relevant to original purposes for processing, or a data subject withdrawing consent. (Art 17, GDPR) It should also be noted that this right requires controllers to compare the subjects' rights to "the public interest in the availability of the data" when considering such requests.

### *3.1.3. Right to data portability*

GDPR introduces also right to data portability – the right for a data subject to receive the personal data concerning them – which they have previously provided in a 'commonly use and machine readable format' and have the right to transmit that data to another controller. The data subject shall have the right to receive the personal data concerning him or her, which he or she has provided to a controller, in a structured, commonly used and machine-readable format and have the right to transmit those data to another controller without hindrance from the controller to which the personal data have been provided, where: (a) the processing is based on consent pursuant to point (a) of Article 6(1) or point (a) of Article 9(2) or on a contract pursuant to point (b) of Article 6(1); and (b) the processing is carried out by automated means. (Art 20, p 1, GDPR). In exercising his or her right to data portability pursuant to paragraph 1, the data subject shall have the right to have the personal data transmitted directly from one controller to another, where technically feasible. (Art 20, p 2, GDPR).

### *3.1.4. Right to erasure ('right to be forgotten')*

The most significant step forward is the "Right to erasure ('right to be forgotten')". (Art 17, GDPR) The principle of this right is to allow individuals to request the deletion or removal of personal data if there is no convincing reason for their processing. GDPR states that "the data subject shall have the right to obtain from the controller the erasure of personal data concerning him or her without undue delay and the controller shall have the obligation to erase personal data without undue delay where one of the following grounds applies: (a) the personal data are no longer necessary in relation to the purposes for which they were collected or otherwise processed; (b) the data subject withdraws consent on which the processing is based according to point (a) of Article 6(1), or point (a) of Article 9(2), and where there is no other legal ground for the processing; (c) the data subject objects to the processing pursuant to Article 21(1) and there are no overriding legitimate grounds for the processing, or the data subject objects to the processing pursuant to Article 21(2); (d) the personal data have been unlawfully processed; (e)

the personal data have to be erased for compliance with a legal obligation in Union or Member State law to which the controller is subject; (f) the personal data have been collected in relation to the offer of information society services referred to in Article 8(1). (Art. 17 p.1, GDPR) Applies if personal data is no longer required for the purpose for which it was collected / used when the respondent withdraws consent when the respondent objects to processing and there is no legitimate reason for continuing processing if the data is processed unlawfully if the personal data must be deleted as would comply with the statutory obligation and if it is personal information relating to children regarding the provision of information society services. (Art. 17 p.2, GDPR) Also, a person may request deletion of personal data if the data is incomplete, incorrect or up to date. Furthermore, the legislator has set the conditions under which a request for deletion may be refused, when data are processed in order to exercise the right to freedom of expression and information, in order to comply with the legal obligation to perform tasks of public interest or official authority for purposes public health - in the public interest, for archiving for the purpose of public interest, scientific / historical research or for statistical purposes, and for the purpose of establishing, achieving or defending legal requirements.

### *3.1.5. Consent*

The conditions for consent have been strengthened, and companies are no longer able to use long illegible terms and conditions full of legalese. The consent should be given by a clear affirmative act establishing a freely given, specific, informed and unambiguous indication of the data subject's agreement to the processing of personal data relating to him or her, such as by a written statement, including by electronic means, or an oral statement. This could include ticking a box when visiting an internet website, choosing technical settings for information society services or another statement or conduct which clearly indicates in this context the data subject's acceptance of the proposed processing of his or her personal data. Silence, pre-ticked boxes or inactivity should not therefore constitute consent. (Calder, 2017) Consent should cover all processing activities carried out for the same purpose or purposes. When the processing has multiple purposes, consent should be given for all of them. If the data subject's consent is to be given following a request by electronic means, the request must be clear, concise and not unnecessarily disruptive to the use of the service for which it is provided. (Preamble paragraph 32, GDPR) The request for consent must be given in an intelligible and easily accessible form, with the purpose for data processing attached to that consent. It must be clear and distinguishable from other matters and provided in an intelligible and easily accessible form, using clear and plain language. It must be as easy to withdraw consent as it is to give it. Children merit specific protection with regard to their personal data, as they may be less aware of the risks, consequences and safeguards concerned and their rights in relation to the processing of personal data. Such specific protection should, in particular, apply to the use of personal data of children for the purposes of marketing or creating personality or user profiles and the collection of personal data with regard to children when using services offered directly to a child. The consent of the holder of parental responsibility should not be necessary in the context of preventive or counselling services offered directly to a child. (Preamble paragraph 38, GDPR) Where point (a) of Article 6(1) applies in conditions applicable to child's consent in relation the offer of information society services directly to a child, the processing of the personal data of a child shall be lawful where the child is at least 16 years old. Where the child is below the age of 16 years, such processing shall be lawful only if and to the extent that consent is given or authorised by the holder of parental responsibility over the child. Member States may provide by law for a lower age for those purposes provided that such lower age is not below 13 years. (Art 8, p 1, GDPR)



## **4. CYBER SECURITY WITHIN GDPR: SECURITY OF PERSONAL DATA AND DATA PROCESSING**

Since GDPR lends itself to the expectation of increased data privacy, this builds pressure on business information systems to increase the level of their cybersecurity and furthermore to integrate new practices. This means getting highly specific on what qualifies as consent. Assuming that anyone who visits the website has granted you access to their personal information for marketing uses is no longer an option: you must obtain permission for their data through affirmative action and unambiguous language that is visibly stated on the website. (Calder, 2017)

### **4.1. Notification of a personal data breach to the supervisory authority**

In addition, the data processing must be systematically monitored, and a public breach in this sensitive material needs to be reported, without undue delay and, where feasible, not later than 72 hours after having become aware of it, notify the personal data breach to the supervisory authority competent in accordance with Article 55, unless the personal data breach is unlikely to result in a risk to the rights and freedoms of natural persons. (ITGP Privacy Team, 2017, p 265) Where the notification to the supervisory authority is not made within 72 hours, it shall be accompanied by reasons for the delay. (Art. 33, GDPR)

### **4.2. Security of data processing**

Taking into account the state of the art, the costs of implementation and the nature, scope, context and purposes of processing as well as the risk of varying likelihood and severity for the rights and freedoms of natural persons, the controller and the processor need to implement appropriate technical and organisational measures to ensure a level of security appropriate to the risk, including inter alia as appropriate:

- a) the pseudonymisation and encryption of personal data;
- b) the ability to ensure the ongoing confidentiality, integrity, availability and resilience of processing systems and services;
- c) the ability to restore the availability and access to personal data in a timely manner in the event of a physical or technical incident;
- d) a process for regularly testing, assessing and evaluating the effectiveness of technical and organisational measures for ensuring the security of the processing. (Art 32, p 2, GDPR)

In assessing the appropriate level of security account shall be taken in particular of the risks that are presented by processing, in particular from accidental or unlawful destruction, loss, alteration, unauthorised disclosure of, or access to personal data transmitted, stored or otherwise processed (Art 32, p 2, GDPR). Firewall protection is beneficial, but this software is not adequate on its own anymore. A multi-layered approach to cybersecurity is more effective. Opt for technologies that encrypt unstructured data, automate all manual processing, condense the storage in one location and reinforce the safety of managed file transfers. In order to maintain security and to prevent processing in infringement of this Regulation, the controller or processor should evaluate the risks inherent in the processing and implement measures to mitigate those risks, such as encryption. Those measures should ensure an appropriate level of security, including confidentiality, taking into account the state of the art and the costs of implementation in relation to the risks and the nature of the personal data to be protected. In assessing data security risk, consideration should be given to the risks that are presented by personal data processing, such as accidental or unlawful destruction, loss, alteration, unauthorised disclosure of, or access to, personal data transmitted, stored or otherwise processed which may in particular lead to physical, material or non-material damage (Preamble paragraph 83, GDPR).

Also, the connection of multiple devices increases the risk of personal data being exploited, all network access endpoints need to have one consolidated entry dashboard. This streamlines data management across the various endpoints, enhances visibility of the whole endpoint network so internal IT teams can supervise and protect the flow of data, controls who can move through an endpoint to minimize any threats of remote access, and optimizes the detection and response time for suspicious activities. In addition, merging these network endpoints will create a meticulous and secure audit trail to ensure that you're remaining accountable to all GDPR compliance directives.

#### **4.3. Security risks and data protection impact assessment**

In order to enhance compliance with this Regulation where processing operations are likely to result in a high risk to the rights and freedoms of natural persons, the controller should be responsible for the carrying-out of a data protection impact assessment to evaluate, in particular, the origin, nature, particularity and severity of that risk. The outcome of the assessment should be taken into account when determining the appropriate measures to be taken in order to demonstrate that the processing of personal data complies with this Regulation. Where a data-protection impact assessment indicates that processing operations involve a high risk which the controller cannot mitigate by appropriate measures in terms of available technology and costs of implementation, a consultation of the supervisory authority should take place prior to the processing. (Preamble, paragraph 84, GDPR) Data leakage can occur at any stage in the supply chain, so it's important to perform routine checks on all aspects of this framework including website traffic, social media interaction, email threads and other forms of online engagement. This will identify the areas which are most vulnerable to a security breach, so the right measures can be taken to reduce the likelihood of a data penetration. A thorough risk assessment also evaluates how efficiently the network access software is functioning to mitigate the spread of viruses, malware and other outside factors that contribute to lost or stolen data. The more informed you are of the risks, the better equipped you'll be to avoid them.

#### **4.4. Privacy by Design**

Privacy by design as a concept that has existed for years, but it is only just becoming part of a legal requirement with the GDPR. At its core, privacy by design calls for the inclusion of data protection from the onset of the designing of systems, rather than an addition. (Gobeo, A., Fowler, C., Buchanan, W. J., 2018, p 122) More specifically, in the article 23 of GDPR the controller shall implement appropriate technical and organisational measure in an effective way in order to meet the requirements of this Regulation and protect the rights of data subjects. (Art 23, GDPR) Article 23 also calls for controllers to hold and process only the data absolutely necessary for the completion of its duties (data minimisation), as well as limiting the access to personal data to those needing to act out the processing Taking into account the state of the art, the cost of implementation and the nature, scope, context and purposes of processing as well as the risks of varying likelihood and severity for rights and freedoms of natural persons posed by the processing, the controller shall, both at the time of the determination of the means for processing and at the time of the processing itself, implement appropriate technical and organisational measures, such as pseudonymisation, which are designed to implement data-protection principles, such as data minimisation, in an effective manner and to integrate the necessary safeguards into the processing in order to meet the requirements of this Regulation and protect the rights of data subjects. (Art 25, p 1 GDPR) The controller should implement appropriate technical and organisational measures for ensuring that, by default, only personal data which are necessary for each specific purpose of the processing are processed. That obligation applies to the amount of personal data collected, the extent of their processing, the period of their storage and their accessibility.

In particular, such measures shall ensure that by default personal data are not made accessible without the individual's intervention to an indefinite number of natural persons. (Art 25, p 2 GDPR) An approved certification mechanism pursuant to Article 42 may be used as an element to demonstrate compliance with the requirements set out in paragraphs 1 and 2 of this Article. (Art 25, p 3 GDPR)

#### **4.5. Pseudonymisation**

In addition, GDPR enhances the right to delete clarification - organizations in the online environment that publicly disclose personal information should notify other organizations that process personal data for deleting connections, copying, or replicating the personal data involved. Apart from the deletion, GDPR gives definition of 'pseudonymisation' which means "the processing of personal data in such a manner that the personal data can no longer be attributed to a specific data subject without the use of additional information, provided that such additional information is kept separately and is subject to technical and organisational measures to ensure that the personal data are not attributed to an identified or identifiable natural person" (Art. 4 p.5, GDPR) This process has so far not been a legal requirement and represents an investment in data security which is now obligatory and also presents a significant cost to large number of organizations and may be particularly challenging if you process personal information online, for example on social networks, forums, or web pages, you must comply with these requirements by the Regulation or otherwise expect huge punishments. According to Art. 32 Security of processing of personal data, taking into account the state of the art, the costs of implementation and the nature, scope, context and purposes of processing as well as the risk of varying likelihood and severity for the rights and freedoms of natural persons, the controller and the processor shall implement appropriate technical and organisational measures to ensure a level of security appropriate to the risk, including inter alia as appropriate, on the first place should ensure pseudonymisation and encryption of personal data; as well as the ability to ensure the ongoing confidentiality, integrity, availability and resilience of processing systems and services; the ability to restore the availability and access to personal data in a timely manner in the event of a physical or technical incident; and a process for regularly testing, assessing and evaluating the effectiveness of technical and organisational measures for ensuring the security of the processing. (Art. 32 p. 1, GDPR)

#### **4.6. Responsibility of the controller – general obligations**

Under GDPR, data protection is split between two distinct tiers—the controller and processor. Taking into account the nature, scope, context and purposes of processing as well as the risks of varying likelihood and severity for the rights and freedoms of natural persons, the controller shall implement appropriate technical and organisational measures to ensure and to be able to demonstrate that processing is performed in accordance with this Regulation. (Art 24, p 1 GDPR) Those measures shall be reviewed and updated where necessary. A business owner or manager who obtains the personal information from customers then decides how that data is utilized is the controller, and the employees who are responsible for executing a controller's directives are the processors. In order to prevent any misuse of data the business information systems need robust protocols to check the balance of power. For this reason, more companies are hiring data protection officers (DPO) to serve as the main point-of-contact for all data processing activities. In addition to providing accountability for the controller, a DPO can educate all team members on GDPR compliance and make sure those parameters are followed across the board. Where two or more controllers jointly determine the purposes and means of processing, they shall be joint controllers. They shall in a transparent manner determine their respective responsibilities for compliance with the obligations under this Regulation, in particular as regards the exercising of the rights of the data subject and their respective duties

to provide the information referred to in Articles 13 and 14, by means of an arrangement between them unless, and in so far as, the respective responsibilities of the controllers are determined by Union or Member State law to which the controllers are subject. The arrangement may designate a contact point for data subjects. (Art 26, p 1, GDPR) The arrangement referred to in Art 26 paragraph 1 shall duly reflect the respective roles and relationships of the joint controllers vis-à-vis the data subjects. The essence of the arrangement shall be made available to the data subject (Art 26, p 2, GDPR).

#### **4.7. Data Protection Officers**

With GDPR becoming effective, many companies have a duty to appoint a qualified Personal Data Protection Officer or Data Protection Office (DPO) who will be directly responsible to the management. Under GDPR it is not necessary to submit notifications / registrations to each local DPA of data processing activities, nor is it a requirement to notify / obtain approval for transfers based on the Model Contract Clauses (MCCs). (Gobeo, A., Fowler, C., Buchanan, W. J., 2018, pp 164-168) Instead, there are internal record keeping requirements, as further explained below, and DPO appointment is mandatory only for those controllers and processors whose core activities consist of processing operations which require regular and systematic monitoring of data subjects on a large scale or of special categories of data or data relating to criminal convictions and offences. In addition, basic understanding of the process and classification of data is understood. (Art. 37, GDPR) As GDPR states, the controller and the processor of personal data “shall designate a data protection officer in any case where: (a) the processing is carried out by a public authority or body, except for courts acting in their judicial capacity; (b) the core activities of the controller or the processor consist of processing operations which, by virtue of their nature, their scope and/or their purposes, require regular and systematic monitoring of data subjects on a large scale; or (c) the core activities of the controller or the processor consist of processing on a large scale of special categories of data pursuant to Article 9 and personal data relating to criminal convictions and offences referred to in Article 10.” (Art. 37 p. 1, GDPR). The data protection officer shall have at least the following tasks: (a) to inform and advise the controller or the processor and the employees who carry out processing of their obligations pursuant to this Regulation and to other Union or Member State data protection provisions; (b) to monitor compliance with this Regulation, with other Union or Member State data protection provisions and with the policies of the controller or processor in relation to the protection of personal data, including the assignment of responsibilities, awareness-raising and training of staff involved in processing operations, and the related audits; (c) to provide advice where requested as regards the data protection impact assessment and monitor its performance pursuant to Article 35; (d) to cooperate with the supervisory authority; (e) to act as the contact point for the supervisory authority on issues relating to processing, including the prior consultation referred to in Article 36, and to consult, where appropriate, with regard to any other matter (Art. 39 p 1, GDPR). In short, in order to achieve compliance of business information system with GDPR the Data Protection Officer:

- Must be appointed on the basis of professional qualities and, in particular, expert knowledge on data protection law and practices
- May be a staff member or an external service provider
- Contact details must be provided to the relevant DPA
- Must be provided with appropriate resources to carry out their tasks and maintain their expert knowledge
- Must report directly to the highest level of management
- Must not carry out any other tasks that could result in a conflict of interest.

#### 4.8. Penalties

Starting with the elaborated rules of processing, the most important emphasis is on criminal provisions. Failure to comply with the provisions of the Regulation entails penalties and draconian - up to 4% of the total annual turnover worldwide or up to 20m euros, whichever is higher. (Art. 83 p.5, GDPR) Unlike before, it will apply to all businesses operating in the European Union (and not just those registered in the EU!) The tasks of supervisory authority within GDPR are clearly stated in Regulation text. (Art. 57, GDPR) and given also by the laws on implementation of GDPR conducted by EU member states on biometric data and video surveillance.

#### 5. CONCLUSION

As the scale and sophistication of attacks grow, the controllers should invest in cyber security compliance within GDPR in order to protect information business systems. The emphasis is given on the fact that they should have to remain vigilant and try to put in place sufficient processes and policies to best protect their businesses and remain in compliance with GDPR. Ultimately, cybersecurity and GDPR are one and the same: the common denominator is data management: designing efficient cybersecurity frameworks in terms of end-point protection – based on privacy by design and also antivirus, malware tools, firewalls – and also designing security policies based on GAP analysis on GDPR with permissions to access data by their employees creating robust governance system with adequately protected personal data belonging to the customers.

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## THE ECONOMIC IMPACTS OF THE EUROPEAN CAPITALS OF CULTURE ON REGIONAL DEVELOPMENT AND TOURISM

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### ABSTRACT

*The primary objective of this paper is to underline the many positive impacts that the European Capital of Culture Programme has not only on regional development, but also on attractiveness of cities in terms of tourism. The European Capital of Culture Programme, launched in 1985, is one of the most recognised EU projects. Since 1985, two European cities have been declared the European Capital of Culture every year. The Programme has become the key platform for economic and cultural regeneration. Through well-prepared and organized marketing of culture, arts and different cultural events, the European Capital of Culture Programme has a substantial economic impact on regional development, which improves the quality of life in these cities and also attracts a substantial number of local and foreign tourists. The research process consists of desk research and analysis of secondary data from different documents, such as a combination of academic studies, evaluations, literature reviews, case studies, abstracts of proposed studies, policy papers and reports by different committees and departments. The main method is the case study method of selected European Capitals of Culture. Other methods that have been used in this paper are: analysis, synthesis, induction, deduction, comparison, compilation. The results of the case study indicate that the European Capital of Culture Programme brings lots of tourists to the city, who are mostly attracted by this Programme. The most important economic impacts in tourism and the ways marketing can influence the positive image of a city will be emphasised through a comparative study of the selected cities. Finally, some recommendations will be given for future research.*

**Keywords:** *economic impacts, European Capitals of Culture, marketing, regional development, tourism*

### 1. INTRODUCTION

The European Capitals of Culture Programme (hereinafter: ECoC) is one of the most important EU-funded projects in culture. The initiative came in 1985 from the Greek Minister of Culture Melina Mercouri, who suggested making one city in the EU the European Capital of Culture every year to bring Europeans closer together through intercultural dialogue and learning about their culture and cultural heritage. Over the years, the projects increased in popularity. Its name was changed to European Capital of Culture and two cities have been given the prestigious title every year. As the project's significance increased over the years, the programme's budget increased as well.

Over the past 30 years, the ECoC has grown into one of the best known and the most popular activities of the European Union. „...The European Capitals of Culture promote mutual understanding and intercultural dialogue among citizens and increase their sense of belonging to a community.“ (European Capitals of Culture, 2015, pp. 1). The main hypothesis that this paper will be based on is: “Being an ECoC has become a catalyst for regional development, urban regeneration and development of tourism in the city, which bring many positive economic impacts.” This paper will attempt to underline the importance that the ECoC title brings to a city and its effects on urban regeneration, regional development and development of tourism. It will strive to explain the role and the importance of the ECoC for the city bearing the prestigious title through individual economic impacts and specific practical examples.

## **2. EUROPEAN CAPITALS OF CULTURE LEADING TO LOCAL AND REGIONAL DEVELOPMENT**

The European Capitals of Culture project is an opportunity for urban regeneration, regional development and development of tourism in cities. To use this opportunity, cities need to encourage the promotion of culture and cultural and tourist sights, and this prestigious title plays a key role in these processes by encouraging maximal creativity and originality. Culture is no longer a separate area, but an expansion of economic policy. The concept of creative industries and their innovations and programmes create culture for everyone, for togetherness, long-term regeneration and success of a city. The European Capitals of Culture project always underlines the “beautification” of the city’s image, its cultural renaissance and everything else in order to drive tourism and promote the city.

### **2.1. Objectives of the European Capitals of Culture**

The objective of the initiative European Capital of Culture, which continues to successfully contribute to sustainable development of cities and positively impact their cultural, social and economic development, is to emphasise cultural wealth and diversity as well as the shared cultural aspects of Europe and to help bring European nations closer together and improve their mutual understanding. European Capitals of Culture are today recognised as laboratories for strategic investments in culture on local and regional level. The ECoC initiative has a substantial impact on local development, urban regeneration, development of tourism, change of the local population’s stand on the importance of their city, improvement of the quality of life, new job opportunities and long-term investments in the progress of the society through culture. Also, one of the more important objectives of the ECoC is to ensure long-term positive effects of the prestigious title. For example, if the positive effects are manifested in an increased number of tourists on local level, the upward trend in the number of tourists should continue each successive year. „Most cities however viewed the ECOOC as an opportunity to contribute to the long-term cultural development of the city, whereby long-standing projects were finished, or ‘gaps’ in the city’s cultural life were addressed. Such large capital investment also had an economic impact, in terms of job creation, both on a short term and long term basis.“ (Palmer, 2004, pp. 76)

## **3. SUCCESSFUL EUROPEAN CAPITALS OF CULTURE AND THEIR INFLUENCE ON REGIONAL DEVELOPMENT AND TOURISM**

The most important economic impacts are observable in tourism and regional development. “Tourism is a set of phenomena that arise from people staying in places outside of their actual residence. These relationships and phenomena are the result of human activities related to observing, experiencing and communicating in natural and socio-cultural areas.“ (Buljubašić, Borić, Bodražić, 2014, pp. 916). “Richards et al. (2011) outline four ways to understand tourism impact: transportation statistics; accommodation statistics; tourist spending; and tourism



marketing.” (Garcia, Cox, 2013, pp.134). The cities that have managed to make the short-term boost to tourism numbers sustainable in the years following the ECoC are those that have developed post-ECoC marketing and event strategies. „The development of the media and the internet, along with the application of management and marketing in tourism, resulted in the development of other specific forms of tourism and tourism products in addition to mass tourism.“(Bošnjaković, Tolušić, Borić, 2016, 1070). Figure 1 below shows ECoC attendance 1985- 2012.

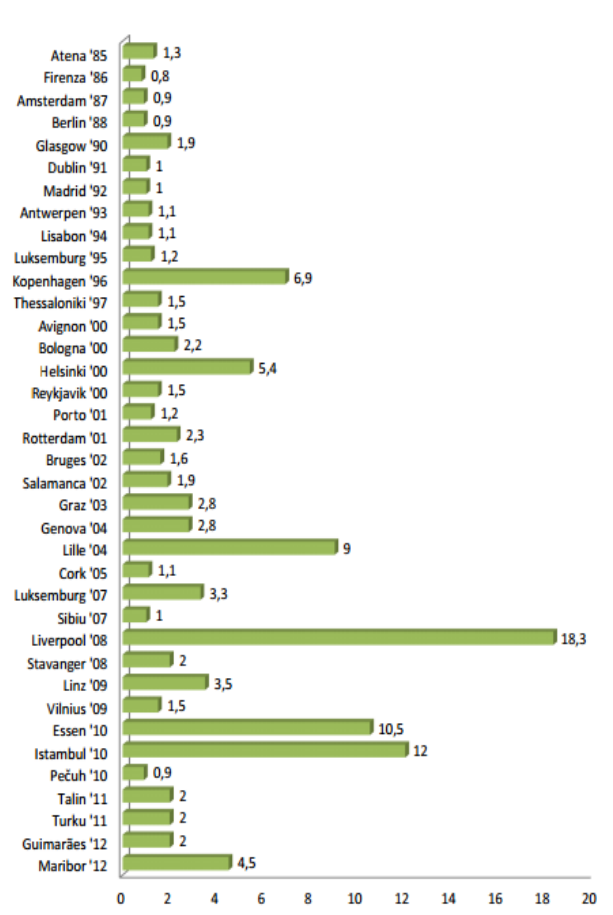


Figure 1: Attendance of the European Capital of Culture programme 1985-2012.( *Axe Culture (2005); Luxembourg GR 2007 (2008); Myerscough (1994); Palmer/Rae Associates (2004b); Quinn and O'Halloran (2006) in Garcia et al., 2013:145*)

Figure 1 shows that Liverpool, as the European Capital of Culture, attracted additional 9.7mil. visitors, which constitutes an increase of 34% in comparison with the previous average. The number of visitors to the region was about 18.3 million. Figure 1 also shows Luxembourg as the European Capitals of Culture in 1995 and 2007. In 1995, Luxembourg had about 1.2 million visitors, and in 2007 the number of visitors increased to 3.3 million, which is a great indicator that people recognized the importance of becoming European Capital of Culture.

### 3.1. Liverpool as European Capital of Culture

Liverpool was proclaimed as ECoC in 2008. The main topic of Liverpool as ECoC was “The World in One City”, consisting of three points, “Yesterday, Today and Tomorrow”. The ECoC objective was to make Liverpool seen as a city of culture through the promotion of tourism and the cultural regeneration of the city. Liverpool has a very rich cultural heritage and it spent a long time preparing its inhabitants and informing them about the advantages of the ECoC in

various ways, for example, in libraries, by e-mail, by postal questionnaires, and in business forums and other discussion groups. „In 2008, 35% of all visits to Liverpool were influenced by the ECoC title and would not have taken place otherwise. Amongst visits being made for the first time to Liverpool, 33% were influenced by the ECoC title and again would not have taken place otherwise. In total, 9.7m visits to Liverpool were motivated by the Liverpool ECoC in 2008. This generated an economic impact of £753.8m (based on estimated direct spend) attributable directly to the Liverpool ECoC title and events programme (Garcia, Melville, Cox, 2008, p.25). Table 1 below shows the extent of the impact of Liverpool’s ECoC title in 2008 on visits.

*Table1: Impact on visits to Liverpool (Garcia, Melville, Cox, 2010, p.72)*

Influences on visiting Liverpool	All visits	Other influence	ECoC influence
Seeing / hearing advert for Liverpool	13.6%	9.7%	<b>17.6%</b>
Seeing / hearing advert for an advert	2.2%	1.9%	2.4%
Other advertising	1.6%	1.1%	2.0%
Article in paper	3.9%	2.6%	5.2%
Recommended by friend	25.1%	20.1%	<b>30.2%</b>
Been before	44.8%	56.0%	<b>33.5%</b>
www.visitliverpool.com	5.8%	2.8%	8.8%
www.liverpool08.com	8.4%	1.9%	15.1%
Other website	3.4%	2.3%	4.6%

Table 1 is a good indication of the most important impacts on attracting visitors. Previous visits to Liverpool had the biggest impact on visitors (33.5%), followed by friends’ recommendations (30.2%) and seeing/hearing an advert for Liverpool (17.6%). All visitors to Liverpool during its time as ECoC in 2008 generated certain direct and indirect spending, shown in Table 2 below.

*Table2: Direct & Indirect spend during 2008. in Liverpool as ECoC (customized by Garcia, Melville, Cox, 2010, p.7)*

Visitor Type	Liverpool City	Elsewhere City Region	Elsewhere North West
Direct spend	£521,630,000	£130,566,000	£49,113,000
Indirect spend	£141,383,000	£33,597,000	£12,699,000
Total	£663,013,000	£164,163,000	£61,812,000
Jobs supported (FTE)	10,225	2,632	991

Table 2 clearly shows that Liverpool as ECoC generated direct and indirect spend in the total amount of £663,013,000 and supported 10,225 jobs, which constitutes a significant economic impact on the entire economy of Liverpool

### **3.2. Luxembourg as European Capital of Culture**

Luxembourg bore the title of the European Capital of Culture for the first time in 1995 and for the second time in 2007. The City of Luxembourg had always been troubled by a lack of cultural infrastructure.

The Government therefore used the opportunity presented by the title of European Capital of Culture in 1995 to launch a serious investment programme worth EUR 600mil. for the construction of long-term cultural infrastructures. Among other projects, they built the Philharmonie Luxembourg, the Mudam Museum of Modern Art, the Rockhal and the Centre Culturel de Rencontre Neumünster. When Luxembourg became ECoC for the second time in 2007, it involved the entire country and the neighbouring regions of Belgium, France and the Netherlands, with more than 11 million inhabitants, in the project. The Luxembourgian-German-French-Belgian transnational cooperation was widely considered a role model for the process of European integration that still exists. In 2007, they proved that the money invested in all the newly constructed facilities was well spent, which contributed significantly to urban regeneration of Luxembourg. Substantial funds were invested in marketing, promotion and promotional activities in order to increase the visibility of the city as an ECoC and attract more tourists to visit the city, spend the night and spend a certain amount of money. Some of the selected ECoCs that invested substantial amounts in marketing are shown in Table 3 below.

*Table 3: Marketing spend per visit in selected ECoCs (customized by Palmer-Rae, 2004)*

<b>ECOC</b>	<b>MARKETING BUDGET €</b>	<b>TOTAL VISITS</b>	<b>SPEND PER VISIT €</b>
Luxembourg 1995	2200000	1100000	2.0
<b>Copenhagen 1996</b>	<b>4700000</b>	<b>6920000</b>	<b>0.7</b>
<b>Porto 2001</b>	<b>9500000</b>	<b>1246545</b>	<b>7.6</b>
Graz 2003	14139400	2755271	5.1
Luxembourg 2007	7500000	3327678	2.2
Liverpool 2008	48300000	18300000	2.63

Table 3 shows some of the selected European Capitals of Culture and their marketing budgets, their total numbers of visits, as well as spend per person. Porto had the highest spend per visit in 2001, as much as EUR 7.6 per visit, while Copenhagen had the lowest spend per visit of around EUR 0.7. Table 3 also shows that Porto invested substantial funds in marketing, which resulted in the highest per visit spend of EUR 7.6 per person. „The ECOC had a positive impact on tourism to and within Luxembourg and the Greater Region in 2007. Tourist overnights in Luxembourg increased more in 2007 than in Europe as a whole, which suggests that there was a positive net impact from the ECOC.“(Luxemburg and Greater Region, 2008, pp.74)

#### **4. CONCLUSION**

All in all, the status of European Capital of Culture brings many positive economic impacts not only for the city bearing the title, but also for its entire surroundings. This is evident in the increased number of tourists and also in increased spend per visit. The hypothesis outlined at the beginning of the paper, is confirmed by the research performed. The selected ECoCs have shown economic impacts in the form of increased numbers of tourists, increased spend per tourist and urban regeneration of the city. Substantial importance was given to the investments in marketing, which contributed to better ECoC visibility and to attracting more tourists. Our recommendation for future research is to compare future ECoCs by similar criteria and do a comparative analysis thereof using the selected criteria, which can be the same as in this paper, or new criteria can be added.

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## CHALLENGES OF HUMAN RESOURCE MANAGEMENT IN WEST AFRICA UNDER DEVELOPED ECONOMY

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### **ABSTRACT**

*In many West African Public Services, the human resource was not treated as a valuable asset but a cost center and human resources managers were, and in many respects continue, to be marginalized. Human Resource Management (HRM) is an area that has suffered much neglect for over five decades of reforming the public service in the post-colonial West Africa. West African countries did not recognize the strategic position of the human resource manager in the formulation and implementation of organizational strategies. The role of staff responsible for managing people in work places was confined to routine functions about staff entitlements, pay increments, maintaining discipline and the like. This neglect has had disastrous consequences on various public sector reform interventions that West African countries have been embarking on*

**Keywords:** *Human resource Management, West Africa, Government Role, Development, Challenges, Skills, Organizations and cooperation on ethnicity*

### **1. INTRODUCTION**

Human Resource Management is complex and problematic because the individuals as workers hardly adapt or voluntarily embrace the objectives of the organization. As individuals, the employees have needs, aspirations, motivations, desires and interests which influence their behaviour at work but unfortunately these objectives are sometimes in conflict with the corporate objectives of the enterprise. In reconciling these conflicting interests Human Resources Management and Planning are useful tools employed in harmonizing the needs of the employees with the goals and objectives Human resources are the life blood of an organization. Despite the application of technology in modern business management, human resources are still relevant and most adaptive resources of the organization. The strategic values of HR stem from the fact that apart from other resources employed in the course of production (land, capital, technology etc) which are passive, human resources are endowed with discretionary decision-making power and thus have competitive advantage over the other resources. Besides, HR combines other resources in the right mix to formulate appropriate strategies for the accomplishment of the desired objectives of the enterprise. This essential attribute of HR assist the enterprise to make rightful decisions and respond effectively to the threats and opportunities within the environment of the organization. Thus the enterprise depends highly on its HR for success and survival. This dependence continuously is increasing considering the complex and turbulent nature of the business environment of this century of the organization on a continuous basis.

## **2. NORMAL FUNCTIONS HUMAN RESOURCE MANAGEMENT**

In a nutshell, the primary task of HRM is to ensure that the organization HR are utilized and managed effectively. HR practitioners are saddled with the responsibility of designing and implementing programmes that will enhance human abilities and improve the organisation's overall effectiveness. Empirical studies have shown that poor human relations at work, neglect of staff welfare programmes and lack of motivation are often the factors that cause industrial strife and declining productivity in the work setting. The modern day entrepreneurs recognize that the HR are vital element in the organization and concomitantly acknowledge the role the HR practitioners play in developing these valuable resources. To acquire and retain HR in the organization, the HR practitioners in brief perform four critical roles: Create and implement policies, which should be in writing and communicated to all employees through circulars or the employee handbook, Offer advice and counsel the employees on matters bordering on productivity, safety at work, career path or management, morale, honesty and integrity, human relations etc, Provision of services that assist Line Managers in performing their jobs or serving the organizational units e.g recruitment, selection and placement, compensation management, training and development, staff welfare programmes, industrial and labour relations, research and planning, and Control of HR programmes and laid down procedures i.e. to monitor and ensure that HR policies and guidelines are implemented religiously or to the letters e.g. grievance handling and disciplinary procedures, Federal Character principles or Quota system, fairness of appraisal exercise, granting of loans etc. Each of the above functions is a complex flow of activities and it underscores HR management functions as integral part of the overall corporate plans of the enterprise. It follows therefore, that HR management function is a joint responsibility for all managers within the enterprise.

## **3. EVALUATION OF LITERALLY CONTEXT ON HUMAN RESOURCES**

Worldwide, the HR profession had to respond to increased competition for globally mobile talents, changes in both workforce attitudes and composition, shifts in the employer/worker relationship and rapid advances in HR technology. New kinds of technical knowledge, skills and abilities would require HR practitioners in future who are flexible and willing to deal with the ever accelerating pace and often unpredictable changes in the global workplace (Mayrhofer and Brewster, 2005). The HR profession needs to evaluate the implications of a movement into an era of decentralization, which if used properly, can lead to emancipation. The era will require a new kind of organization, based on a different paradigm that can bring together the contributions of autonomous individuals in a socially sustainable way. It is thus clear that a new way to manage HR as a paradigm is emerging, as well as new HR managers should manage themselves (Limerick et al, 2002). The main focus for managers of this century is the urgency to manage change speedily and efficiently in a HRM context with appropriate competencies. Issues like international HRM, diversity, employment equity, generation Y, reputation management and corporate ethics amongst others must be factored regarding future identification of HR professionals' role and capabilities. Various authors (Kane, 2006; Burton, 2003; Swanepol et al, 2002 and Nel et al, 2005) have identified factors which act as barriers to effective HRM. Some of the pertinent issues are: top management has a low priority, and offer a short-term view of what the real issues in HRM and the profession are according to various researchers (Parmenter, 2002; Burton, 2003), HRM practitioners are perceived to lack sufficient knowledge and skills necessary to implement effective HRM practices at various levels in their organization (Jayne, 2002; Burton, 2003). HR professionals have not been assertive enough to be present in the boardroom to guide HR programmes to achieve long-term impacts on HR initiatives. This probably points to a lack of adequate drive and communication to apply strategic human resources management (SHRM) fully (Kane, 2001; Birchfield, 2003; Du Plessis, 2004).

To function effectively in the future, HR professionals should find answers to the following issues: first, how can HRM add value? What can be outsourced, taken on by line managers or simply stopped? How can these skills be developed? Thirdly, from a structural perspective, how can HR managers develop organizations capable of knowledge dissemination and innovation? Fourthly, how can HR managers ensure employees remain engaged and committed during times of turbulence? It is therefore, clear that the who does what debate regarding the roles and function of HR professionals and line management has not been adequately resolved (Larsen and Brewster, 2003). The foregoing also acts as a barrier to the effective execution of the role of HR professionals. Dawson (2003) clearly states that the forces of global change are at work in organizations and are bound to significantly influence the future of the HRM profession. Jayne (2002) and Ison and Barton (2003) observe that there are drives towards achieving a win-win focus with a growth surge in coaching and mentoring team, building, leadership development, up skilling and personal development. These along with technology advances and increased outsourcing are encroaching on the traditional HRM roles such as recruiting, administration, pay roll, performance assessment and training. It is therefore clear that a range of HR functions probably needs a wide sweeping review and possible re-tooling to make it effective to serve the business world and practice of the HR profession of the future. HR professionals should display a high level of sensitivity with regards to performance management and the development of leadership in particular, as these are key drivers for an organizations future objective achievement. Performance management also impacts significantly on leadership and culture which are interdependent but crucial components to execute the HR professional's role effectively (Birchfield, 2003). HR leadership entails organizations being able to manage interactions between individuals and groups to achieve the desired outcomes (Smith and Birchfield, 2001; Hamilton, 2003). Sykes (2003) also points out that HR leadership by practitioners needs to be visible in the workplace at all levels of any organization to be successful. In the above context, three major roles challenges face HR professionals in organization to provide maximum contributions to the leadership and bottom line in the future (Burton, 2003). These are first; the HR managers need to become more vocal and influential in the boardroom alongside the financial and marketing directors. Secondly, quantitative skills such as the measurement of human worth and the understanding of organizational structure and dynamics need to be increased for HR professionals to provide effective service in organizations. Thirdly, HR professionals need to develop a new set of skills and competencies around visioning, systems thinking, and organizational development and change management. Organization's effectiveness could be significantly improved should HR professionals be able to enhance corporate culture (Graetz et al, 2002). It is a common knowledge that leadership, performance management and culture are interrelated, but must be managed in an integrated and innovative manner by HR professionals as core elements of their role and capabilities in organizations in future. Birchfield (2003) also states that management sometimes only focus on how individuals execute their jobs, and do not decide if the tasks is actually contributing to the organisation's greater goal or otherwise. In this regard, he states that HR professionals must in their role as leaders continually and innovatively facilitate the effective management of employees to enable the function to visibly add value to an organisation's objectives.

#### **4. HUMAN RESOURCE MANAGEMENT IN WEST AFRICA DEVELOPMENT**

In the present day, business is conducted on international scale and this involves the transfer of goods and services, technology, managerial knowledge and capital to other countries or across national boundaries. Globalization has made the world smaller through fast communication network. The economies of the world have become increasingly integrated (Bhagwatti, 2004). Besides, we are now in a world where quality, efficiency and competitiveness count most.

The progress and survival of the business enterprise of this century can be measured in this sequence: information, knowledge and their application through science, engineering and technology. In other words, knowledge sharing impacts on global enterprises as they export their management philosophies and techniques, as well as their technologies, products and services around the world (Kuruville et al, 2003). The internet has made communication network to be very easy and also for marketing to take place without necessarily moving from your desk. You can even see what the product is like and be advised by the seller. For you to participate in the global market, you must produce an internationally acceptable product. Your product must satisfy the market you are targeting. You must add value to the product. With the rapid expansion of global markets coupled with the view that the whole world in one market, it has now become imperative for the Human resource practitioners to adapt to international needs by moving people, ideas, products and information around the world to meet local needs. In addition to these factors, the geographic dispersion, multiculturalism, different legal and social system and cross-border movement of capital, goods, services and people that the international firm faces adds a need for competency and sensitivity that is not found in the domestic firm (Vance and Paik, 2006). Therefore, Managers of this century must strive to balance the demand to think globally and act locally. However, some environment factors may constitute a problem and affect the rate of adaptation from international to local environment for the underlisted reasons: Economic system (capitalism; mixed economy, Marxist) and level of economic development (Developed, Developing and underdeveloped). Note, Legal system/environment and constraints (laws, regulations and administration of justice), Political environment (power, ideologies, government policies and regulations) Educational system and language vary from one country to the other. Diplomacy is an important matter in labour administration and this is conducted on behalf of the government of West Africa by the Federal Ministry Labour and Productivity. The most prominent of the organization the Ministry interacts with is the International Labour Organization (ILO) which is a specialised agency of the United Nations (UN). ILO was set up in 1919 to ensure that social justice and better working conditions prevail for the achievement of universal lasting peace all over the world or globally. The government in West Africa has ratified a good number of the conventions adopted by ILO in a bid to strengthen her diplomatic relations. In order to build, maintain and develop their corporate identity, multinational organizations need to strive for consistency in their ways of managing people on a worldwide basis. Yet, in order to be effective locally, they also need to adapt these ways to the specific cultural requirements of different societies. While the global nature of the business may call for increased confidence, the variety of cultural environments may be calling for differentiation (Laurent, 1986). A country's economic system influences HRM in a number of ways. In socialist economic systems, there are ample opportunities for developing human capital because the education system is free. In capitalist systems, the opposite situation exists. There is less opportunity to develop human capital without higher costs. However, those who do invest in human capital especially through education are able to reap monetary reward through wage increase for each additional year of schooling. The differences in economies have a profound impact on pay systems particularly among global companies seeking to develop an international compensation and reward system that maintains cost controls and allows local operations to compete and hunt for talents. For compensation managers to design these systems, they look at a number of factors including the global firm strategy, the local regulatory/political context, institutions and stakeholders, local markets, and national culture. They also learn from the best practices that exist globally and balance the approaches with the constraints imposed by the local environment (Bloom et al, 2000). The regulations imposed by a country's legal system can strongly affect HRM. The legal system is derived from the culture in which it exists and it also reflect societal norms about what constitutes legitimate behaviour. Every firm that operates in the global economy must contend with the varying employment laws in every



country in which it operates, as well as abiding by whatever international standards also exist (Blanpain et al, 2007). For instance, in West Africa, there are regulations that dictate the process of negotiation between unions and management. Furthermore, the political-legal system states the requirements for certain HRM practices such as training, compensation, hiring, firing, and layoffs. The potential to find and maintain a qualified workforce is an important consideration for a firm moving into a foreign market. The country's human capital resources which are the capabilities of individuals in terms of knowledge, skills and experience that have economic value is very germane to HRM. Countries with low human capital attract facilities that require low skills and low wage level while countries with high human capital are attractive sites for direct foreign investment that creates high-skill jobs. It is in order to promote human capital resource in West Africa that most state governments have adopted free education. At the national level, the federal government has been investing heavily on the education sector and the sector had enjoyed rapid expansion with the proliferation of tertiary institutions. Culture has an important impact on approaches to managing people. Cultures differ strongly on issues such as how subordinates expect leaders to lead and what motivates individuals. The extent to which culture promotes an individualistic versus a collectivist orientation will impact on HRM systems. In West Africa, exposure to western educational values has tended to promote the culture of individualism in people with disastrous consequences for the family as an institution and the weak individuals. Thus the moral and cultural fabric of the society has largely been destroyed with serious consequences for trust and confidence: two basic elements required for business to thrive. Today, we have cases of fraud, embezzlement and '419' on the increase threatening the basis for business relationship. To the extent that possession of the positive traits of trustworthiness and reliability cannot be readily read on the faces of job applicants or their certificates. The problem poses a grave challenge for human resource practitioners.

## **5. CONTROVERSY IN HUMAN RESOURCE MANAGEMENT IN WEST AFRICA**

Traditionally, the responsibility of the HRM has been centred primarily on recruitment, selection, orientation, training, job analysis and evaluation, labour relations, appraisal exercise etc but in the modern time, some problems and issues have created a new dawn for the HR practitioners and professionals. Some of these issues are: Productivity Improvement, Which is likely to create unemployment and inflation, decline in standard of living of the masses, hence all hands must be on deck in search of ways to improve productivity and thus strengthen the economy for the betterment of all parties in employment relations. Modern day HR practice has led to greater output and improved quality of products and thus the trend has encouraged HR practitioners in taking active roles on matters impinging on productivity improvement. Quality of Work Life (QWL), this term refers to the extent to which employees' personal needs are met through their work e.g. one's QWL improves as one's work meets more and more personal needs. Therefore, it is expected that improvements in QWL will affect the performance of the organization favorably. The HR professionals are known to be taking keen interest on issues that relate to job satisfaction and commitment in their bid to promote Quality of Work Life (QWL). Health and Safety at Work. The focus is on creating of a work environment which minimizes the likelihood of an accident or injury. Akin to this, is job stress which can be as hazardous as an unsafe work place. The modern managers have recognised the dangers of potential personal and organizational job stress and have taken interest on ways to reduce the problem through medical attention. Quota System in Employment, this is very common in public organisation where employment in government establishments is expected to reflect the Federal character principle. The HR practitioners have herculean task in ensuring that employment is carried out in line with the above principle without compromising merits and standards. Labour and Social Legislations, from the 70's to date, the above legislations have granted workers more rights in terms of security of employment and entitlements which were

perceived as mere expectations in the yesteryears. These rights and entitlements (various fringe benefits, medical care for employees and family, Pension. Gratuity Schemes, National Housing Fund, Retrenchment benefits etc) have added additional strain and costs which the employers must bear in hiring, maintaining and disposing employees. Labour Dissatisfaction at Work has to do with issues like growing rate of unionization of employees, low morale and alienation from work. Others include labour turnover, brain drain, poor work habits/attitudes, industrial conflicts and strikes which are inevitable phenomena in the workplace. Changing Values of the Employees. In the past decades, work ethics was tenaciously followed by the employees in terms of punctuality, honesty, diligence etc but in the modern day, there is growing evidence of serious decline in work ethics. The syndrome is such that some of the enterprises do not provide the basic guidelines for living rather the individuals are responsible for exploring and determining for themselves what they want to do and become in life. The trend led to erosion of values as bribery, corruption, lack of transparency, indiscipline, wasteful spendings etc became rampant. Changing Demands of the Employers, the organization must embark on changes in its internal environment as well as technological innovations. The foregoing factors no doubt have serious effect or repercussion for HR management and planning in the organization as manpower contraction or expansion becomes imminent.

## **6. CHANGING ROLE OF GOVERNMENT OR STATE IN INDUSTRIAL RELATIONS**

Due to the civil war in West Africa, the government shifted its non-interference posture for more positive roles in industrial relations practice. This is evidenced by its "Interventionist Policy" in industrial relations in what it coined as "Guided Democracy" in Labour matters. The government enacts legislations from time to time as industrial situations may warrant and implements labour standards approved by ILO. The HR practitioners need to keep abreast of labour legislations on continuous basis. Having a Clean "Wage Option" the consolidations of the basic pay with all allowances or fringe benefits. In other words, it is the payment of total package as salary without segmentation or distinction between the salary and the fringe benefits components. This is currently being practiced by many countries in the Third world including Ghana which adopted the option in 1988. In West Africa, the option was adopted by some oil companies including Mobil Producing West Africa in 1997. The option has implications which are mix grill for both the employees and the employers. For the employees, the option will attract high element of taxation because only basic salary which is equivalent to the total package or clean wage will be taxable while the total emolument will increase the terminal benefits and holds more prospects for the retirees. On the other hand, it will translate into higher contributions by the Employer to Staff Pension and Gratuity Schemes as calculation will be based on the clean wage option. Employers needs to exhibit Social Responsibility Since the enterprises operating within some communities have made life unbearable for the populace through water pollution and destruction of other natural resources, the enterprises thus have social responsibility in terms of making contributions to the well-being and development of these communities. e.g Oil companies in West Africa provide social amenities to the host communities to avert crises. Other companies sponsor sporting activities, give scholarships to brilliant and needy students, sponsor or host educational activities etc as contributions to the needy sectors of the economy. This phenomenon which is caused by decline in economic activities brings dramatic changes with decline in industrial production and output coupled with corresponding rise in the rate of unemployment. This trend affects industrial relations institutions and constitutes the main environmental factor affecting collective bargaining process. It also creates room for spate of industrial actions due to manpower contraction caused by capacity under-utilization in industries. The HR managers must modify their responses by aligning with the unions to face these challenges realistically all in a bid to keep the enterprise afloat rather than adopting adversarial approach to labour/management relations.

## **7. PUBLIC SERVICE REFORM BY GOVERNMENT AND CASUALIZATION OF LABOUR ON ECONOMIC RECESSION**

In West Africa, the main thrust of public service reform is to show that government business can be carried out openly, economically and transparently devoid of favouritism and corruptible tendencies. The reform focuses on reforming government institution, implementing social charter, value re-orientation, moral rectitude, respect and due process to guarantee effective and transparent system of economic and financial management of government resources. The foregoing underscores the need to launder the image and future of the public service. HRM managers in the public sector should act as vanguard in bringing back the service to the good old days or past decades when it enjoyed recognition and respect. This is a nonstandard work arrangements caused by the affects of globalization and trade liberalization. This shift from standard to nonstandard work arrangements is as a result of employers orientation to avoid costs associated with the application of the provisions of the labour laws which are designed to protect permanent employees in standard and pensionable employment and also for the purpose of flexibility. The practice gives employers the freedom to 'hire' and 'fire' casual employees at will. The practice has been a source of constant conflict between unions and employers. No legislation in West Africa is supportive of this practice hence HR managers should be bold enough to guide and advise management accordingly. There is also Outsourcing of Services involves employers contracting out some of their non-core or ancillary services. Akin to casualization, this is done to cut costs as it denies employees the right to organise or belong to trade unions. As experience had shown, permanent employees who have stake in the organization show more commitment to their jobs than the contract employees supplied by vendors. HR managers should examine the cost-benefit implications of outsourcing certain services vis-à-vis engaging employees on permanent basis. From the foregoing, it is thus obvious that the environment of HRM has continuously varied and becoming more complex. The trends have made it more imperative for new approach to be evolved in HR planning and management. The approach should integrate HR policies with the strategic objectives of the enterprise in pursuance of its corporate goals.

## **8. THE CHALLENGES OF HUMAN RESOURCE MANAGEMENT IN A GLOBALISED ECONOMY**

The competitive pressures faced by the modern day enterprise for survival and success due to globalization and liberalization will continue to create room for future demand for organisational excellence. The new, global, complex, and often chaotic world of the Multi-national Enterprises requires a new strategic focus and new capabilities from HR just as it does from other management functions (Briscoe et al, 2009). HR practitioner can thrive and be relevant in the global context, new roles and agenda for the profession should not focus on traditional HR activities such as staffing and compensation, but on its outcomes and should not be defined by what it does but what it delivers i.e. results that enrich the organization's value to customers, investors and employees. Note, Human Resources Collaboration With Line Managers is a joint responsibility for all managers within the enterprise i.e both HR or staff and line managers must be involved. HR professionals should become a partner with senior and line managers in strategy execution, helping to move planning from the conference room to the market place( Ulrich, 1998). The HR department in the execution of the corporate plans should give guidance on the ways to carry out the plans by playing the role of an Architect. By so doing, HR department will come up will a comprehensive set of blue prints showing various units or parts and their working/operational relationship. Also same vein, organisational or HR audit will be undertaken and same related to the blue prints. The outcome of the comparison or exercise may show areas that require addition or reduction in manning level as the case may be. It can identify components that need to be changed to facilitate the achievement of goal(s).

The architectural frame work may be defined in terms of work related variables such as leadership culture, governance, management style, competence, motivation, human relations, discipline etc. Having identified the faulty parts, the next step is to embark on replacement of the parts. Note, the need for HR practitioners to contribute their quota to the enterprise in achieving excellence, they need to adopt:

### **8.1. Human Resource Exhibition of Expertise in the Organisation of Work and acts As An Innovative Agent**

As trained administrators, the HR professionals will have to explore and design means of carrying out HR functions in a better, faster and cheaper ways to reduce costs. Beside cost reduction, efficiency and quality have to be maintained in service delivery. HR professionals should become experts in the way work is organised and executed, delivering administrative efficiency to ensure that costs are reduced while quality is maintained (Ulrich 1998). In a nutshell, the HR professionals could streamline the organisation's systems and procedures and deliver flawless administrative services to become a reckonable party in the execution of corporate plans. The HR professionals must work towards initiating change that are focussed on creating high performing teams, reduce cycle time for innovation or implementing new technology. They should ensure that the organisation's broad vision statements get transformed into specific behaviours tailored towards making the vision a reality. As Ulrich (1998) puts it, HR should become an agent of continuous transformation, shaping processes and a culture that together improve an organization's capacity for change. Change can generate resistance in some cases hence the HR managers as an agent of transformation and tactician can by psychological means replace resistance with excitement through the application of change models. The model must identify the key success factors for change and assess the organisation's strengths and weaknesses regarding each factor

### **8.2. Upgrading the Skills of HR Professional and As Vanguard of Employees' Welfare**

The HR professionals will be held accountable for ensuring that employees show commitment and add value to the business of the organization irrespective of attending to their social needs. This goes to underscore the relevance and importance of HR approach which holds that organisational goals and human needs should be mutual and compatible and that one set need not to be gained at the expense of the other. According to Ulrich (1998) HR professionals would become champion of employees, vigorously representing their concerns to senior management and to increase employees' commitment to the organization and their ability to delivery results. Furthermore, HR managers must take responsibility for orientating and training line managers on the importance of building high morale for their employees and to achieve same. In similar vein, the HR managers shall assume the role of spokesmen for personal and professional growth; and provide resources to help employees meet the global and challenging demands put on them by the job. Coping with the global challenges and be relevant in the current century, the quality of HR staff need to be improved. The enterprise need people who know the business, understand the theory and practice of HR. Those who can manage people effectively and make change happen and have personal credibility and integrity. Sometimes such individuals or talents may already exist within the organisation but they must be identified and given additional qualitative training to sharpen their skills. In sum, the HR professionals cannot expand their role in the organisation without the requisite expertise considering the current knowledge-driven operating environment. Knowledge is part of learning process. It is the accumulated experience and actionable information that exists within an organization. It is information or the capacity to take action (Nonaka and Teece, 2001). For HR professionals to be effective partners in executing corporate plans, they must have knowledge about strategy, business policy, markets and the operation of the economy both locally and globally.

They must also be conversant and update themselves continuously on legal and regulatory norms of their home country.

### **8.3. Human Resource Creating Value In The Organization On Business Challenges And Development**

To meet the increased expectations of the organisation, the HR professionals must articulate their role in terms of creating value. They must measure their effectiveness in terms of business competitiveness and success rather than employee comfort or satisfaction. They must lead cultural transformation rather than consolidate same in order to turn the enterprise around. In support of the foregoing, Brewster (2005) asserts that in increasing flexibility, firms also want to change the nature of employee identification and their sense of involvement and this change identity knows few national borders. On development, enterprise now faces business challenges which require the organisation to build new capabilities. This innovation has created opportunity for the HR professionals to play leadership role in assisting the organisation to meet the competitive challenges. With the rapid expansion of the global markets as earlier stated, the HR professionals must think globally and transform same to meet local needs. They must be more literate in the ways international customers are handling commerce and competition than ever before. Globalization and Internationalization has given rising concern for processes and competencies, more emphasis on customer/client satisfaction, increased education and enlightenment of workers amongst others.

### **8.4. The Challenge Of Privatization And Liberalization And The Diversity Of Workforce**

The privatization of government companies involves the divestment of public holdings in these enterprises for the benefit of single or multiple private shareholders or owners. The exercise will usher in a lot of changes within the privatized organization and the HR professionals must brace up to the challenges posed by the exercise as it relates to HR planning and management. The concept focuses on the attachment of value to individual differences in the workplace which is made up of heterogeneous groups. The HR practitioner must ensure that no group of members has advantage or disadvantage over the other in the workplace. Besides he/she must also ensure that the productivity, creativity and commitment of the workforce are maximized while meeting the needs of their diverse interests. Akin to the foregoing, it is an incontestable fact that deregulation or liberalization encourages the use of automation all in support of globalization. Labour unions must realize that the current transformation process will obviously change the economics and politics of organizations. Therefore, education, training and retraining of its rank and file members in the organization should be seen as an important vehicle and given priority in building the required human capital. The unions must strive to build capacity with qualitative technical knowledge and competence to match the sophistication on the management's side (Anyim, 2011). The HR professionals must assist the union to elicit management support for capacity building as enlightened workforce helps in reducing conflict in labour/management relations.

### **8.5. HR and Political Process and the Multi-Skilling Process Effect of Information Technology In Workplaces**

With the democratic changes occurring all the world over, the populace in which the work community is inclusive must internalize democracy and discharge their civic duties to the country. The HR professional must through the process of socialization assist the political authority or the government in promoting democratic ideals to enhance stability and progress of the nation. It is obvious that a country in crisis will face a decline in economic activities and this would in turn affect the operations of corporate entities. The HR professionals owe it a duty to contribute towards political stability due to its favourable consequences for organizational

progress and prosperity. The pace of change in the HR environment in this era of globalization will require the HR professionals to be multi-skilled. They must devote more attention to core strategic issues in HR management and be facilitator or change initiators and internal consultant to the organization. The process of multi-skilling endows the HR professionals to function in other capacities and also affords them the opportunity to appreciate the job schedule of line Managers. Information technology has made the world smaller and faster through internet. Ideas and large amount of information now move freely and constantly. The challenge for the HR Managers is to make good use of what information technology offers and to make it to be a viable productive part of work setting and tool. New information technology has opened up possibility of greater strategic control in companies. The possibilities from such technological innovations will provide continued strategic opportunities for companies (Lynch, 2006).

## **9. HUMAN RESOURCE REPUTATION MANAGEMENT AND CORPORATE ETHICS**

Reputation management relates to stakeholders' view or the impression they hold about the operational conduct or integrity of an organization. Top management and the HR practitioners currently pay high-level attention to reputation management and ethics (Schultz, et al., 2003). Due to cases of corruption scandals and other vices in organizations, the HR practitioners should take the responsibility of facilitating the training of employees in sustaining and protecting their organization's reputation. Besides, HR professionals could monitor reputation and ethics in the organization and this would assist management to assess its reputation management efforts

## **10. CONCLUSION**

Following the challenges posed by globalization, it is hoped that the HR professionals will not only destroy the stereotype routine methods of doing job but would launch HR full potentials for more positive contributions to employees' well being and organization building.

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## **SUSTAINABILITY AND PROFITABILITY CAN COEXIST - IMPROVING BUSINESS MODELS**

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### **ABSTRACT**

*Profitability and sustainability at business level represent two major objectives that have to be integrated into company's strategy. They are not antagonistic concepts; they can work together in order to develop and improve business models. A company does not shift her status overnight. The aim of the paper is to analyze the most commonly used business models, on one hand, and to identify some ways for improvement, by considering synergistic approach of profitability and sustainability, on the other hand. Extended literature indicates the necessity of reshaping business models. In many cases, companies can combine different, but converged, business models simultaneously, or can consider business model portfolio. In short, business model is about putting strategy into action. Concepts like corporate social responsibility or sustainability are more and more present into the companies' day by day activities. That does not mean that profitability is passed to second place; it's first place is generally accepted and assumed. However, by putting together, profitability and sustainability can drive to a long-term sustainable competitive advantage. In order to sustain and demonstrate that profitability and sustainability can coexist, some correlation analysis was conducted, by including companies from different industries, based on: 2017 Annual Corporate Sustainability Assessment developed by RobecoSAM AG (which include 60 industries and 2479 companies); Dow Jones Sustainability Index and ESG Score (Environment, Social and Governance); data collected from balance sheet, income statement and Bloomberg; Fortune Global 500. The results of the paper reveal that there is a correlation between the most profitable companies in the world and the most sustainable one, but the achieved results of each company are based on different business models.*

**Keywords:** *profitability, sustainability, business models innovation, sharing economy*

### **1. INTRODUCTION**

More and more companies have to adapt their business models to the new challenges. In the last two decades the business environment has generated new characteristics/dimensions for business models in order to keep up with the newly concepts like ambidexterity, resilience or sustainability. Some advocate that traditional business models must be improved or replaced for facing the reality and to survive. This study was designed to examine if sustainability and profitability can coexist at the firm level. More, considering state of art in the field of business models, during the last 20 years, the business models were reinvented based on the challenges generated by the international business environment. The main research question of the paper can be easily identified from the title. The paper is structured into three parts: the conceptual framework part by considering state of art in the field of business models, sustainability and profitability; the data and results section that first describes the sample and the variables, and second presents the findings of the research; the conclusion part by summarizing the answer to the research question.

### **2. CONCEPTUAL FRAMEWORK**

In 1962, in his book *Capitalism and Freedom*, Friedman (1962, 1970) stated: "there is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages



in open and free competition without deception or fraud". Nevertheless, over the past decades, sustainability and profitability were the promoters (or enhancers) of a new paradigm for corporate governance. Many authors have argued that, at the company level, sustainability and profitability need to be balanced (Hawkings, 2006; Bryson and Lombardi, 2009). A number of companies have integrated sustainability into their corporate identities (Sneirson, 2008). Bryson and Lombardi (2006) have used the term distinctiveness when companies are incorporating sustainability: "this incorporation requires the development of a framework for balancing sustainability and related value systems against more mainstream concerns with maximizing profitability...New firms or business models emerge when entrepreneurs discover new routines and competencies or combine old ones in new and innovative ways". Others are moving forward and highlighted that companies have a wider responsibility that goes beyond profit maximization (Hahn and Figge, 2011) and that there is a significant positive relationship between sustainability and firm performance – in terms of profitability (Bodhanwala and Bodhanwala, 2018). Under these circumstances, new business models have been developed by putting together sustainability and profitability. First, we have to identify the key elements of a business model. According to Hamel (2000), a business model is the company's way of doing business and comprises four major components: core strategy; strategic resources; customer interface; value network. These major components are linked by three bridge components: configuration; customer benefits; company boundaries and are based on four factors that determined its wealth potential: efficiency; uniqueness; fit and profit booster. Also, Sabatier, Mangematin and Rouselle (2010) considered that a business model is a bridge between business strategy and core competences, on one hand, and a practical tool for manager, on the other. In a study conducted by IBM and presented by Giesen, Riddleberger, Christner and Bell (2010), researchers have identified three A's for the successful design and execution of business-model innovation: aligned, analytical and adaptable. The importance of business models and business models innovation has been emphasized in the literature by some journals special issues such as Long Range Planning (2010, 2013, 2016), Organization & Environment (2016). Wirtz, Pistoia, Ullrich and Göttel (2016) have aggregated important areas of research on business models (concept/terminology, business model structure, business model management process), while Schaltegger, Hansen and Lüdeke-Freund (2016) have tried to get some answers to few fundamental questions. "How can theories on the organizational level (dynamic capabilities, ambidextrous organization and disruptive innovation), on the individual level (responsible leadership and entrepreneurship) or on both levels (structuration theory, organizational learning, organizational change, and organizational culture) explain the transformation of business models of established firms?" Voelpel, Leibold and Tekie (2004), propose a wheel of business model reinvention by considering customers, technology, business system infrastructure and economics/profitability as four major components that influence each other.

*Figure following on the next page*

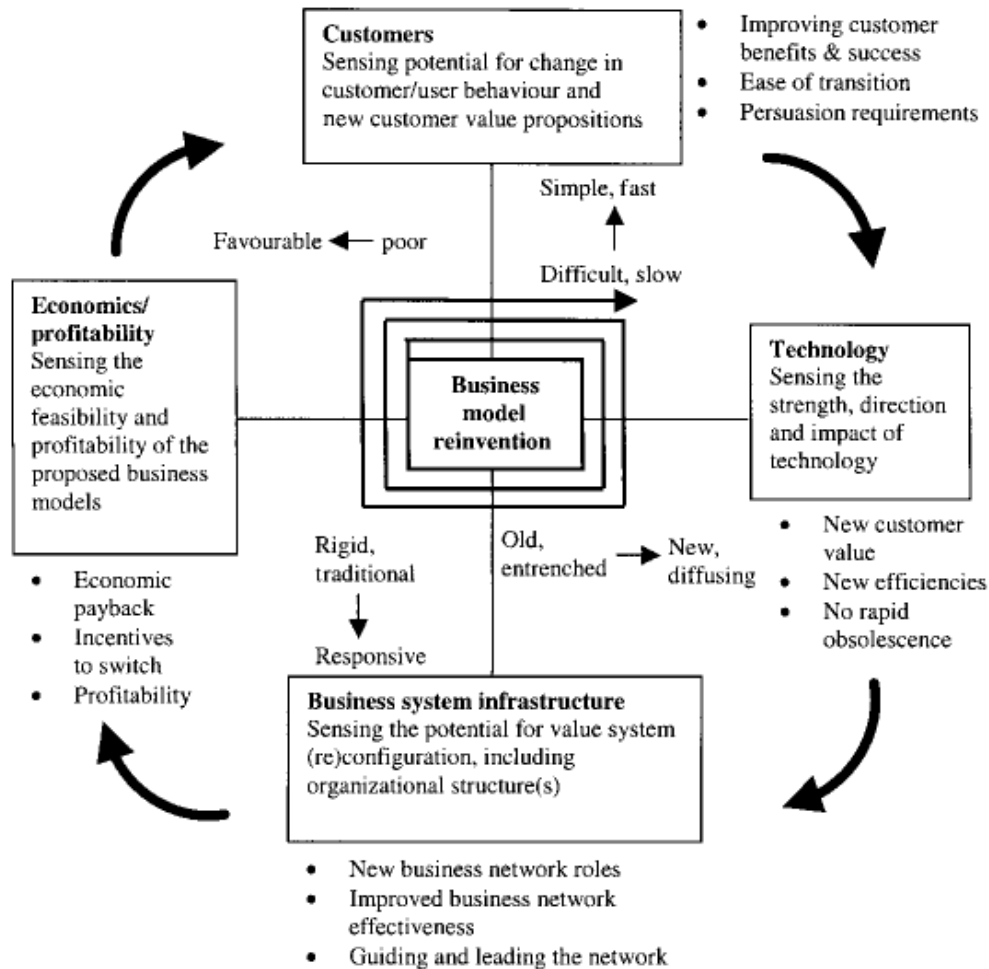


Figure 1: Wheel of business model reinvention  
 (Voelpel, Leibold and Tekie, 2004)

In an article published into Journal of Management, Foss (2017) provides a review about fifteen years of research and researchers in the field of business model innovation. Relying on these researches, he proposes a research model for future business model innovation. The model integrate antecedents (external and internal factors), moderators (all the three level micro, firm and macro) and outcomes (financial performance, innovativeness, cost reduction) into the business innovative model in order to highlight novelty and scope. Until recently, the business model research does not integrate sustainability into the business model thinking (Pedersen, Gwozdz, Hvass, 2018). As Abdelkafi and Täuscher (2016) stated, “to achieve sustainability, a firm has to transform its entire business logic. A business model for sustainability aims creating value for various stakeholders and the natural environment.” However, since 2001, Epstein raises a main question: “How to manage the paradox of simultaneously improving social, environmental and financial performance, the three elements that make sustainable performance?” For answering to the question, Epstein (2001) proposed a Corporate Sustainability Model that includes inputs, processes, outputs, and outcome.

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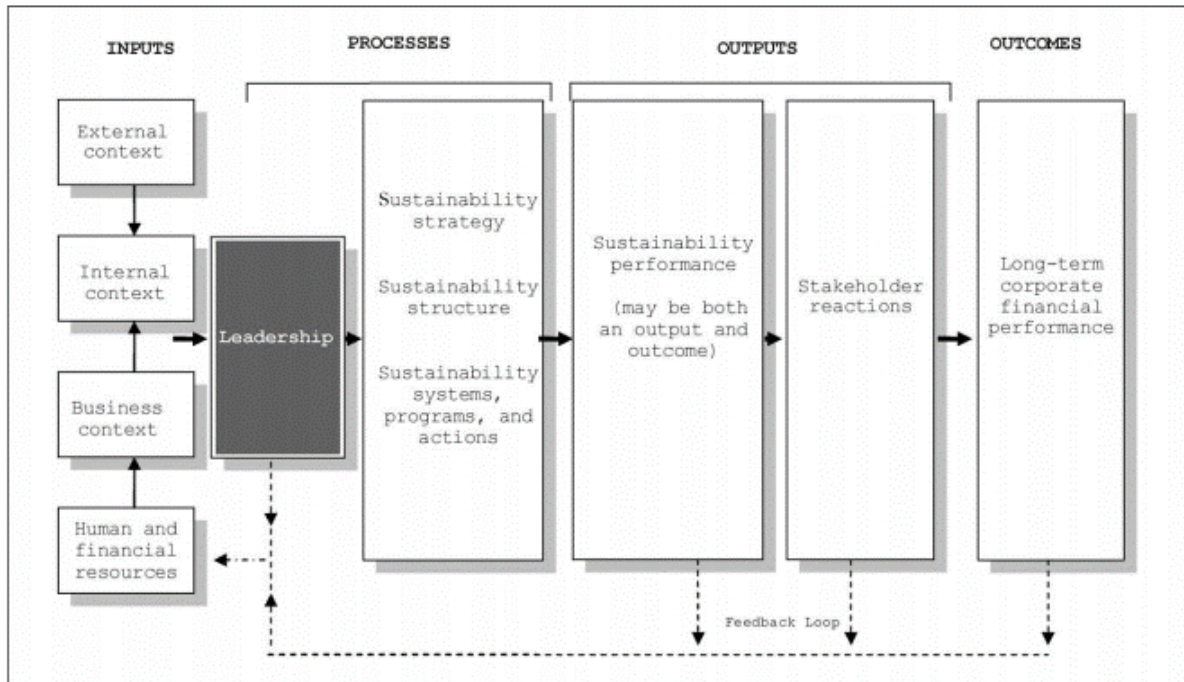


Figure 2: The Epstein Corporate Sustainability Model (Epstein, 2001)

Moreover, in 2008, Stubbs and Cocklin have identified some characteristics of a sustainable business model. They argued that a sustainable business model:

- Draws on Economic, Environmental and Social Aspects of Sustainability in Defining an Organization's Purpose
- Uses a Triple Bottom Line Approach in Measuring Performance
- Considers the Needs of all Stakeholders Rather Than Giving Priority to Shareholders' Expectations
- Treats Nature as a Stakeholder and Promotes Environmental Stewardship
- Encompasses the Systems Perspective As Well As the Firm-Level Perspective

According to Schaltegger, Lüdeke-Freund and Hansen (2012) the term of business model is still developing and the integration of sustainability involves significant conceptual challenge. They have developed a business model (by considering sustainability) based on the classification of business model innovations proposed by Mitchell and Coles (2003):

1. "Business model adjustment – similar with improvement stage – refers to changes of only one (or a minor number of) business model element(s);
2. Business model adoption – similar with catch-up stage - refers to changes that mainly focus on matching competitors' value propositions;
3. Business model improvement – similar with replacement stage – when substantial parts of the business model elements are changed;
4. Business model redesign – similar with actual innovation - when an improvement leads to a completely new value proposition".

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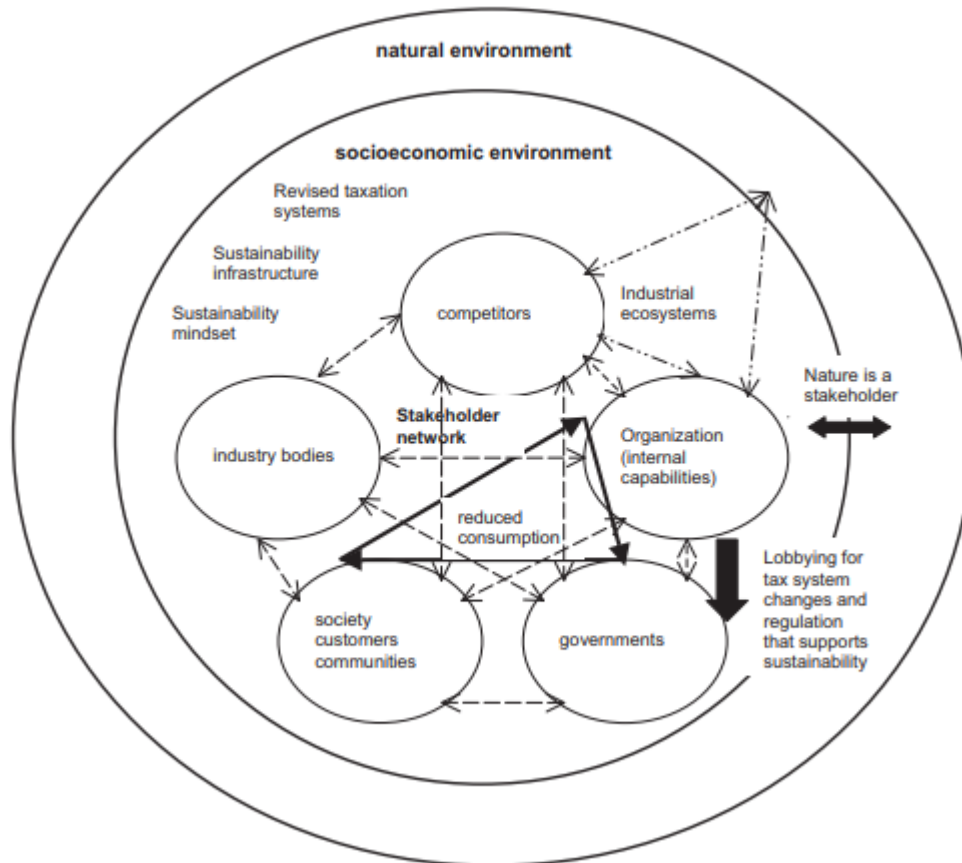


Figure 3: Sustainable business model (Stubbs and Cocklin, 2008)

Considering all the above mentioned, the research question is if sustainability and profitability can coexist? If so, there is a direct correlation between them as Pederson, Gwozdz and Hvass (2018) stated, “Companies demonstrating high levels of business model innovation will also demonstrate high levels of corporate sustainability.... Both business model innovation and corporate sustainability were expected to be related to financial performance”?

### 3. DATA AND RESULTS

The purpose of the paper is to analyze if sustainability and profitability can coexist at the firm level. The samples used are companies that are ranked into: Fortune Global 500 (US based companies): The World’s largest companies by revenues; Yahoo Finance and Fortune have been accessed in order to collect data for variables. In order to answer to the research question we appeal to variables like net income, total assets, shareholders` equity (considering FY2017) for calculating return on assets (ROA) and return on equity (ROE) as the expression of profitability, and Environmental, Social and Governance score (ESG), developed by MSCI, for sustainability. Sustainability ESG Rating measure how well companies proactively manage the environment, social and governance issues that are most material to their business (MSCI Inc, 2018). We have selected 94 companies that meet all the requirements and have registered valid values for the analyzed variables.

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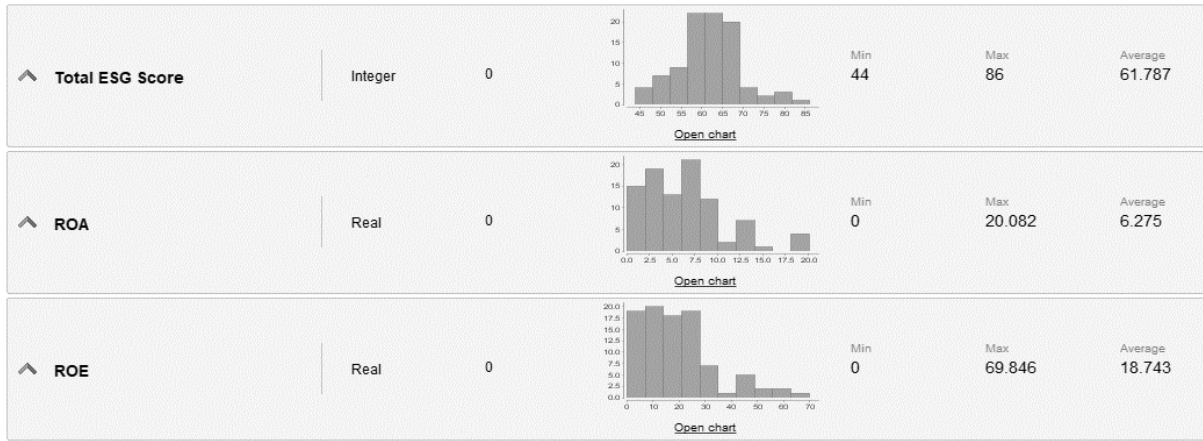


Figure 4: Descriptive statistic for analyzed variables (author computation – RapidMiner)

From the 94 analyzed companies we selected the best/weak performers in terms of ROA, ROE and ESG.

Table 1: The Best/Weak Performers

<b>Best performers</b>		
<b>ROA &gt; 10%</b>	<b>ROE &gt; 30%</b>	<b>ESG Score &gt; 70</b>
Starbucks	Verizon	Intel
Facebook	Rite Aid	Hewlett Packard
TJX	Lowe's	Cisco Systems
Union Pacific	Starbucks	Dell Technologies
McDonald's	TJX	IBM
Philip Morris International	American Airlines Group	Microsoft
Apple	Sysco	Johnson Controls
3M	PepsiCo	Qualcomm
Procter & Gamble	Union Pacific	Exelon
Pfizer	3M	Johnson & Johnson
Dollar General	Apple	
Comcast	Comcast	
Verizon	International Paper	
Rite Aid	IBM	
<b>Weak Performers</b>		
<b>ROA = 0</b>	<b>ROE = 0</b>	<b>ESG Score &lt; 50</b>
Dell Technologies	Philip Morris International	Tyson Foods
ConocoPhillips	Hewlett Packard	Rite Aid
General Electric	HCA Holdings	Twenty-First Century Fox
Schlumberger	Lockheed Martin	Dollar General
General Motors	Energy Transfer Equity	Amazon.com
Halliburton	Dell Technologies	Centene
	ConocoPhillips	Energy Transfer Equity
	General Electric	
	Schlumberger	
	General Motors	
	Halliburton	

By analyzing The Best/Weak Performers, it can be observed that only IBM manage to obtain a ROE higher than 30% and an ESG score higher than 70. Even if Dell Technologies has registered a high level of ESG score, the company was not profitable in FY2017. Based on that, some clusters could be identified, considering average and distance between companies registered variables. In Cluster 0 are placed 20 companies that achieved an ESC Score higher than average with 53.48%, but with lower average levels for ROA and ROE. In Cluster 1 are placed 58 companies (more than 50% form analyzed companies) that have smaller results against average for all three analyzed variables. The last cluster, Cluster 2, is reserved to the best performers; 16 companies have registered 2 times higher than average ROA and ROE.

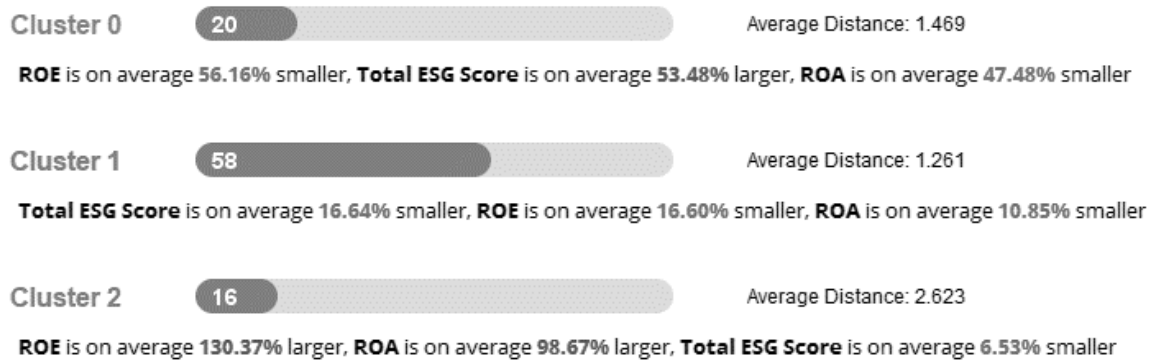


Figure 5: K-Means Summary – Cluster Analysis (author computation - RapidMiner)

In addition, we have conducted a K-Means Cluster Tree analysis and a K-Means Scatter Plot in order to emphasize once more the interrelation between ROA, ROE and ESG.

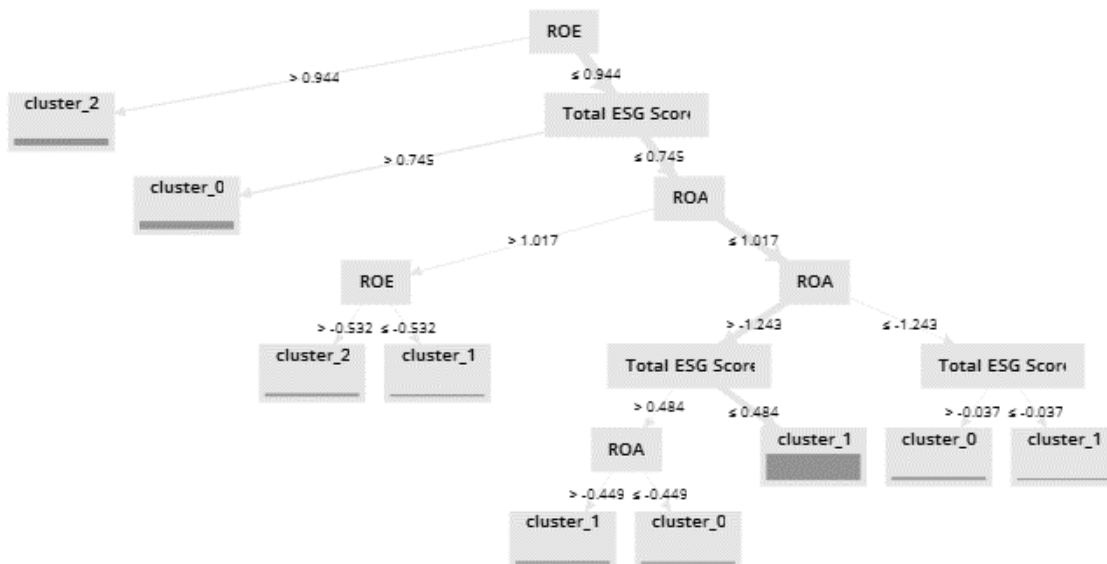


Figure 6: K-Means Cluster Tree

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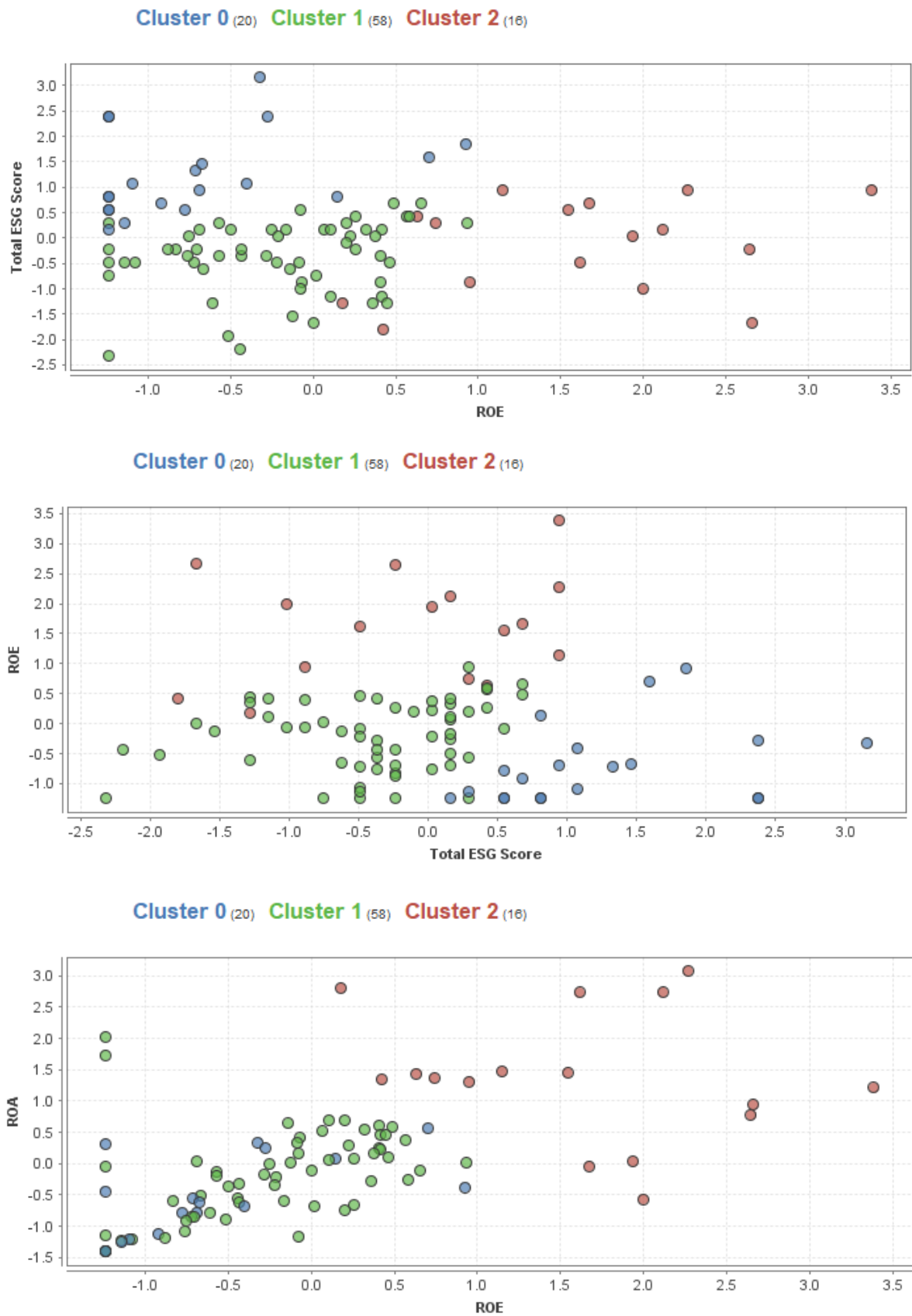


Figure 7: K-Means Scatter Plot

Our analysis shows that there is not a direct correlation between profitability and sustainability; the most profitable companies are not the most sustainable one, which can mean that if companies are interested on all stakeholders' a part of the profit is reinvested in order to meet their expectations. In this case, coexistence between sustainability and profitability can be a zero sum game. On the other hand, it is very important to go deep with the analysis to find out if companies with lower levels of ROA and ROE than average are on an ascending or descending slope. Business Models used by the analyzed companies are very diverse: from Disintermediation, Razor/blades, Low-touch to Negative operating cycle, Pay as you go, Reserve auction.

Table 2: Business model (Johnson, 2010)

<b>Business model</b>	<b>How it works</b>
<i>Affinity club</i>	Pay royalties to some large organization for the right to sell your product exclusively to their customers
<i>Brokerage</i>	Bringing together buyers and sellers, charging a fee per transaction to one or another party
<i>Bundling</i>	Package related goods and services together
<i>Cell phone</i>	Charge different rates for discrete levels of a service
<i>Crowdsourcing</i>	Get a large group of people to contribute content for free in exchange for access to other people's content
<i>Disintermediation</i>	Sell direct, sidestepping traditional middlemen
<i>Fractionalization</i>	Sell partial use of something
<i>Freemium</i>	Offer basic services for free, charge for premium services
<i>Leasing</i>	Rent, rather than sell, high-margin, high-priced products
<i>Low-touch</i>	Lower price for decreasing services
<i>Negative operating cycle</i>	Lower price by receiving payment before delivering the offering
<i>Pay as you go</i>	Charge for actual, metered usage
<i>Razor/blades</i>	Offer the high-margin razor below cost to increase volume sales of the low-margin razor blades
<i>Reverse razor/blades</i>	Offer the low-margin item below cost to encourage volume sales of the high-margin companion product
<i>Reverse auction</i>	Set a ceiling price and have participants bid as the price drops
<i>Product to service</i>	Rather than sell the product, sell the service the product performs
<i>Standardization</i>	Standardize a previously personalized service to lower costs
<i>Subscription</i>	Charge a subscription fee to gain access to a service
<i>User communities</i>	Grant member access to a network, charging both membership fees and advertising

Beside presentation made by Johnson (2010), there are many other business models, such as Peer-to-peer, Shared profit, Shared expertise, Bait and Hook, Money pool, Crowd-based model and so on.



#### 4. CONCLUSION

Focusing on sustainability and profitability at the firm level, the present paper has presented some business models characteristics based on extended literature that indicates the necessity of reshaping them. The analyzed variables like ROA, ROE and ESG score have divided the companies into 3 clusters. First one includes 20 companies that achieved an ESC Score higher than average with 53.48%, but with lower average levels for ROA and ROE (Intel, IBM, Dell, Microsoft). In the second cluster are placed 58 companies (more than 50% form analyzed companies) that have smaller results against average for all three analyzed variables (Alphabet, Amazon, Coca-Cola). The last cluster is reserved to the best performers; 16 companies have registered 2 times higher than average ROA and ROE (Apple, 3M, Starbucks, Verizon). The results of the paper reveal that there is a correlation between the profitable and sustainable one, but the achieved results of each company are based on different business models, different investment and different stakeholders approach. By considering sustainability, there are room for new business models. The concepts like sharing economy, collaborative consumption, peer economy will create many opportunities for businesses to develop and to combine synergistically sustainability and profitability (Sundararajan, 2013, Cannon and Summers, 2014; Cohen and Kitzmann, 2014, Belk, 2014). It is self-evident that "every aspect of the growing sharing economy business models has been affected by the growing technology importance" (Daunoriene et al., 2015). The sharing economy has the potential to increase social welfare (Zervas, Proserpio and Byers, 2017) and for business to regain the customers trust – the currency of the new economy as Botsman (2012) stated. As never before, the assertion "You are what you can access" (Belk, 2014) must be considered or reconsidered when a business model is designed or reinvented. According to Johnson (2010), the business model innovation is a repeatable process that includes designing a new business model; implementing the model, overcoming incumbent challenges.

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### **APPENDIX**

<b>Companies</b>	<b>Total ESG Score</b>	<b>ROA%</b>	<b>ROE%</b>
Intel	86,00	7,79	13,91
Hewlett Packard	80,00	7,67	0,00
Cisco Systems	80,00	7,40	14,53
Dell Technologies	80,00	0,00	0,00
IBM	76,00	4,59	32,70
Microsoft	74,00	8,80	29,29
Johnson Controls	73,00	3,51	8,51
Qualcomm	72,00	3,77	8,02
Exelon	70,00	3,23	12,63
Johnson & Johnson	70,00	0,83	2,16
Starbucks	69,00	20,08	52,94
Apple	69,00	12,88	36,07
Verizon	69,00	11,71	69,85
Oracle	69,00	2,79	8,37
AT&T	68,00	6,63	20,91
Lockheed Martin	68,00	4,30	0,00
ConocoPhillips	68,00	0,00	0,00
Best Buy	67,00	8,86	26,08
PepsiCo	67,00	6,09	43,97
Northrop Grumman	67,00	5,77	28,59
Alcoa	67,00	1,24	4,80
3M	66,00	12,79	42,01
CVS Health	66,00	6,96	17,57
Merck	66,00	2,75	6,99
General Electric	66,00	0,00	0,00
Schlumberger	66,00	0,00	0,00
Procter & Gamble	65,00	12,73	28,29
Macy's	65,00	7,98	27,27
Kroger	65,00	5,13	27,51
Deere	65,00	3,28	22,59

Philip Morris International	64,00	14,05	0,00
Pfizer	64,00	12,40	29,89
Disney	64,00	9,37	21,74
International Paper	64,00	6,32	32,87
Exxon Mobil	64,00	5,65	10,13
Abbott Laboratories	64,00	0,63	1,54
TJX	63,00	18,55	50,66
FedEx	63,00	8,74	23,55
Nike	63,00	8,58	19,70
Target	63,00	7,31	24,99
Raytheon	63,00	6,56	20,32
Alphabet	63,00	6,42	8,30
Walgreens Boots Alliance	63,00	6,21	14,93
Mondelez International	63,00	4,63	11,19
Cigna	63,00	3,62	16,29
General Motors	63,00	0,00	0,00
UnitedHealth Group	62,00	7,59	22,10
Marathon Petroleum	62,00	7,00	24,46
Sysco	62,00	6,43	47,96
Tesoro (Andeavor)	62,00	5,35	15,57
Duke Energy	62,00	2,22	7,33
Ford Motor	61,00	2,95	21,79
Lowe's	60,00	9,77	58,69
Gilead Sciences	60,00	6,58	22,57
Chevron	60,00	3,62	6,21
Aetna	60,00	3,45	12,22
Arrow Electronics	60,00	2,44	8,12
Caterpillar	60,00	0,98	5,50
Halliburton	60,00	0,00	0,00
Humana	59,00	9,01	24,87
Anthem	59,00	5,45	14,50
Avnet	59,00	5,41	10,13
Walmart	59,00	4,82	12,20
Coca-Cola	59,00	1,42	7,31
Union Pacific	58,00	18,53	43,10
McDonald's	58,00	15,36	0,00
Emerson Electric	58,00	7,75	17,41
Delta Air Lines	58,00	6,71	25,72
United Technologies	58,00	4,70	15,37
Amgen	58,00	2,48	7,84
Bunge	58,00	0,85	2,48
DowDuPont	58,00	0,76	1,46
Kraft Heinz	57,00	9,15	16,66
Archer Daniels Midland	57,00	3,99	8,71
HCA Holdings	56,00	6,06	0,00
Cardinal Health	56,00	3,23	19,01

Comcast	55,00	12,15	33,11
Valero Energy	55,00	8,10	17,75
Costco	55,00	7,37	24,86
American Airlines Group	54,00	3,73	48,88
AmerisourceBergen	54,00	1,03	17,64
Phillips 66	53,00	9,39	20,35
Express Scripts Holding	53,00	8,35	25,01
Facebook	52,00	18,85	21,43
General Dynamics	52,00	8,31	25,47
United Continental Holdings	52,00	5,03	24,20
Honeywell International	52,00	2,79	9,58
Tyson Foods	50,00	6,32	16,83
Rite Aid	49,00	10,49	58,90
Twenty-First Century Fox	49,00	5,82	18,78
Dollar General	48,00	12,30	25,12
Amazon.com	47,00	2,31	10,95
Centene	45,00	3,79	12,09
Energy Transfer Equity	44,00	1,10	0,00

*Source: Yahoo Finance, Fiscal Year 2017 and author calculations based on balance sheet and income statement.*

## **LIFE CYCLE ASSESSMENT IN MAIZE CROPS IN MEXICO**

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### **ABSTRACT**

*Agricultural activity has been identified as causing environmental impacts, responsible for numerous types of pollution that effect water, soil, air and human health. However, changes in agricultural models would allow agriculture to reduce its emissions. To analyze the environmental impacts caused by maize production, a life cycle assessment was carried out with the objective of quantifying the impacts and identifying critical points. Also obtain useful information for decision makers and researchers to generate improvement options. Four maize crops were evaluated: rojo, lomas, zanahoria and negro with conventional monoculture management in the municipality of Toluca, Mexico. The evaluation was carried out at the midpoint with a life cycle assessment (LCA) with the OpenLCA software. The main results show us that the variety lomas presents the lowest impacts in all categories and the variety of maize zanahoria is responsible for the greatest impacts in 11 of the categories evaluated.*

**Keywords:** *evaluation, midpoints, monoculture, environmental impacts*

### **1. INTRODUCTION**

Agriculture is one of the most important economic activities in the world since, we depend on it for the production of crops, for food. Agriculture has been signaled by the Intergovernmental Panel on Climate Change as a source of greenhouse gases (GHG), it is estimated that it is

responsible for 14% of these global emissions (IPCC, 2013), generated mainly by the application of synthetic fertilizers, representing 13% of emissions in agriculture (FAO, 2014). However, authors such as (Liu et al., 2015) mention that a change in the model would allow agriculture to go beyond producing CO<sup>2</sup> to be a carbon fixer, favoring the reduction of emissions. To implement new models it is necessary to evaluate the systems, identify critical points and propose alternatives for improvement, with a technique that allows determine the environmental aspects and impacts associated with a product or system. In the particulate case of LCA considered as an environmental tool that provides a better understanding of the dimensions of the environmental profile differentiated by impact categories throughout the life cycle of an agricultural system (AIMME, 2008). This analysis includes the environmental effects derived from the consumption of raw materials and energy, emissions and waste generated in the production process, as well as the environmental effects coming from the end of life of the product when it is consumed or can not be used. The objective of this evaluation was to identify the potential impacts using the inventory results, associating them with specific categories of environmental impact and indicators. The evaluation includes the mandatory stages of selection, classification and characterization of the impacts as it is established in the ISO 14000 standard.

## **2. METODOLOGY**

The aim of this evaluation was to identify the potential impacts using the inventor results, associating them with specific categories of environmental impact and with the indicators. The evaluation I include the obligatory stages of selection, classification and characterization of the impacts since it is established in the ISO norm 14000.

### **2.1. Goal and scope definition**

The aim of the study was to evaluate the environmental impacts of four maize varieties native to a conventional maize production system in Mexico, using the LCA methodology and identify the environmental burdens of the corn production system. The productive study considered the activities carried out in the field, excluding the extraction of raw materials for the production of inputs and post harvest management. The function of the system is to produce maize grains, harvested during a temporary agricultural cycle, so for this study the production of one ton of maize grain was considered as a functional unit. The scope of this evaluation was "gate to gate" (Figure 1), which means that the evaluation of the system only considered the administration of the plot, the production of maize from sowing until the harvest of the grain.

*Figure following on the next page*

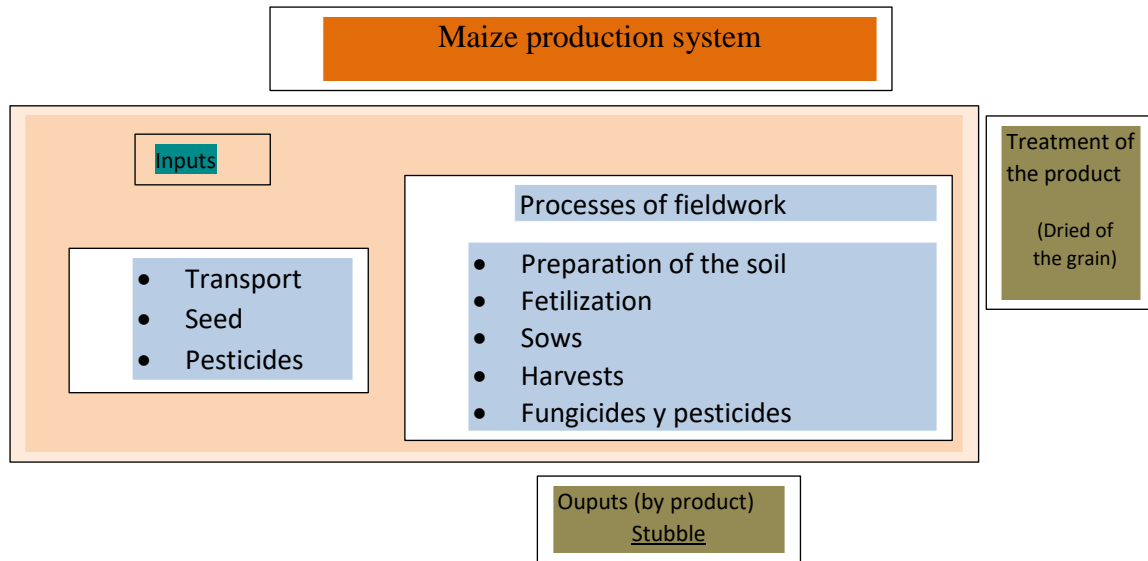


Figure 1: Limits of the system (production of maize).

### 2.1.1. System description

The maize production system is located within the “El Cerrillo” Academic Unit belonging to the Autonomous University of the State of Mexico: located in the municipality of Toluca, at the geographic coordinates of 18°59' and 19°29' north latitude, 99°32'y 99°47' length west; altitude between 2 400 and 4 700 msnm, it comprises a territorial extension of 452.37 km<sup>2</sup>, its climate is temperate sub humid with rains in summer, the annual average precipitation varies from 1,000-1,200 mm, the frosts are from 80 to 140 days in the cold season, the average annual temperature is 13.7°C (IPOMEX, 2009). The maize crops were established in the month of May on the 2017. Seeds of four varieties of native maize were planted: lomas, zanahoria, negro y rojo, these varieties were obtained from local producers, which select seeds of your previous crop in order to assure the sowing of next year, in occasions are obtained of the exchange between (among) acquaintances and relatives or of local markets. The cultural labors consist of the preparation of the land before the sowing. Labors realized with plough with a depth from 30 to 40 centimeters looking that the areas remain free of remains of plants (stubble) and that the soil remains spongy in the superficial cap where one is going to develop the seed. A labor of plow that allows to integrate with machinery the rest of vegetal material remaining of the previous cycle as organic matter, occurs two weeks after having removed the harvest and the vegetal material, or the month of January, more plowing is done to loosen the soil and allow water retention without swamping and one more 15 days before sowing. During the month of May after the first seasonal rain, the seeding the crops begins, taking advantage of the rainy season that begins in the month of May and ends in November. Once the soil is prepared and the beginning of the rainy season, the seed is deposited on the ground with precision planter at a distance of 10 centimeters between plant and plant and 80 centimeters between rows, the first chemical fertilization is carried out simultaneously with 250 kg of potassium chloride mixture and triple superphosphate calcium. A weeding is done 15 days after planting in order to provide the growing plant with soil and remove weeds that are already developing in the crop. Weed control was carried out two weeks later with the application of herbicides: atrazine and prosulfuron with manual spray backpack and the second fertilization with 150 kg of UREA. The final stage of the process included the manual harvesting of the maize cobs when the plant reached 90-95% of maturity by the month of December.



## 2.2. Inventor analysis

For the construction of the cycle inventory (ICV), information was collected directly from the field of system administrators, as well as data of the record that was taken of each activity during the process: fallow, weeding, sowing, application of agrochemicals, applied amounts and consumption of diesel for work with machinery, these data are part of the Life Cycle Inventory (LCI). Maize production comprised six subphases: soil preparation, sowing, fertilization, application of herbicides, fungicides and harvest. Emissions from diesel consumption during the early stages, they are calculated from the data collected during field monitoring. The carbon dioxide emissions were estimated taking as an emission factor  $2.56\text{kgCO}_2/\text{L}$  diesel and the distances traveled to transport the inputs to the crops. In the preparation phase of the soil, a subsoil was made (deep land with machinery) and two fallows (mechanical surface turning of the soil to break up lumps). During the seeding was carried out a fallow and the furrow of the field. In this stage, the first fertilization with mixture of triple superphosphate and potassium was carried out simultaneously and at 30 cm of plant growth the second fertilization was applied UREA. For the control of broadleaf weeds, primagram (atrazine) and peak (prosulfuron) were applied with a spray backpack 25 days after the second fertilization. The final stage of the process included the harvest of maize cobs that was carried out manually. Table 1 contains the inventory data that was used for the determination of LCA. In the table the same agricultural management is observed for all varieties (cultural labors), this is because the crops are conventional monocultures and the only difference is the quantities of inputs, this is mainly due to the fact that these amounts are calculated taking into account the functional unit (production of the one ton of maize grain) and the yields of each variety.

*Table following on the next page*

*Table 1: Inventory of maize grain production cycle*

Maize production cycle		Rojo	Lomas	Zanahoria	Negro	Avg	sd
Culture management		Monoculture	Monoculture	Monoculture	Monoculture		
Use to soil ( m <sup>2</sup> )		10000	10000	10000	10000	10000	0
Yield (Ton/Hectare)		10.88	11.95	6.51	8.2	9.39	2.48
Phase/Activity							
Fallow	Machined	3	3	3	3	3.00	0.00
Subsoil	Machined	1	1	1	1	1.00	0.00
Furrowed (Sowing)	Machined	1	1	1	1	1.00	0.00
Hoeing	Machined	1	1	1	1	1.00	0.00
Harvest	Manual	1	1	1	1	1.00	0.00
Fertilization	Manual	2	2	2	2	2.00	0.00
Control of undergrowths	Manual	1	1	1	1	1.00	0.00
# Activities/cycle		10	10	10	10	10.00	0.00
Fertilization							
Type of fertilizer		Application /Ton					
UREA (Nitrogen)		13.78	12.54	23.01	18.29	16.91	4.76
Chloride potassium		9.18	8.36	15.34	12.19	11.27	3.18
Triple superphosphate calcium		13.78	12.54	23.01	18.29	16.91	4.76
Control of plagues, undergrowths and diseases							
Undergrowths		Application/ Ton					
Primagram Gold		0.73	0.66	1.22	0.97	0.90	0.25
Peak (Prosulfuron)		0.05	0.05	0.09	0.07	0.07	0.02
Fuels							
Consumption of diesel (L) /phase		Consumption diesel (L) / Ton					
Fallow		5.51	5.01	9.2	7.31	6.76	1.90
Subsoil		1.83	1.67	3.06	2.43	2.25	0.63
Furrowed (Sowing)		1.83	1.67	3.06	2.43	2.25	0.63
Hoeing		1.83	1.67	3.06	2.43	2.25	0.63
Consumption to diesel/activities		11.02	10.03	18.41	14.63	13.52	3.81
Consumption to diesel/transport		0.01	0.01	0.02	0.04	0.02	0.01
Outputs (Emissions)/Air							
Carbon dioxide CO <sup>2</sup> eq		28.22	25.7	47.13	37.46	34.63	9.75

*Avg= average*  
*Sd= standard deviation*

### 2.3. Impact assessment of the life cycle

The LCA analysis was carried out using OpenLCA 1.7, which incorporates the common life cycle inventory data sets (ICV), including ReCiPe, 2008. The evaluation comprises the midpoint approach that, is aimed at identifying problems and translates the impacts on environmental issues, such as climate change and human toxicity. At midpoint level, ReCiPe uses the following 18 impact categories,: climate change (CC), kg CO<sub>2</sub> to air; ozone depletion (OD), kg chlorofluorocarbon (CFC-11) to air; terrestrial acidification (TA), kg SO<sub>2</sub> to air; freshwater eutrophication (FE), kg P to freshwater; marine eutrophication (ME), kg N to freshwater; human toxicity (HT), kg 1,4 dichlorobenzene (14DCB) to urban air; photochemical oxidant formation (POF), kg non-methane volatile organic carbon compounds (MVOCs) to air; particulate matter formation (PMF), kg PM<sub>10</sub> to air; terrestrial ecotoxicity (TE), kg 14DCB to industrial soil; freshwater ecotoxicity (FEC), kg 14-DCB to freshwater; marine ecotoxicity (MEC), kg 14DCB to marine water; ionizing radiation (IR), kg U235 to air; agricultural land occupation (ALO), m<sup>2</sup> year of agricultural land; urban land occupation (ULO), m<sup>2</sup> year of urban land; natural land transformation (NLT), m<sup>2</sup> of natural land; water depletion (WD), m<sup>3</sup> of water; metal depletion (MD), Kg Fe; and fossil depletion(FD), kg oil.

## 3. RESULTS (INTERPRETATION OF THE IMPACT OF THE LIFE CYCLE)

### 3.1. Midpoint evaluation

This section presents and discusses the main results of the evaluation and compares the potential impacts of the four varieties of maize. Table 1 shows the results at the midpoint level of the life cycle assessment (LCI) that translates the impacts into 18 environmental issues in order to identify the impacts related to the maize production system: (CC), (OD), (TA), (FE), (ME), (HT), (POF), (PMF), (TE), (FEC), (MEC), (IR), (ALO), (ULO), (NLT), (WD), (MD) and (FD). The results show that the zanahoria maize variety has the greatest environmental impacts in 11 categories (ALO, CC, FEC HT, ME, MEC, NLT, PMF, POF, TA y TE), followed by the negro maize variety that obtained the highest impacts for 7 of the categories (FD, FE, IR, MD, OD, ULO y WD) and the lomas maize variety obtained the lowest values for all the categories.

According to the data obtained from the evaluation, the impact categories that obtained the highest values correspond to ALO, CC, FEC, MEC, HT and TE. With respect to category ALO, which reflects the damage to ecosystems due to the effects of the occupation of a certain area of land during a certain time (ReCiPe, 2008), according to the results, the highest value corresponds to the zanahoria variety, these change are attributed to the square meters of land that are not available per year to carry out another activity, with a maximum value of 1534.2 m<sup>2</sup>\*a and minimum value for the hills variety with 836.66 m<sup>2</sup>\*a. For the category CC, which quantifies the effects of CO<sub>2</sub> emissions and others greenhouse gases (Recipe, 2008), zanahoria variety shows the highest CO<sub>2</sub> emissions into the atmosphere, with values of 105.22 kg CO<sub>2</sub> equivalent and the lomas variety the lowest emissions 57.38 kg CO<sub>2</sub> equivalent. The toxicity characterization factor explains the environmental persistence (destination) and the accumulation in the human food chain (exposure) and the toxicity (effect) of a chemical product (ReCiPe, 2008). According to the above, the categories FEC, MEC, HT and TE, categories affected mainly by the application of atrazine which is an herbicide that controls weeds, with values of 19.97, 8.06, 8.0 and 2.26 of 1,4 kg of dichlorobenzene discharges to the waterways, air and soil respectively. The values for the rest of the impact categories were less than 1.34 of 1,4 kg of dichlorobenzene.

*Table following on the next page*

*Table 2: Categories of impact for variety of grain of maize*

<b>Impact category</b>	<b>Lomas</b>	<b>Negro</b>	<b>Rojo</b>	<b>Zanahoria</b>	<b>Unit</b>
<b>Agricultural land occupation</b>	836.66	1219.52	918.76	1534.20	m2*a
<b>Climate Change</b>	57.38	83.68	63.02	105.22	kg CO2 eq
<b>Fossil depletion</b>	0.02	0.07	0.03	0.04	kg oil eq
<b>Freshwater ecotoxicity</b>	10.89	15.87	11.96	19.97	kg 1,4-DB eq
<b>Freshwater eutrophication</b>	0.00	0.00	0.00	0.00	kg P eq
<b>Human toxicity</b>	4.36	6.50	4.81	8.00	kg 1,4-DB eq
<b>Ionising radiation</b>	0.00	0.00	0.00	0.00	kg U235 eq
<b>Marine ecotoxicity</b>	4.39	6.45	4.83	8.06	kg 1,4-DB eq
<b>Marine eutrophication</b>	0.02	0.02	0.02	0.03	kg N eq
<b>Metal depletion</b>	0.00	0.00	0.00	0.00	kg Fe eq
<b>Natural land transformation</b>	0.00	0.00	0.00	0.00	m2
<b>Ozone depletion</b>	0.00	0.00	0.00	0.00	kg CFC-11 eq
<b>Particulate matter formation</b>	0.14	0.20	0.15	0.25	kg PM10 eq
<b>Photochemical oxidant formation</b>	0.45	0.66	0.50	0.83	kg NMVOC
<b>Terrestrial acidification</b>	0.31	0.45	0.34	0.57	kg SO2 eq
<b>Terrestrial ecotoxicity</b>	1.23	1.79	1.35	2.26	kg 1,4-DB eq
<b>Urban land occupation</b>	0.00	0.00	0.00	0.00	m2*a
<b>Water depletion</b>	0.00	0.01	0.00	0.01	m3

#### 4. CONCLUSION

In general, LCA's methodological instrument is allowed to identify the environmental and activities that generated them. There was an estimate of the lomas maize production system obtained the lowest contributions in all the categories of impact to level average point. Considering the impacts generated by the arable land occupation, it is important to mention that carrying out the agricultural activity generates the production of one ton of maize grain, that the activity reduces the availability of the soil. It is important to point out that the main CO<sup>2</sup> emissions identified are from the fossil fuel combustion, these emissions are generated when carrying out the mechanized activities, specifically in the mechanized activities for soil preparation. The application of pesticides for the control of weeds with herbicides, is the activity that generated the greatest contribution to the impacts mainly of toxicity that could be considered of importance to human health, soil, water and air.

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## THE FINANCIAL INSTRUMENTS OF FAMILY POLICY IN POLAND

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### **ABSTRACT**

*Family policy is a term that was first used in the European debate over social policy towards families and children. The debate was launched as early as in the 1940's<sup>1</sup>, to be continued over the following years<sup>2</sup> by other researchers. The term started to be used in connection with the concept of "government initiatives undertaken to further the interests of children and their families, in particular such government policies that aim to influence the situation of families with children or of individuals in their family roles"<sup>3</sup>. This family policy involves such actions taken by the government that aim to create adequate conditions for the functioning of families. Defined as the entirety of legal norms, actions and measures launched by the government in order to provide families with adequate conditions for their formation, growth and performance of socially important functions. Currently, the Polish legal system sets the working week at 40 hours. This means that a person employed in a full-time position spends 25% of their time during the week working. If the workplace is based further away from the place of residence, the time allocated for work may be much longer. The purpose of the article is to analyze currently available family benefits offered by the state and determine what entitlements are offered to employees under the labor code.*

**Keywords:** *Financial instruments of family policy, family benefits, family policy*

### **1. INTRODUCTION**

Family benefits are one of the basic economic instruments of family policy. Their significance is drawn from the functions they can perform. The five functions that family benefits can serve are: income generation (they are a source of family income, all benefits directly (in the case of cash benefits) or indirectly (in the case of benefits in kind and in services) complement the family income), compensation (reimbursement of expenses related to specific situations (such as raising a child) or lost income (e.g. from work in the case of maternity or parental leave)), redistribution (playing a corrective role in the distribution of GDP to specific population groups of or families (e.g. part of income is transferred from the childless to those raising children)), stimulation (involving the steering of consumption in accordance with the directions recognized as important from the social point of view or shaping specific social attitudes and behaviors). This function is fulfilled primarily by benefits in kind (material and service-based). Finally, the equality-promoting function (alleviating (reducing) the disparities in the standard of living of different family groups or population groups) is performed when the entitlement to benefits or their amount depend on the income of a beneficiary (in general, it is income per one family member) or on the criterion which accounts for differences in the situation of families, e.g. the number of children)<sup>4</sup>.

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<sup>1</sup> Cf. A. Myrdal, *Nation and Family: The Swedish Experiment In Democratic Family and Population Policy*, Harper and Brothers, New York 1941;

<sup>2</sup> P. Kuusi, *Social Policy for the Sixties*, Finish Social Policy Association, Helsinki 1964.

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<sup>3</sup> S.B. Kamerman, *Rodzina: problemy teorii i polityki*, in: *O polityce rodzinnej: definicje, zasady, praktyka*, „Materiały z Zagranicy”, IPiSS, Warszawa 1994, s.12.; A. Durasiewicz, *INSTRUMENTY POLITYKI RODZINNEJ* in *Biuletyn Informacyjny Wiadomości społeczne*, PTPS no. 1/2009, Warszawa 2009, p.57;

<sup>4</sup> Cf. A. Durasiewicz, *INSTRUMENTY POLITYKI RODZINNEJ* [in:] *Biuletyn Informacyjny Wiadomości społeczne*, PTPS no. 1/2009, Warszawa 2009, p.58;

Social policy instruments are tools, measures and methods used by social policy entities to achieve specific goals<sup>5</sup>. While discussing family policy tools, we mean the activities that aim to support the family as a primary social institution. In Poland, these tools, in particular benefits, were initially designed to mitigate the negative financial consequences associated with having a family and to stimulate fertility. Currently, when women's career activity has increased, an equally important goal of these benefits is to facilitate the reconciliation of family and work related responsibilities. The analysis of family policy instruments in Poland should distinguish: benefits in cash, the one-off allowance for the birth of a child, the personal attendance allowance, the special attendance allowance, the nursing allowance, the carer's allowance, child care benefits, parental benefits, benefits in kind (food schemes in schools), free textbooks for primary school students, benefits in the form of services (the Large Family Card), care for children up to 3 years of age, pre-school education, housing allowances, the tax credit, the 500 plus scheme, the 300 plus school allowance.

## **2. BENEFITS IN CASH (THE FAMILY ALLOWANCE AND SUPPLEMENTS TO THE FAMILY ALLOWANCE)**

The family allowance and supplements to allowances aim to cover part of the costs related to childcare. The entitlement to receive these funds is granted to the parents of a child, one parent or the legal guardian of a child, or the actual guardian of a child – if he applied to the family court for the adoption of a child. An adult learner who is not supported by his parents due to their death or in connection with the cessation of the right to alimony – as the result of a court decision or a court settlement – may also apply. A prerequisite for receiving the allowance with supplements is the income criterion. As of November 1, 2017, it is PLN 754.00 per one family member. The learner's income cannot exceed this amount either. If a family has a child with a disability certificate (moderate or significant), this criterion is set at PLN 844.00 per one family member. In order for an applicant to receive the benefit, apart from meeting the income criterion, no negative conditions can emerge. The negative conditions include: a child or a learner being in a marriage – in this case the obligation to help lies with a spouse; a child or a learner being placed in an institution providing 24-hour full and free support; a child being placed in custody. This is also considered a negative condition, as the foster family receives separate funding, and is therefore excluded from the entitlement to the family benefit, if an adult child or a learner is entitled to the family benefit for the own child, she or he is excluded from the entitlement to the benefit family for themselves. Under Article 3 point 16 of the Act on Family Benefits, an adult child with own children is not a family member. Whether an adult child is granted the child-raising benefit is irrelevant. The very fact of fulfilling the criterion for receiving this benefit is important.

## **3. THE ONE-OFF ALLOWANCE FOR THE BIRTH OF A CHILD**

The childbirth allowance is a one-off cash benefit in the amount of PLN 1,000 per one child. It is necessary for the mother of a child to be under medical care from at least the 10<sup>th</sup> week of pregnancy. The required medical certificate is issued by a doctor or midwife – this applies to a child's biological mother who takes care of the child. The allowance is granted to the mother, father or legal guardian, the actual guardian – if it was not previously given to the parents or legal guardians. The application for the allowance must be submitted up to the child's first birthday. In the case of the birth or adoption of more than one child at the same time, the amount of the allowance is increased according to the number of children.

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<sup>5</sup> Cf. O. Kowalczyk, *Instrumentarium polityki społecznej*, [in:] O. Kowalczyk, S. Kamiński (eds.), *Wymiary polityki społecznej*, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław 2013, p. 42.

#### **4. THE PERSONAL ATTENDANCE ALLOWANCE**

The personal attendance allowance is granted to cover part of the costs related to the support of a disabled child. The entitlement can be granted to a disabled child, a person with a disability over 16 years of age, who holds a certificate of severe disability, and a person over 75 years of age. This allowance is also available to a person over 16 years of age, if their disability arose before the age of 21 and its degree is described as moderate. The amount of this allowance, as of November 1, 2015, is PLN 153.00 per month. The personal assistance allowance is not combined with the nursing allowance. A person entitled to both forms of assistance may choose only one of them.

#### **5. THE SPECIAL ATTENDANCE ALLOWANCE**

The special attendance allowance is granted to persons who are bound by law to have a maintenance obligation, as well as to spouses, if they resign from employment or other gainful work, in order to provide permanent care over a person holding a certificate of severe disability. To obtain this allowance, a specific income criterion must be met. In 2017, it amounted to PLN 764.00 after tax. If, in one year, the criterion is exceeded by an amount not higher than the lowest amount of the allowance, the allowance will also be granted. If the income is exceeded in the next calendar year, the allowance will no longer be granted. Additionally, the persons who have the right to a retirement pension, a survivor's pension, other pension benefits, a permanent benefit, a teacher's compensation benefit, the special care allowance, the nursing allowance, the carer's allowance.

#### **6. THE NURSING ALLOWANCE**

The nursing allowance is granted upon the resignation from employment or other gainful work, to the mother or father, the actual guardian of a child, a relative providing foster care (pursuant the Act of February 25, 1964 – the Family and Guardianship Code), to other persons who have a maintenance obligation. A person may be granted the allowance if they do not take up or give up employment or other gainful work in order to take care of a person holding a certificate of severe disability. In order to be granted the allowance, the disability of a person who requires nursing care should arise not later than until the age of 18 or while learning at school, but not later than until the age of 25. In 2018, the allowance amounts to PLN 1477.00. It is subject to annual indexation, announced in the Official Journal of the Republic of Poland "Monitor Polski", by November, 15, of the year preceding the indexation.

#### **7. THE CARER'S ALLOWANCE**

The carer's allowance is granted to persons who have lost their entitlement to the nursing allowance on July 1, 2013, due to the expiration of the decision granting the entitlement to the nursing allowance by law. The amount of the allowance is PLN 520.00 per month. The right to receive this allowance is established for an indefinite period, unless the disability certificate is issued for a definite period. Currently, this allowance is still available, but new applications are no longer accepted – the last submission deadline was September 15, 2014.

#### **8. THE CHILD CARE BENEFITS**

The child care benefit can be granted to the mother, father, actual guardian, legal guardian of a child, until the child turns 18 years of age. The amount of this benefit is PLN 500.00 per one child in a family. The first child in a family is entitled only if the family income per person does not exceed PLN 800.00, whereas if the family has a disabled child – PLN 1200.00. In the case of the second child (and subsequent ones), the income criterion does not apply. The purpose of this benefit is to cover part of the costs related to raising a child, providing care and satisfying basic needs.



The legislator stipulated that if the organ finds the funds transferred to the family are wasted, this benefit may be transferred wholly or partially in kind or in the form of service payments.

## **9. THE PARENTAL BENEFIT**

The benefit was introduced with the Act of 24 July 2015 amending the act on family benefits and certain other acts, i.e. on January 1, 2016. In the justification to the draft law, it was specified that the benefit will be granted to persons who gave birth to a child and who are not entitled to the maternity benefit or the maternity pay. Those eligible to receive this benefit include the unemployed, students, and also people working based on civil law contracts. It is for the mother or father of a child, the actual guardian of a child, a foster family (except for a professional foster family) and the person who adopted the child in the case of a child up to when it turns 7 years of age, and in the case of a child upon whom the decision was made to postpone compulsory education - until the age of 10. The benefit amounts to PLN 1,000.00 per month, for a period of 52 weeks, at the birth or adoption of one child, up to a maximum of 71 weeks, at the birth or adoption of two or more children. Importantly, the beneficiary is entitled to one family benefit at one time, regardless of the number of children raised. It is also clearly defined that the person who is entitled to the funds from the parental benefit, the nursing benefit, the special assistance allowance, the allowance for child care during the period of parental leave (regulated by the Family Benefits Act), or the carer's allowance (Act of April 4, 2014, on the granting and payment of carer's allowances), the person is entitled to one of these benefits, even if the entitlements arise in connection with the care provided to different persons.

## **10. BENEFITS IN KIND (FOOD SCHEMES IN SCHOOLS)**

Food programs in schools, such as "Milk at school" or "Fruit and vegetables at school", promote the idea of healthy and conscious eating among children and parents. In 2017/2018, the two schemes merged into one. This changed the target group of students covered by the scheme (currently the scheme covers classes 1 to 5, previously – classes 1 to 3), as well as the proportion of products allocated to schools. Based on the resolution of the Council of Ministers regarding the amount of financial means earmarked for the payment of national and EU assistance, as part of the financing of the scheme for schools and the amounts of financial aid for the implementation of activities under this scheme, in 2017/2018, in the first and second semester, each participant received 45 servings of fruit and vegetables (including apples, pears, plums, carrots, radishes, tomatoes and others) and 40 servings of dairy products (milk, natural yoghurts, cottage cheese). The project is commissioned by the Ministry of Agriculture and Rural Development and implemented by the National Center for Agricultural Support.

## **11. FREE TEXTBOOKS FOR PRIMARY SCHOOL STUDENTS**

Pursuant to the Resolution of the Minister of National Education of March 16, 2017, on the provision of the subsidy for equipping schools with textbooks, educational materials and classroom materials, subsidy related rules were standardized, including the rules concerning free textbooks for children. The subsidy concerns textbooks or educational materials on Polish, mathematics, natural and social sciences, a foreign language, and training materials for pupils of all primary school classes. The entire process started in 2014 with the Act of May 30, 2014, amending the act on the education system and some other acts. It introduced the first subsidies for textbooks and training materials. Gradually, the scheme was extended to include pupils of further classes eligible to receive free educational materials.

## **12. THE LARGE FAMILY CARD**

The Large Family Card is a scheme in the category of benefits in the form of services. It supports families bringing up at least three children. As of January 1, 2015, the date when the

Act of December 5, 2014, on the Large Family Card came into force, it has been offered throughout Poland. Previously, similar initiatives were introduced locally, such as the "Us Three and More" card, in use in Katowice since January 3, 2011. The Large Family card is issued at the request of a family member supporting at least three children. Each of the family members receives a card that allows the use of the entitlements specified in the Act or other provisions related to the Card. This applies to both state institutions and private enterprises (including discounts to cultural, educational and recreational facilities). The card is available to the parents of children (it is issued to them for an indefinite period) and children up to 18 years of age, with the possibility of extending it up to 25 years of age, if the child continues to study in higher secondary school or university.

### **13. CARE FOR CHILDREN UP TO 3 YEARS OF AGE**

The Act of February 4, 2011, on the care of children under the age of 3 stipulates the possible forms of institutional care for children at this age. The functioning of nurseries, children's clubs, day caregivers and nannies was defined. Nurseries and children's clubs can be established by local government units, public institutions, as well as natural persons or legal persons and organizational units without legal personality. In nurseries, care is provided for children from the age of 20 weeks, while in the children's club after a child turns at least one year old. Private institutions (e.g. large companies), setting up nurseries or children's clubs, provide places primarily for children of their employees. Other people's children are admitted if vacancies are available. Care should be provided up to 10 hours a day for each child, while in the children's club up to 5 hours a day. It is stipulated that a children's club can take up to 30 children. No information is given on the maximum number of children in a nursery, but appropriate standards must be maintained as to the size of the rooms and the staff taking care of children. In a nursery and a children's club, one carer is employed for a maximum of 8 children, and if there is a child with a disability in the group, one for a maximum of 5 children. In addition, if there are more than 20 children in the nursery, at least one nurse or midwife is employed.

### **14. PRE-SCHOOL EDUCATION**

Pre-school education is aimed at children from the age of 3 (in particularly justified cases, the headmaster of the nursery school can accept a child of 2.5 years of age) to the age of 6 years. A child of 6 years of age has to undergo annual pre-school education or other form of early education. The basic forms of pre-school education are a kindergarten, as well as a pre-school department in a primary school. Other models for pre-school education comprise pre-school outlets, where classes are conducted throughout the school year except for public breaks, or pre-school groups, in which classes are conducted on certain days throughout the school year, with the exception of public breaks. Classes in other pre-school education forms take place in groups of 3 to 25 pupils, the minimum daily care is 3 hours, while the weekly care depends on the number of children – from 12 hours for smaller groups, up to 20 with larger ones.

### **15. HOUSING ALLOWANCES**

The housing allowance is defined by Andrzej Mączyński as "a specific cash-based benefit paid by a commune to low-income persons stipulated in the Act, who are entitled to a flat, in order to allow them to pay rent and cover other expenses that they are charged with for occupying a flat (additional charges, certain costs related to living in a flat)". Pursuant to the Act on housing allowances, it is granted to tenants and sub-tenants of dwellings; persons living in dwellings to which they are entitled based on the cooperative right; persons living in dwellings located in buildings which they own, and owners of independent dwellings; other persons having a legal title to the dwelling that they occupy and incurring expenses related to its occupation; persons occupying a dwelling without a legal title, awaiting social housing.

The allowance may be granted only based on one of the above-mentioned entitlements. Another criterion that must be fulfilled to apply for an allowance is the income criterion. The average monthly income of a family member from the period of 3 months before the application for the allowance is taken into account. It cannot exceed 175% of the lowest pension in the single-person household or 125% of the lowest pension in the multi-person household. As of January 30, 2018, this amount is PLN 1750.00 in a single-person household and PLN 1250.00 in a multi-person household. Another condition that must be met is the size of the flat. The area of the occupied dwelling cannot exceed the normative usable area of a dwelling by 30% (or 50% provided that the share of rooms and a kitchen in the usable area of the flat does not exceed 60%).

## **16. THE FAMILY TAX CREDIT**

Pursuant to Article 27f of the Personal Income Tax Act of July 26, 1991, a taxpayer has the right to deduct an appropriately calculated amount for each child towards whom he exercised parental authority during the fiscal year, served as the legal guardian and the child lived with him, he looked after the child by serving as a foster family based on a court decision or an agreement concluded with local authorities. The tax credit is granted for a child who is under 18 years of age, for every disabled child who receives the assistance allowance or social pension, as well as for every child up to the age of 25 who continues education and his income in the tax year does not exceed PLN 3089 (this does not include the family pension). If there is only one child in the family, the taxpayer can deduct the credit if his income together with his spouse's do not exceed PLN 112,000.00 in the tax year, and for the unmarried, also for a part of the tax year, the income did not exceed the amount of PLN 56,000. In the case of a larger number of children, the income criterion is not applied. The tax credit for a calendar month applies: for one child – PLN 92.67, two children – PLN 92.67 for each one, for three children – 92.67 for the first two, 166.67 for the third, and 225 PLN for the fourth and each subsequent.

## **17. THE 500 PLUS SCHEME**

The "Family 500 Plus" scheme was launched on April 1, 2016. A monthly benefit of PLN 500 can be granted to every family, regardless of income, for the second and each subsequent child up to the age of 18. It is also possible to receive a benefit under the "500 Plus" scheme for the first child (or an only child) – but in this case the income criterion applies: the monthly income should not exceed PLN 800 per person (or PLN 1200 per person if the child is disabled).

## **18. THE 300 PLUS SCHOOL ALLOWANCE**

The allowance under the "300 plus" scheme for pupils is available from August 2018. Parents will receive PLN 300 for for each child learner up to the age of 18. Pupils are eligible for the allowance up to the age of 20, while university students are not entitled.

## **19. CONCLUSION**

The family policy instruments discussed in the article do not constitute a finished catalog. Family policy stems from many other "policies", i.e. legal acts and actual initiatives. The list presented in the article discusses a range of practices most commonly used in Poland, aimed at improving the lives of Polish families and promoting the procreational attitude. The greatest share of Polish family policy instruments are benefits in cash, yet more and more benefits are of material nature (textbooks or food schemes in schools). Still, the amount of money allocated from the state budget to support families remains insufficient. The current system of benefits operates based on the Act of November 28, 2003, on family benefits, which entered into force on May 1, 2004. It included family allowances with supplements for: childbirth, childcare during parental leave, raising a child by a single parent, and losing the entitlement to the

unemployment benefit as a result of the expiration of the statutory period of its collection, raising a child by a single parent, the education and rehabilitation of a disabled child, the start of the school year, a child starting education in a school outside the place of residence.

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## **SUSTAINABLE DEVELOPMENT FROM PERSPECTIVE ECONOMIC AND SOCIAL: THE CASE OF INDONESIA PALM OIL INDUSTRY**

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### **ABSTRACT**

*This paper discusses conceptual and implementation of Indonesian palm oil development within the framework of Sustainable Development Goals (SDG's). Palm oil industry plays an important and strategic role in the Indonesian economy in terms of export earnings, employment creation, poverty reduction and regional development. However, palm oil development often criticized as having negative impact on environments such as deforestation, loss of biodiversity, climate change and global warming. In this paper, we use sustainable development as framework and instrument to examine whether palm oil development in Indonesia is in line and relevance with the Sustainable Development Goals (SDG's). We develop various indicators of the impact of palm oil development and benchmark it with Sustainable Development Goals (SDG's). In conclusion, we argue that palm oil development in Indonesia comply with the objective of sustainable development principle.*

**Keywords:** *Environment, Indonesia, Palm Oil Development, Sustainable Development Goals*

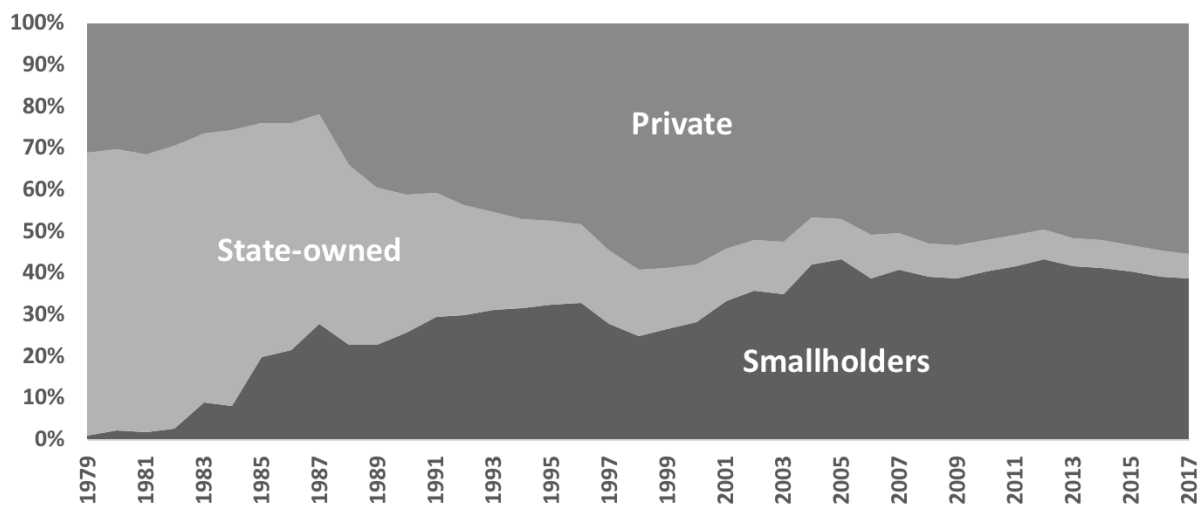
### **1. INTRODUCTION**

There are three equally important pillar in sustainable development concept namely, economically viable, socially equitable, and environmentally bearable. It means that these three pillar has to exist and develop together as unity and comprehensive concept (Gibson, 2002, pp.10-11). It means also that no sustainable development without economic growth although it may be socially equitable and environmentally friendly. At the same time it is not sustainable development if there economic growth but at the same time the benefits only goes to the few and if it destroy the environment. There are 17 goals that sustainable development would like to achieve by 2030 driven from the three pillars social, economic and environmental dimensions (Kumar, 2016). This paper focuses on the goals that are most relevant in the implementation of sustainable development in palm oil industry and how palm oil industry can contribute to the achievement of sustainable development goals. Based on our observation and experience, there are at least six goals in which palm oil industry can make contribution to the SDGs. These are reduction of poverty and inequality, providing food and good health, climate action and decent work and economic growth. In the recent years Indonesian economic growth is stable at around 5% per year (Central Bureau of Statistic, 2018). Compared with other G-20 countries, this growth is not bad, in fact is the third highest economic growth after India and China. However, this is not adequate should Indonesia want to reduce significantly unemployment and alleviate absolute poverty. In fact Indonesia need growth at around 8% per year in order to escape from the so called "middle income trap", eradicate poverty and reduce unemployment rate. This is especially true if we look at data on population growth in which in 2030 Indonesian population will be at around 296 millions and the structure of population are dominated by productive age. It means that employment opportunities have to be created, otherwise demographic bonus will turn into demographic disaster. The bottom line, is that Indonesia needs higher economic growth as necessary condition for achieving SDGs.

## 2. ROLES OF PALM OIL IN THE INDONESIAN ECONOMY

Indonesia is the largest producer, exporter and consumer of palm oil. Together with Malaysia contribute to around 85% of the world palm oil production (Carter, 2007). The rest 15% of global production come from other countries such as Nigeria, Thailand and Colombia. Indonesian palm oil plays significant role to the country's economy. As labour intensive industry, millions of Indonesians depend on Palm Oil Sector. Growth of Palm Oil sector increase social welfare and reduce poverty. Total export valued IDR 239 Trillion which is the largest export earnings for the country exceeding oil & gas (Central Bureau of Statistic, 2018). The structure of the Indonesian palm oil industries is healthy and balance where the ownership distributed relatively equal between large plantations and smallholder farmers (Indonesia Oil Palm Plantation Fund Management Agency, 2018). Smallholders are replacing the government plantations in dominating oil palm plantation in Indonesia. Since late 1970's, the Government reduced its share of oil palm plantation but the share of smallholders farmers' plantation increased significantly. In 1979, smallholders farmers only share 1.2% of plantation. In 2017 it went up to 41%. In Indonesian Palm Oil Sector, smallholders farmers are the main actor. Smallholders farmers share almost half of Indonesian palm oil plantation. They exist in every island of the country. Sumatera and Borneo share the biggest, but eastern part islands of Sulawesi, Maluku and Papua also have significant share (Ministry of Agriculture, 2017).

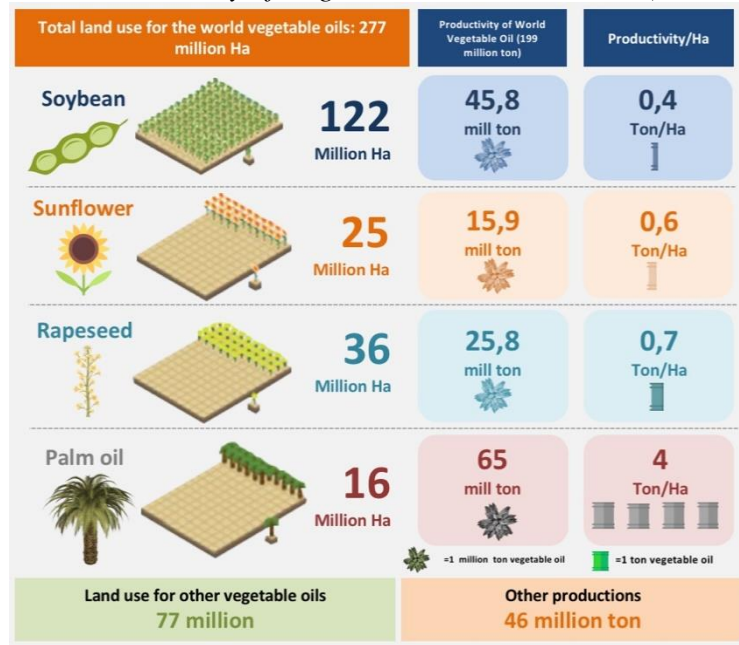
*Chart 1: Composition The Ownership of Palm Oil Plantation (Ministry of Agriculture, 2017)*



Indonesia still is the most efficient producer of palm oil in the world and palm oil continues to be the most productive, efficient and least-cost vegetable oils. Palm oil productivity can reach approximately up to 4 ton/ha. This number is much higher than rapeseed (approx. 0.7 tons/ha), sunflower (approx. 0.6 tons/ha), and soybean (approx. 0.4 tons/ha). From the productivity per ha, it can be seen that palm oil commodity needs the least of land use for producing vegetable oil. Comparing to soybean, rapeseed and sun flower, expansion of palm oil plantation is way slower. Soybean still shares the biggest size of land for plantation and palm oil shares the smallest. Expansion of palm oil plantation is way lower than expansion of other vegetable oil plantation (Nomanbhay, 2017, pp.7).

*Figure following on the next page*

Figure 1: Land Productivity of Vegetable Oil Commodities (Oil World, 2016)



Indonesian palm oil contributes significantly to export earnings. In 2017, export earnings from palm oil accounted for around 15% of total export earnings. Indonesian Palm oil along with its derivatives export is the second biggest export contributor, after coal, with a value of USD 18.5 billion in 2017 (chart 2) and a volume of 31 million ton (chart 3). India, EU and China are the largest export market for this commodity (Central Bureau of Statistic, 2018).

Chart 2: Contribution of Crude Palm Oil in Total Export in USD Billion (BPS Statistics Indonesia, 2018)

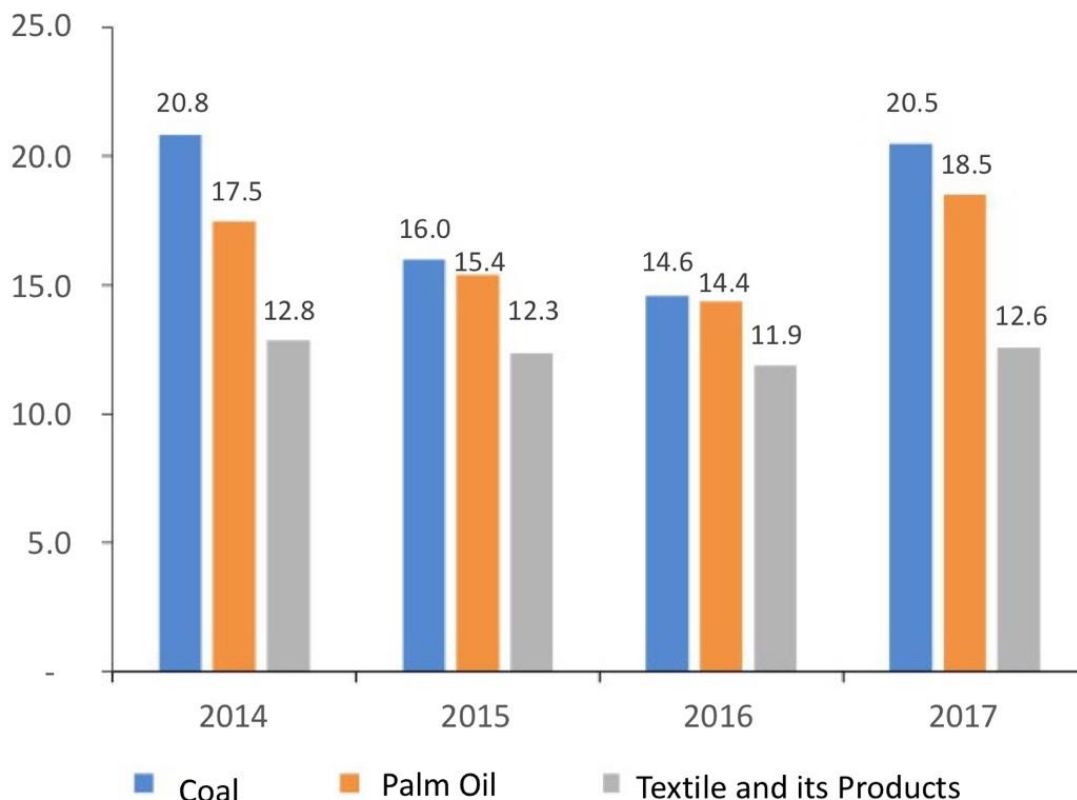


Chart 3: Indonesia Crude Palm Oil Export Volume in Million Ton (BPS Statistics Indonesia, 2018)

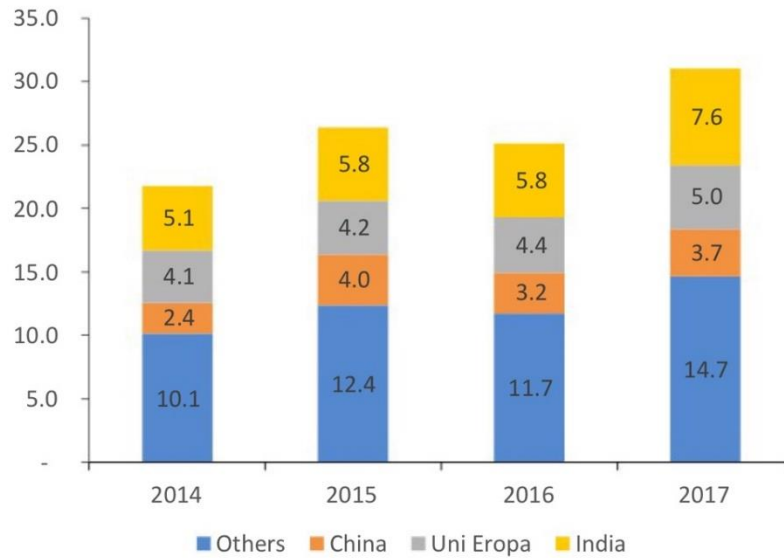
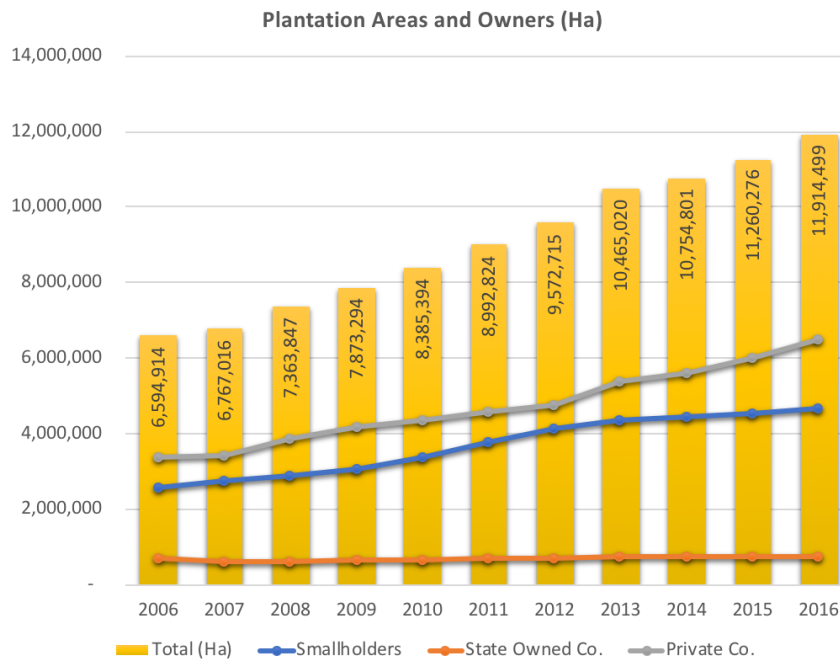


Chart 4: Plantation Areas and Ownership (GAPKI, 2017)



The palm oil industry creates millions employment opportunities, consisting of farmers, plantation and industry workers. It contributed significantly to poverty reduction especially in outer island of Java. There are 2.3 million smallholders support more than 6,9 million lives. It is important to note that there are 5.5 million direct employees and 12 million indirect employees, totalling to 17,5 million employment creation (Central Bureau of Statistic, 2018). Palm oil industry supports regional development, especially in rural areas of outside Java. Help in stabilizing food prices and an important source of renewable energy. Presently, palm oil development in Indonesia adopt and implement the concept of sustainable development. However, the implementation of sustainable development is a journey, so along the way Indonesia have to make continuous improvement and refinement to achieve the destiny or the goals. Indonesian palm oil production increases over time and in 2016 Indonesia produced



around 34 million ton of palm oil (Chart 4). The more interesting aspect of the figure is when we compare the production growth by category of ownership where the growth of smallholders production is the highest compared with private estate and state-owned enterprises. It means that while production of palm oil contributes significantly to the economy as a whole, but it also provides equitable aspect of development where smallholders develop better than private and state owned enterprises.

Chart 5: Palm Oil Production by Category of Ownership (Ministry Agriculture, 2017)

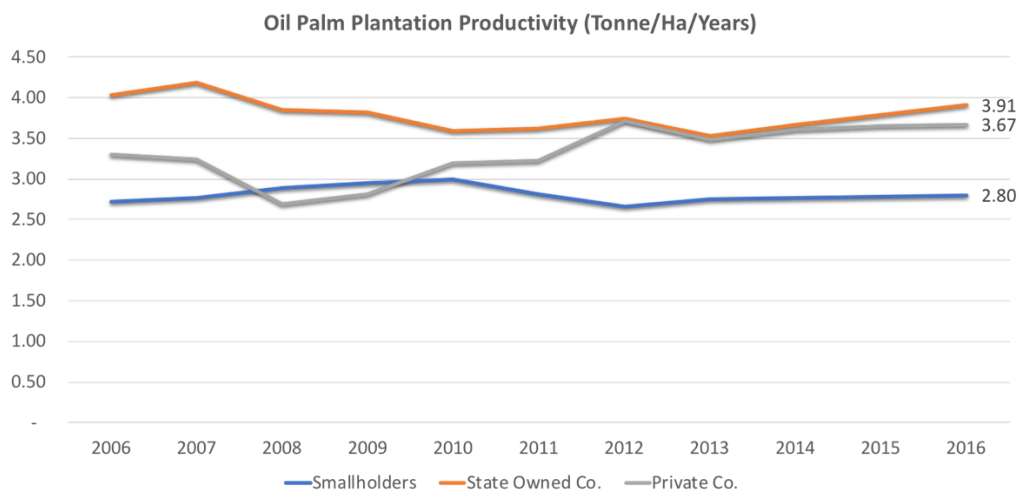


This finding is also confirmed by area expansions of smallholders which has highest growth compared with private estates and state owned enterprises. Presently, the share of smallholders areas accounts for around 40% while private estates and state owned enterprises are 54% and 6% consecutively. Looking at this finding, we can highlight that structure of palm oil industry in Indonesia consider to be balance and healthy. It provides not only an engine for growth but also equitable aspect of development.

### 2.1. Productivity Improvement

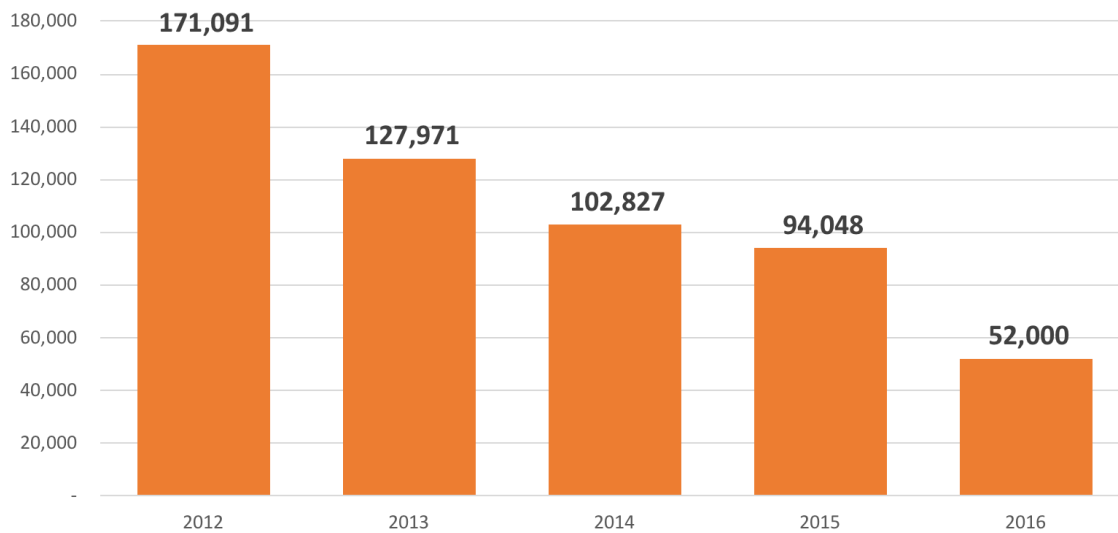
However, there is something to concern especially about palm oil productivity by ownership. Since, as shown in the chart, productivity of smallholders are significantly lower than private estates and state owned enterprises. It means that in general income generated from this activity for smallholders are lower and so does their welfare.

Chart 6: Plantation Productivity (GAPKI, 2017)



At the same time, low productivity of smallholders also provide opportunity for increasing production of palm oil in Indonesia without rely solely on area expansions. Thus, increasing productivity of smallholders through better management practices, fertilization and better quality of seed should become priority and focus of all stakeholders including government. This serves not only growth and equitable aspects of development but also better for environments. However, Indonesia must concern that production of palm oil may lower in the near future because of several reasons namely, restriction of trade in palm oil by importing countries, government policy that limit expansions of palm oil areas, little attention toward productivity improvement, and other factors. Declining trend in production of palm oil will have consequences in our efforts in reducing poverty and creating employment opportunities in rural areas. This confirmed by the declining numbers of total seed sale in the recent years. In 2017 the total seed sales were about 171 millions seeds, but in 2016 it declined to only 52 million seeds. It means that actually there is no more area expansion, and the seed sales in 2016 just for the regular replanting program especially by private estates and state owned enterprises.

*Chart 7: Total Oil Palm Seed Sales in Indonesia 2012-2015 (GAPKI, 20017)*



### **3. POVERTY ALLEVIATION AND SDG'S**

Another important dimension of SDGs is eradication of poverty. In this regard as chart 6 shown, poverty level in Indonesia consistently decline over time, although the rate is slower in the recent years. For achieving SDGs by 2030, poverty have to be reduced by an average of 0.75% per year or 2 millions per year. Presently, poverty have been reduced by 0.53% per year. This fact calls for more effective and aggressive policy and program of poverty alleviation. Meanwhile, unemployment rate consider to be still high although also showing consistent declining over time. The challenge is how to accelerate this declining in years to come to cope with growing labour force entering labour markets. Thus, Indonesia have to create policy and program where investment grow and business develop. In this context palm oil development can provide significant contribution for achieving the SDGs in Indonesia.

*Figure following on the next page*

Chart 8: Poverty in Indonesia (Statistics Indonesia, 2017)

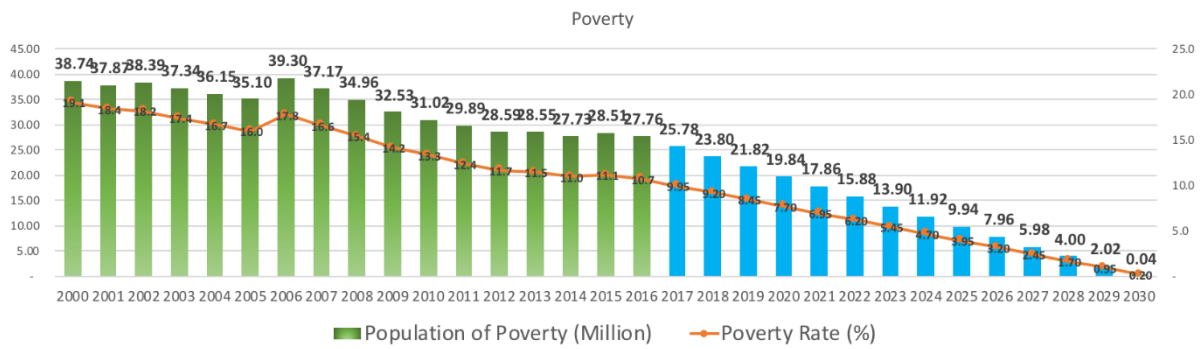
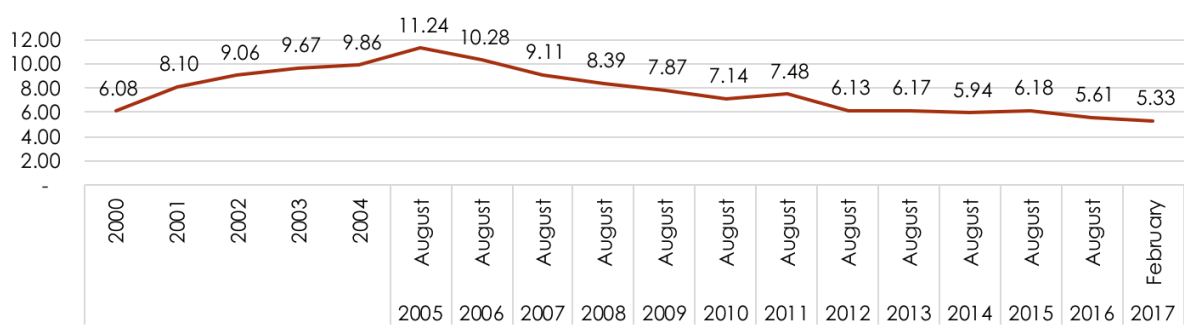
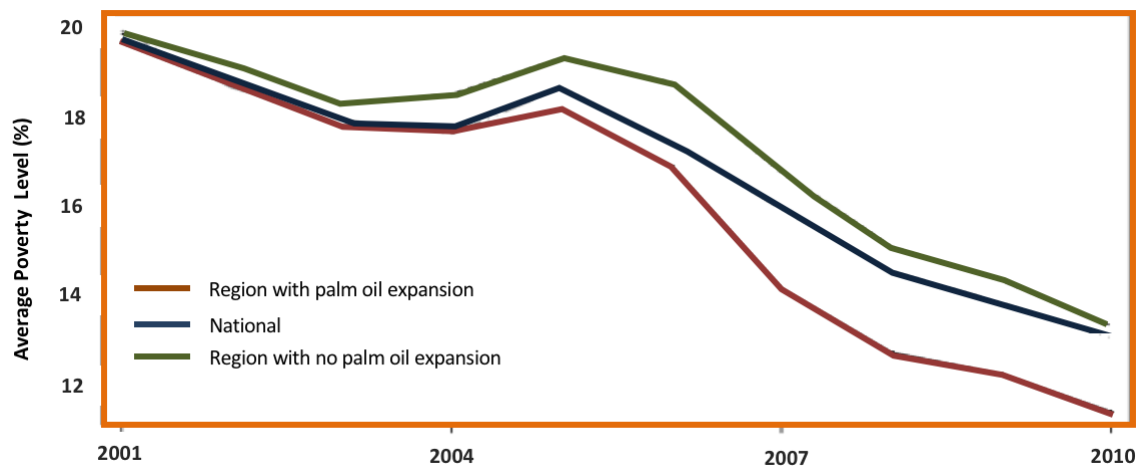


Chart 9: Unemployment rate (%) in Indonesia (Statistics Indonesia, 2017)



Obidzinski (2014) uses Input-Output Model (IO) analyzing the impacts of oil palm expansion. The results showed that oil palm expansions increase significantly regional GDP, reduce unemployment rate, provide almost a half of all employment opportunities by all sectors/industries in Central Kalimantan and give benefits to society especially low and middle income group (Obidzinski, 2014). Oil palm sector is very unique as it contributes to the achievement of SDGs in many ways, especially in Indonesia. Oil palm sector supports the reduction of poverty and inequality.

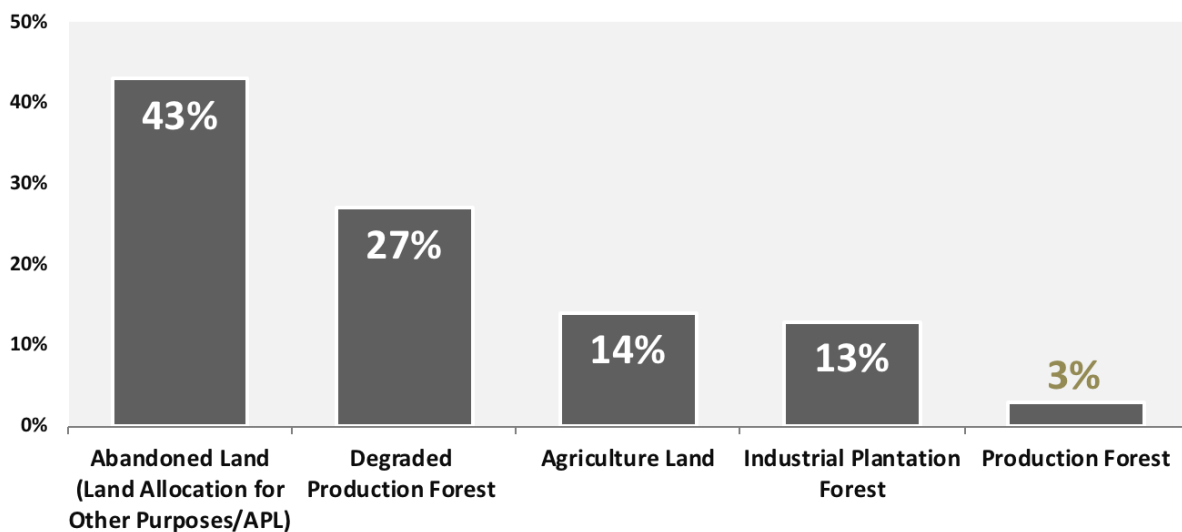
Chart 10: The Impact of Palm Oil Sector to Poverty and Inequality Reduction in Indonesia (Edwards, 2016)



During the periods of 1990-2000, Indonesian Palm Oil Sector has helped at least 1.3 million people in rural area lifted out of poverty line directly because of palm oil expansion (Edwards,

2016). Edwards (2016) uses an econometric models with district as unit of analysis to analyse the impact of oil palm expansion on poverty. The study also concluded that oil palm expansions increases expenditures of poor people, expands public services especially access of poor households to roads and electricity (Edward, 2016). Oil palm sector support the providing of food and food fortification as it uses widely play role in the development of renewable energy and emission reduction. Support the moratorium of primary forest. Support the prevention management of forest fire. Play significant role in the economic development, generating millions of employment and save foreign exchanges. Indonesian palm oil make use of abandoned and degraded land. Most of Palm Oil Plantation were converted from abandoned land, mostly from Land Allocation for Other Purposes (APL) and from degraded production forest. Palm Oil Plantation converted directly from production forest is only around 3% during period 1990-2012.

*Chart 11: Original Composition of Land Converted into Palm Oil Plantation 1990-2012 (Gunarso, 2013)*



#### **4. CRITICS ON PALM OIL DEVELOPMENT AND SUSTAINABILITY SCHEMES**

There are many negative allegations regarding palm oil development namely are bad for the environment such as deforestation (Zakaria, 2007; Gibbs, 2010), loss of biodiversity, green houses effect, gas emission, the establishment of social conflicts especially new planting tends to create social problems, human right abuses such as child labour, unacceptable working conditions, bad housing for workers (Datamonitor, 2010). Palm oil production has serious negative impacts on ecological and social sustainability include land use changes, deforestation, biodiversity loses, land rights, social conflict, labour issued and child labour, and human rights, land uses changes. In response to this, sustainability schemes have been established and developed in palm oil industry. There are now at least four sustainability schemes exist in palm oil industry, namely, Roundtable Sustainability on Palm Oil (RSPO), International Standard and Carbon Certification (ISCC), Indonesia Sustainable Palm Oil (ISPO) and Malaysia Sustainable Palm Oil (MSPO). Difference perspectives bring about different philosophy, paradigm and principle and criteria. Although the schemes cover a similar range of topics, but they are differences in the depth, breadth, and level of detail. However, sustainability schemes can also be used as an instrument of trade barrier created by producer of other vegetable oils since they cannot compete with palm oil. The differences among sustainability schemes are reflected in the minimum requirements for compliance to achieve certification. The difference also exist with respect to participation in the scheme, while Roundtable Sustainable of Palm Oil

(RSPO) and International Standard and Carbon Certification (ISCC) are voluntary, Indonesia Sustainable Palm Oil (ISPO) and Malaysia Sustainable Palm Oil (MSPO) are mandatory. Roundtable Sustainable of Palm Oil (RSPO) was established in 2004 was the first scheme specific to palm oil. RSPO is the predominant certification scheme in the food, oleochemical and hygiene and care sectors. A non-profit organization that unites stakeholders from all sectors of the palm oil industry to develop and implement global standards for sustainable palm oil. The initiator of this scheme are WWF, MPOA (Malaysia Palm Oil Association), Unilever, Aarhus UK and Migros. The organization has more than 3,700 members and 651 CSPO (Certifies Sustainable Palm Oil) trademark licenses has been issued with more than 12 million tonnes in volume. Participation for certification is voluntary. International Standard and Carbon Certification (ISCC) was created in 2010 and while it is applicable to all end uses, the ISCC EU standard is the predominant standard for biofuels and bioliquids, and is used to ensure compliance with the sustainability criteria requirements set in the EU Renewable Energy Directive. An independent multi-stakeholder organization providing a globally applicable certificate system for the sustainability of raw materials and products, including palm oil. The organization has issued more than 17,000 certificates to more than 3,000 companies in more than 100 countries. Participation is voluntary. Indonesia Sustainable Palm Oil (ISPO) was launched by Government of Indonesia in 2011 (SPOTT, 2016). The standard is based on existing Indonesian regulations that pertain to oil palm cultivation and processing (Winarni, 2014). ISPO aimed at improving the competitiveness of the Indonesian palm oil on the global market and contribute to the objective to reduce GHG emissions and draw attention to environmental issues (Paoli, 2014; Brandi, 2013; Inpop, 2015). Participation is mandatory for all palm oil companies in Indonesia, and would be mandatory for all Indonesian independent smallholders starting 2020. Certificates have been issued to 346 businesses with total area of 2.04 million Ha and CPO production 8.76 million tonnes. Malaysia Sustainable Palm Oil (MSPO) was developed and operated by Malaysian Palm Oil Certification Council (MPOCC) since 2015. Participation is mandatory for all Malaysian palm oil producers in 2019, Total Certified Area : 758,923.07 ha, under Independent Smallholders (SPOCs) 9,521.37 ha, under Plantations & Organized Smallholders : 749,401.70 ha.(Adnan, 2015; Mahmud, 2014)

*Table 1: Sustainability Schemes: Similarities and Differences (Authors)*

ISPO Principles	RSPO Principles	ISCC Principles	MSPO Principles
1. Legal plantation business permits (9 criteria)	1. Commitment to transparency (3 criteria)	1. Protection of land with High Biodiversity Value or High Carbon Stock (3 criteria)	1. Management commitment and responsibilities (4 criteria)
2. Plantation Management (5 criteria)	2. Compliance with applicable existing laws and regulations (3 criteria)	2. Environmentally responsible production to protect soil, water and air (10 criteria)	2. Transparency (3 criteria)
3. Protection of Primary Forest and Peatland	3. Commitment to longterm economic and financial viability	3. Safe working conditions (2 criteria)	3. Compliance to legal requirements (3 criteria)
4. Environmental Management and Monitoring (10 criteria)	4. Use of appropriate best practice by plantations and mills (8 criteria)	4. Compliance with human, labour, and land Rights (2 criteria)	4. Social responsibility health, safety, and employment conditions (6 criteria)
5. Responsibility to workers (5 criteria)	5. Environmental responsibility and conservation of natural resources and biodiversity (6 criteria)	5. Compliance with laws and international treaties (2 criteria)	5. Environmental, natural resources, biodiversity and ecosystem (7 criteria)
6. Social Responsibility and community economic empowerment (3 criteria)	6. Responsible consideration of employees, and of individuals and communities affected by growers and mills (13 criteria)	6. Good management practices and continuous improvement (2 criteria)	6. Best practices (5 criteria)
7. Continuous business improvement	7. Responsible development of new plantings (8 criteria)		7. Development of new planting (6 criteria)
	8. Commitment to continuous improvement in key areas of activity		

The four standards differ markedly regarding deforestation. The ISCC excludes production from primary forest, and forests of high biodiversity value (Criterion 1.1), and degraded forest (Criterion 1.3). Degraded forest is defined conservatively, with a high proportion of logged forest included in the restriction. The RSPO standard has the less exacting requirement that forest clearance is legal, but primary forest and High Conservation forest are not to be cleared for oil palm cultivation. The ISPO standard permits forest clearance provided it is within land zoned for agriculture; is allowed under the environmental impact assessment; and the government has granted the necessary permits. The MSPO standard is broadly similar to ISPO, but with additional requirements on Environmentally Sensitive Areas and areas with high biodiversity value. Overall, the ISCC provides the most restrictive environmental safeguards, while the RSPO is stronger on the social issues relating to oil palm. MSPO provides strict standards for plantation management (dealing with burning, air and water pollution). The ISPO is based on existing Indonesian regulations that pertain to oil palm cultivation and processing and has a more limited coverage, addressing to a lesser extent the possible negative environmental and social impacts of palm oil production. All four schemes rely on third party, independent audits to verify compliance with the standards, and surveillance audits are repeated annually. The RSPO, ISCC and MSPO have independent accreditation of the certification bodies who decide whether a certificate is granted or not, and the same schemes provide a degree of transparency through making documents on audits and complaints publicly available. The ISPO system has less robust and transparent procedures on these elements, but like the ISCC and RSPO, has supply chain verification mechanisms. MSPO is currently in the process of developing similar supply chain verification procedures.

#### **4.1. Challenges and Future of Sustainability Scheme**

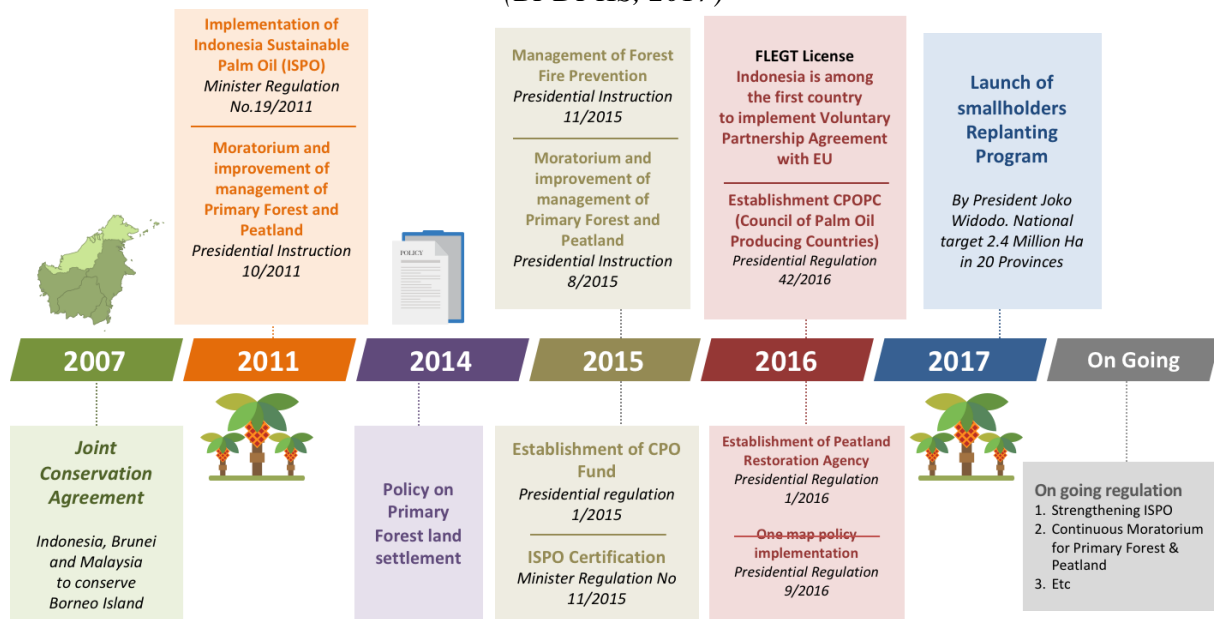
There are some challenges regarding such sustainability schemes to comply. Some challenges are palm oil's smallholder households are significant in number, accounted for 4.5 millions in Indonesia and Malaysia. Lack of knowledge on good agricultural practices as well as limited capital, low productivity and low compliance on sustainable principle of their products may lead to the exclusion to global supply chain. Raising global consumer demand for efficient and sustainable products, the exclusion of smallholders from the global production chain will only continue to rise. The following topics are pivotal to improve sustainability scheme for palm oil industries in the future. The need to converge various sustainability schemes or at least joint certification among sustainability schemes. Whose better define sustainability: producer or consumer, state or market? (Consumer Action, 2018). The need of better cooperation among palm oil producing countries addressing sustainability scheme. Sustainability schemes have to address small farmers concerns since significant areas of oil palm plantation belong to smallholders (in Indonesia at least 42%).

#### **4.2. Government Respons**

Government of Indonesia has implemented almost all international requests related to the sustainability management of its palm oil sector, and the efforts still continue. The importance things is that the recognition that palm oil is an effective and efficient tools for alleviating poverty and reduction of unemployment rate especially in rural areas of off-Java. Thus, it is important that government creates conducive investment and business climate for palm oil development.

*Figure following on the next page*

Figure 2. Government Response Towards Sustainability of Palm Oil Sector in Indonesia (BPDPKS, 2017)



There are many government policy measures on sustainability. First, one map policy aimed at addressing the lack of clarity and consistency through the integrated geospatial database that will act as a centralized geospatial information system for the country. Second, establishment of Peatland Restoration Agency function as agency that responsible for restoring and protecting peatland. Third, establishment of Indonesian Sustainable Palm Oil (ISPO) as mandatory certification scheme for all companies operate in Indonesia. Fourth, moratorium of conversion of peatland and primary forest for economic activities since 2011. In addition to that, industry also have strong commitment to adopt sustainable development through voluntary commitment of no peatland, no deforestation and traceability, and participation in various voluntary scheme such as Roundtable Sustainable on Palm Oil (RSPO). Indonesia now is the largest producer of Certified Sustainable Palm Oil issued by RSPO. Government utilizes palm oil based biodiesel as key strategy to improve national balance of payment (BOP). Indonesia has been implementing Biodiesel Mandatory at 20 % level (B20) for its Public Service Obligation (PSO) Sector. Non-PSO sector is targeted to have a full implementation in 2019. Acceleration to B30 is a government priority. Since the implementation of biodiesel mandatory program in 2006, Indonesian Palm Oil Based Biodiesel has been using in almost every region of the country. Biodiesel producers exist in 12 provinces across the country. Internationally, 14 countries have imported Indonesian Palm Oil Based Biodiesel. Implementing of B20 for non-subsidized diesel fuel will increase biodiesel absorption by 3 million ton and reducing Indonesian crude oil import by 21.4 million barrel (eq. USD 1.7 billion at oil price USD 80/barrel). In addition to that, government expect CPO price will increase by USD 150/ton due to this new policy, and hence increase our export revenue by USD 4.5 billions.

## 5. CONCLUSION

Palm oil industries plays an important and strategic roles in the Indonesian economy through export earning, creates employment opportunities, reduce poverty, and regional development. Fulfilling growing demand of vegetable oils by palm oil is better than by other oils since palm oil is more productive, less land needed, price competitive and more environmentally friendly products than other oils. Indonesia is in the best position to contribute significantly fulfilling the growing demand for palm oil due to its profitability and competitiveness, and more available of land. Indonesia have made significant progress in managing and implementing sustainability

practices. Sustainability is a journey which take time to reach the destiny. It is important to converge all sustainability schemes to make it more efficient and less burden for producer. In addition, there is a need to develop different sustainability schemes for smallholders and better cooperation among palm oil producing countries in harmonizing various national sustainability schemes. Sustainability schemes have to apply to all vegetable oils not only palm oil since very vegetable oils has negative environmental impacts which may even more detrimental than palm oil. In conclusion, palm oil development in Indonesia comply with the objective of sustainable development principle.

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# THE TRANSFERABLE NATURE OF THE BIG DATA: HOW TO PROMOTE THE COLLABORATIVE WORK OF HUMAN RESOURCES?

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## **ABSTRACT**

*To cope with the increasing curve customer requirement, the company must now put its information system in permanent sleep state, allowing it to have a proactive vision of customer needs. Indeed, information overload, which gave birth to the Big Data is more a hindrance than a help in decision making. In this case, the creation or co-creation of knowledge in a framework of collaborative intelligence, may present more obstacles than benefits for businesses. To this end, their transmissibility, should share and secure data? How to promote collaborative work? How to balance between securing and sharing data? This work will be supervised by all of those issues that will constitute the new future challenges of information systems at the Big-Data era.*

**Keywords:** *Big Data, collaborative work, decision, sharing, protection*

## **1. INTRODUCTION**

The concept of Business Intelligence (BI) is known in Morocco in the last decade, an unusual pattern, characterized by a linear progression in the use of information systems, on one hand, and a reorientation of strategies SMEs, to axes creating more value and source of innovation, on the other. By adopting a broad vision, BI can be defined as "a multidisciplinary concept, whose dimensions are four in number. A legal dimension (BI is not spying, but that's the way we seek information that determines the legality of the operation). A managerial dimension (BI is not a software but a case management approach, based on the management of information, using both technical and human resources). A collaborative dimension (it is a collaborative process that is effective in group work and sharing of knowledge). A cultural dimension (it is a cultural practice and is built on traditional managerial specificities and characteristics of each organization / country). It is a process based on three interdependent actions of each other, namely: Strategic Intelligence, the protection of intangible heritage, and the Decision-making and lobbying. (Ghizlane Salam, 2013). Faced with these new data, human resources of SMEs are obliged to adapt to it strongly and get involved in developing new attitudes about the use of the information, but above all, fostering a new culture of collaboration and knowledge sharing. This work, which can be a new starting point to develop other tracks thoughts, aims to analyze all changes that have upset conventional techniques of management, and that will have major consequences on strategies SMEs in the era of BI. We also try to study in parallel the impact these changes might have on human resources, and that this would require them terms of collaborative intelligence and culture change, which can be a source of creating tensions that are contrary to the continued success of these SMEs.

## **2. THE ECONOMIC ENVIRONMENT IS CONSTANTLY CHANGING**

Nowadays, the current environment is gradually changing. First, ICT has spawned a new economy, marked by the explosion of data (Big Data), and became increasingly risky and increasingly uncertain. Then, the accelerated pace of discovery, followed by population growth and the emergence of new economic regions, which have created a stir in the world economy. However, the linear changing expectations of this population, the desire for self-determination, the need for recognition and reward for their efforts and other reactions, act in complex ways

and disrupt the functioning of markets, practices businesses and consumers. In all these disturbances, adds the professional mobility of employees. At this level, employees are more mobile for several reasons. First, the men do not have the same reasons nor the same expectations of life. Second, the loyalty that traditionally binds employees to the company no longer exists, and even the loyalty expressed by customers towards their products is no longer valid today. So, if the employee remains in the company, it is often less in faithfulness to the profit he thinks drawn from this collaboration. Furthermore, Morocco has known for the last two decades a series of remarkable structural and cyclical change, whose main objective is to catch the accelerated pace of global changes. To this effect, the Moroccan SME had a special attention on upgrading and innovation. In this context, and following its climate improvement business policy and promotion of private investment, Morocco was ranked 71th (out of 189 countries) in the 2015 report of the World Bank Doing Business. Similarly, the 2014-2020 industrial acceleration plan follows the same path. To give new life to the Moroccan industrial fabric, including SMEs represent the most part, the government pledged to continue efforts to make Morocco a regional hub taking advantage of free trade agreements already signed, including with Sub-Saharan Africa. The National Strategy for Information Society and the Digital Economy is another project that puts SMEs at the center of his interests, whose primary objective is to make information technology a vector of development human and a source of productivity and added value. The impact and influence of these accumulated factors make forecasting difficult for businesses, whatever the sector of activity, size, nationality ... Indeed, to ensure its sustainability in this changing environment, SMEs must anticipate decisions of competition, market trends, legislative changes, discoveries that may affect its very existence. This necessarily involves the practice of BI, which information appears more and more clearly as a strategic resource, a key factor in its ability to create, develop and defend competitive advantages. She must have timely information useful for the implementation of its strategy. It must therefore find, sort, process and integrate all information collected. In this respect, the ability of SMEs to use information has become a key success factor that can widely promote effective management of innovation within them. What then is the situation of Morocco's SMEs in BI?

### **3. THE TRANSFERABLE NATURE OF THE BIG DATA: WHAT INVENTORY IN SMES?**

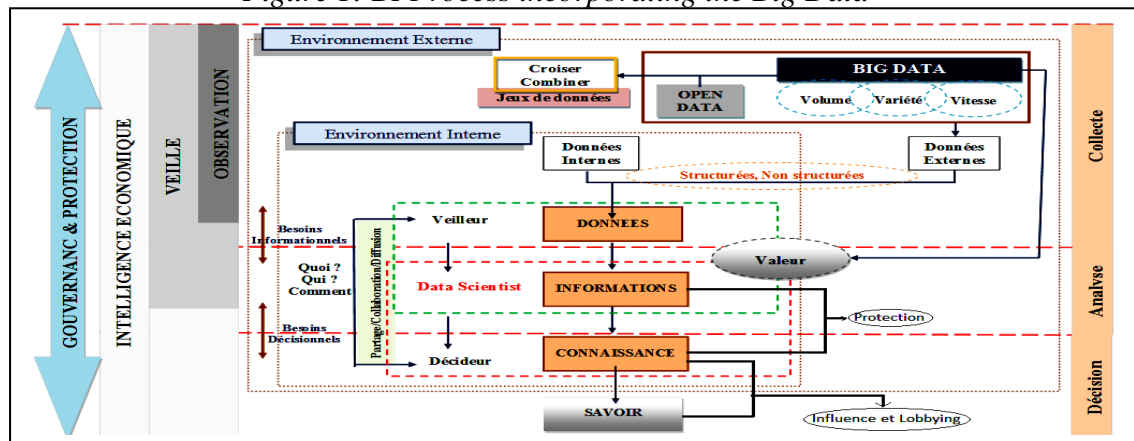
We initially include the National Agency for the Promotion of SMEs (Morocco SMEs). She created in 2010, a monitoring unit, with support from the German Development Cooperation (GIZ). This cell is responsible for supporting Morocco SMEs in strengthening response capacity and anticipating SMEs that meet their needs for BI. On the other hand, the Ministry of Industry, Trade, Investment and the Digital Economy, has launched financial support programs dedicated to SMEs. These include the program "MOUSSANADA IT" which comes within the framework of the plan "Digital Morocco 2013", which aims to promote the use of ICT. Another program is the "IMTIAZ", designed to carry a small development project and wishing to benefit from premiums tangible and intangible investment, corresponding to 20% of the total investment. (It can reach 5 million Dhs.). These support programs are, however, very inadequate to promote the practices of the BI, as they do not facilitate the development of cells and BI systems in SMEs, who suffer major issues related to competition and continuous adaptability. The E-btikar Program is another example that can be within the framework of technical and financial support to SMEs in BI. It was created in 2011 by the company "Cybion" in partnership with "Form'info +", whose main objective is to identify opportunities, win new markets, accelerate innovation and evaluate threat. This is the first Moroccan pack of intelligence and strategic intelligence aimed at SMBs. This pack offers solutions including several advantages, namely: parameterized monitoring software, using a tailor-made solution

with an expert consultant, and professional training on the eve. The program also proposes a protection awareness of the intangible heritage of the company. Since the launch of the Pack, no evaluation study of its implementation has been conducted to measure the return on investment. It should be noted in this case that this SME huge barriers to the establishment of a monitoring system, mainly related to its small size and limited financial and technical resources. To face this situation, hundreds of SMEs can now organize themselves together to solve their own problems. They may be formed in a few days and thus react in near real time, including using clusters. Using these groups, companies promote exchange, knowledge sharing, coordination of joint projects by the actors in the same sector, and a more fluid flow of information between members. In this perspective, a Cluster Mechatronics Electronics and Mechanics (CE3M) was created in 2010 in collaboration with the Moroccan Institute for Scientific and Technical Information (IMIST), and the support of the Ministry of Industry. This Cluster brings together the key players in the electronics sector (companies, universities) around a common goal, which is the emergence of innovative projects geared towards exports. The goal is to promote competitiveness and collaboration of members, strengthen innovation members, meet the sector and propose comprehensive solutions. To realize these promises, the Cluster has developed a questionnaire to identify, firstly, information search customary practices and address the other hand, the needs and expectations vis-à-vis the new system of watch and BI design. Since these initiatives, no action was taken on this project. In the same vein, the General Confederation of Company of Morocco (CGEM) has created a "commission BI" dedicated to supporting SMEs. The commission's mission is to raise awareness among SMEs on the role increasingly important that holds the knowledge and information within the company, to improve their positioning in a context of increasingly open, globalized and competitive. In addition, it sets a goal of helping companies use a real lever for change and to adapt to their environment through the collection of information, operations and value-added processing. In 2012, CGEM has published a guide that aims to increase business awareness of the utility, methods and BI techniques. But even more, to help initiate a process and forging a kind of mindset to promote business performance and competitiveness, as well as the development of the country. By synthesizing the above, we can say that there is not a practice well-defined and widespread among all SMEs. Each company has chosen to practice her own BI, the factors of financing, size and destination of manufactured products represent the main constraints that determine the effectiveness of this practice. In addition, the centralization problem of this practice, at the responsible entity (CGEM, Morocco SMEs) still persists. If developed countries, very aware of the importance of the practice of BI, have already implemented strategies for their SMEs, to enhance their brand image and strong impose their products on international markets, Morocco's SMEs still suffer from lack of organization regarding their information flow management. Faced with competition becoming increasingly fierce and bitter, these SMEs are still very fragile in the absence of a well-organized structure of BI. The question now is how these SMEs can survive in their markets without having an eye on what is happening around them? As such, it is worth mentioning that the SME in Morocco, representing not less than 169500 companies surveyed by the National Social Security Fund (CNSS), exposed (especially younger ones) with high mortality before five years. Many of them disappear, not only because of unfair competition from the informal sector and some large privileged companies, but also for lack of competence on the market. These skills can relate both to those relating to human resources, but especially those related to technical tools which are also handled by the human resources. Indeed, today with the digital transformation, manage human is a major challenge for SMEs. But it is certain that today have a number of skills standby practice and BI is an imperative.

#### 4. HUMAN RESOURCES OF SMES FACE IN BI: A NEW CULTURE IS NEEDED

To understand the various constraints that human resources are exposed by practicing the BI, you must understand the issue of the management of information flows within SMEs. These have a feature on their sizes that promote the flow of information. The larger the size, the smaller the path of information flow is short, and unless there will be a centralized information. This situation is favorable for human resources who can benefit to exchange knowledge. But the reality is different. We do not exchange knowledge and SMEs suffers from a problem of centralization and retention of information. By definition, BI is a process (Figure 1) based on a logical sequence of operations, which describe the different phases of the information life cycle. Passing from one service to another and from one employee to another, information flows within the SMEs. Indeed, the practice of BI requires the collaboration of all stakeholders throughout the process. There watchmen or the information hunters, who are responsible for the collection of any information which would render service to the company, through applications / Alerts. After collecting a number of data considered useful for the company, has the role of analysts (also called the data-scientists) involved the processing and analysis of data collected by the watchers.

Figure 1: BI Process incorporating the Big Data



Source: Jean-Louis MONINO Taoufik BENKARAACHE, Soraya SEDKAOUI and Ghizlane SALAM. "Business intelligence and value creation in the age of the data revolution." 1st edition of the International Workshop on Management (WIM-ITU). "Looks crossed on corporate management practices." 19-20 May 2015. Kenitra. Morocco.

This phase give value and meaning to the data collected. For this information considered useful in decision making, is operated, it must be distributed to all parts of the SMEs can benefit. Thus comes the role of the decision maker which is influenced directly and / or indirectly by its environment. We notice while practicing BI calls for more participants for successful decision making. Indeed, the idea that the decision taken at a given moment and reduced to the single act of responsible making the final choice, is exceeded (Herbert Simon, 1980). The decision was interpreted this time as a series of steps by widely involving the environment and the decision maker often featuring multiple players. Moreover, at a time of his life, the information in the company acquires value and is scanned. And more information has value (knowledge), it becomes more vulnerable and it needs to be protected against:

- The flaws in the computer system.
- The misuse of email.
- The theft of media containing information.
- The communication interception.

- The abuse of employees.

The information security in this sense is also a fundamental aspect of the BI process. It is not enough to get the right information at the right time to analyze and integrate in the decision process. It must be protected. The company must be aware that its competitors should be able to find much information on it that on them. Then there is an awareness of the need for necessary protection of information when the company starts instead of the competitor. This empathy is beneficial since it calls for a rethinking of communication and privacy policies. You should know that any information about a company, once published, for example on the Internet, no longer belongs to him, for example it can be copied to the Google cache, copied or duplicated on other websites, etc. Faced with these constraints, employees of SMEs are faced with two contradictions: legitimacy of sharing information face an obligation to protect the same information (Salam, 2015). How SMEs can they deal with this dilemma? In other words, how to make an employee of an SME, whose size is reduced, responsible for his actions on standby and BI? How awareness to differentiate what should be shared what needs to be protected?

##### **5. PROMOTING COLLABORATIVE INTELLIGENCE IN SMES: WHY AND HOW?**

The approach proposed here does not exclude any category of SMEs, irrespective of their industries, markets, and technologies. We define SMEs according to the systemic approach as a networked company, including partners, contractors, subcontractors, public, private ... We position control of BI as a determinant of the viability of SMEs, its strategy and its management. This assumes that BI be articulated with other business functions (innovation, finance, production, marketing, sales, human resources ...) In this context, the control of information, for SMEs that want undertake and remain competitive is an inescapable fact. This truth is thrust forward for a long time by different actors, still struggling to be part of the strategy and SME operations. Despite tough competition, the arrival of new modes of communication and intrusion reveals that SMEs are still somewhat sensitive to movements of their competitors, exploit little expectations of their partners and customers, and have weaknesses in securing their data, their reputation and their image. From these brief clarifications, we propose to develop a collaborative intelligence between employees of SMEs. We must get the message that collaborative work is a creator of wealth. These employees must always improve their constant adaptation to their environment faculties, and leaning more about the practices of modern management in order to enhance their performance, optimize their productivity and increase their contribution to the creation of the added value of the national economy. To meet these new demands and many others, we seem very urgent to promote the psychology of work and debate the living conditions at work in SMEs. It is noteworthy that South SMEs, including those in Morocco, must thus confront these generators of insecurity factors and new risks for the quality of work life, and which require that new human resources management styles that their are more suitable. Concerning safety and risk prevention at work, it is essential to identify new sources and forms of insecurity faced by these SMEs, particularly because of their entry into the movement of internationalization of knowledge, technologies, values and behavior related to work. In other words, BI is a state of mind in the service of the strategy of SMEs. It aims to sensitize the leaders of these SMEs the crucial role of information and the need to place it at the heart of their activities. BI is a set of tools and practices that will enable to extract knowledge from raw information (reviews, emails, websites, shows, interviews, reports ...) that floods constantly managers. Practices related to the management of information are evolving at a very rapid pace, bringing in their wake many tools and applications available today to specialists but also to a growing number of entrepreneurs. The changes currently taking place in the economic world and the relationship of the actors in this context are characterized by an increased exchange of information volume and an almost instantaneous interaction.

Through the web and especially in Web 2.0, everyone has a megaphone and can produce information on a multitude of topics. This new 2.0 Culture (social networks, blogs, wikis ...) promotes the emergence and sharing of knowledge. SMEs should take advantage of the opportunity that these tools are for development and adopt a management says "2.0" which advocates collaboration. This is especially important in an SME where everything depends on people who are experts in their fields. Capitalize on the knowledge and skills through an effective Knowledge Management is essential. The adoption by SMEs of these tools is also involved in the identification of new markets, new products, new business models... In short, these tools push SMEs to innovate by being closer to their environment, their customers, their prospects ... by taking advantage of all these benefits in terms of saving time and money. Another aspect is also worthy to be analyzed: the training of human resources for SMEs. In fact, employees of SMEs are only winners' universities, schools or training institutes. If we can establish a good education system, sufficient in quantity and quality, in terms of BI, it will be good employees responsible bedded and aware of the challenges of these practices. But Morocco remains far from these initiatives and has not yet developed this spirit, which explains all the raised failures. One last point on which we focus is that of the cost of setting up a system of BI. It bears repeating that BI is not a software business. BI is a state of mind to keep your eyes open on the environment to be able to react in real or near-real time. For an SME to be smart, just as his employee have the ability to collect the right information at the right time, analyze and exploit it properly, and to participate in the decision immediately. This can be achieved by very simple actions: activate alerts Google, subscribe to specialized databases, use the solutions offered by Excel, enjoy the relational network, participate and present at events (round tables, conferences ...), enjoy the success stories of other SMEs, etc.

## 6. CONCLUSION

The SME field and their study are not limited to theoretical questions or even epistemological. Today, faced with new constraints outlined by the practice of BI, SMEs must adapt and reorient their strategies to new creative paths value. It is now to ensure their information management techniques and ensure a climate of collaborative work in their favor. The challenge is to accept the transferable or exchangeable nature of the information, while ensuring at all attacks (theft, cybercrime, loss, espionage ...), that can come destabilize or weaken the intangible heritage of the SMEs. These new challenges will the SME before a difficult exam. This is to convince employee to change their attitudes related to the use of information, establish a new culture of collaboration, to keep their minds in a state of constant monitoring, and especially to enhance their sense of distrust against any temptation that may put the intangible heritage in danger. To meet this challenge, the best remedy would be to seek intercompany and intercontinental partnerships, with the objective of facing together the various hazards of the environment.

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## ASSESSMENT OF THE EFFECTS OF TRANSACTION COST AND TIME ON THE NON-FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN MAIDUGURI

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### ABSTRACT

*E-banking platform transformed traditional system of banking to enhance quality service delivery, real time access, reduced operational cost and time to ultimately achieved maximum efficiency in banking operation, e-banking system is based on the use of new technology to provide banking services directly to customers around the globe. This study assessed the effects of transaction cost and time on non-financial performance of commercial banks in Maiduguri Metropolis. The aim of the study is to examine how e-banking effectively reduced transaction cost, and save transaction time in Maiduguri. Customers of the selected commercial banks were the populations of the study and the sample size is 399. Data were obtained from the respondents through gathering questionnaire. The study used descriptive statistic and inferential statistical tool for data analysis. The hypotheses were tested using multiple regression analysis with the aid of Statistical Package for Social Sciences (SPSS) version 20. One of the finding of the study revealed that there is positive significant effects of e-banking on transaction cost and time. Based on the findings, the study recommends that, commercial banks in Nigeria need to have regular routine maintenance and possible replacement of e-banking facilities or equipment to prevent system disruption.*

**Keywords:** *E-banking, transaction cost, transaction time, Non-Financial performance*

### 1. INTRODUCTION

The banking industry of the 21<sup>st</sup> century operates in a dynamic and competitive environment characterized by technological changes. E-banking platform is based on the use of new technological system to provide banking services directly to customers around the globe. The e-banking services offered by banks cover a broad range of products that have been enhanced by electronic banking tools like Automated Teller Machine, telephone, debit or credit card and internet banking (Almajiri & Siam, 2008). A commercial acts as payment agent to customers by accepting funds deposited on customers current account, lending of money by making advance to customers. Commercial bank have broad range of activities which include personal banking, corporate banking, investment banking, private banking, insurance, customers finance, transaction banking, foreign exchange trading, commodity trading, trading in debt and equity, disburse payment, maintenance, safe guarding customers account and enable customers to access their banking transactions via information's technology (e-banking) tools such as Automated Teller Machine, debit and credit cards and mobile banking which can speed processes and mostly reducing cost of traveling to the bank branch. The implementation of electronic banking ensures operational efficiency as it is evidenced that the average cost of payment through the use of e-banking platform has reduced, with e- banking; banks now deal directly with customers as compared to the traditional system of transaction, (Agboola, 2006).

Jayawardhen and Toley (2000) are of the view that e-banking provides solution to the inherent problems of the traditional banking which were time wasting.

## **2. STATEMENT OF THE PROBLEM**

It is evident that technology is transforming banking activities in all aspects of life, as it is rapidly changing the way financial services are delivered. With the advancement in technology, various banks network their branches and operations making the one branch philosophy a reality to provide service directly to their customers. Before the advent of information technology (e-banking), banking activities were done manually, the activities of banks which include borrowing transfer and keeping of funds in the bank as well as customers details were recorded in bulky books with hand writing. Banking activities were labour intensive and system of information handling processes of banks were not programmed by computers. With the advent of information technology (e-banking), banking activities are now capital intensive, information handling processes of banks are programmed by computers, customers can now access bank services anywhere through the use of automated teller machine, internet banking, telephone banking and personal computer, at the same time customers can now transact business with many branches. Hence the initial cost to this networked system in place may be exorbitant but it is usually worth the cost in the medium to long term (ATM) (Almaziri& Siam, 2008). A number of studies have been conducted on the performance of commercial banks in Nigeria and other countries, but most of the studies focused on financial Performance of banks, for example studies conducted by Ugwanta&Ezendu (2012) and Njugu Joseph Njugu (2014) looked at e-banking impact on return on asset, return on equity and return on investment as indices of financial performance, which found that e-banking have positive impact on banks performance. It is against this background that this study aims to assess the effect of electronic banking system on non-financial performance of commercial banks in Maiduguri.

## **3. OBJECTIVE OF THE PAPER**

The main objective of the paper is to assess the effect of transaction cost and time on the non-financial performance of commercial banks in Maiduguri. The specific objectives are to:

1. assess the effect of electronic banking system on transaction cost of commercial banks
2. examine the effect of electronic banking system on transaction time of commercial banks

### **3.1. Research Questions**

The paper was guided by the following questions:

1. What how does the e-banking system affect transaction cost of commercial banks?
2. What is the effect of e-banking system on transaction time of commercial banks?

### **3.2. Research Hypotheses**

The paper was guided by the following hypotheses:

1. H<sub>01</sub>: There is no significant effect of electronic banking system on transaction cost of commercial banks
2. H<sub>02</sub>: There is no significant effect of electronic banking system on transaction time of commercial banks

## **4. CONCEPTUAL FRAMEWORK**

### **4.1. Concept of E-banking**

The term, e-banking, is technically and intricately complex to define as it may be interpreted differently from different accessing viewpoints. The versatility of e-banking as delivery multichannel increases the intricacy of being precisely defined in literature; nonetheless, several attempts have been made to offer the meaning of e- banking.

According to Kricks (2009), view e-banking as automated delivery of new and conventional banking products and services directly to customers through electronic and interactive channels. E-banking transformed traditional models of banking to enhance quality service delivery, real time access, reduced operational cost and ultimately achieved maximum efficiency in banking operation (Ovia, 2001, Gonzalez, 2008). According to Pyun (2002) posited that, e-banking serve as an automated platform and interactive channel by which customers conveniently gratify their demands for bank transactions elsewhere. Daniel (1999) opined that e-banking is the provision of information or services by banks to its customers via a computer or television. E-banking includes the systems that enables financial institutions customers, individuals or business to access accounts, transact business or obtained information on financial products and services through a public or private network including internet (Gio, 2003).

#### **4.2. E-banking Measures and Non-Financial Performance of Banks**

E-banking is an umbrella term referring to the process by which customers can perform transaction electronically without visiting the bank branch. The following are the indicators of e-banking when used by customers and commercial banks; Personal computer (PC), internet banking, online banking, home banking remote e-banking, mobile banking and e-mail banking. PC banking, ATM and internet banking are the most frequently used. The Basel committee on banking supervision of the Bank of International Settlement (BIS), has recommended using Capital adequacy, Asset quality, Management, Earning, Liquidity (CAMELS) as a criteria for assessment of financial performance, sensitivity to market risk was added in 1997, (Gilbert, Meyer and Vaughan, 2000). CAMEL framework is a common method for evaluating the soundness of financial institution. The comptroller of the currency and the Federal insurance corporation all use this system, (McNally 1996). Monetary authority in most countries uses this system to check up the health of the individual financial institutions. CAMEL Framework system look at six (6) major aspect of a financial institution, Capital adequacy, Asset quality, Management soundness, Earning, Liquidity and Sensitivity to market risk, Capital adequacy is ultimately determine how well banks are strong in their balance sheets.

#### **4.3. Effects of E-banking System on Transaction Cost**

According to Wise and Ali (2009), state that many banks invest in ATMs to reduce branch cost since customers prefer to use them to transact business. The financial impacts of ATMs are the marginal increase in fee income substantially offset by the cost of significant increase in the number of customer transactions. The value proposition however, is a significant increase in the intangible items customer satisfaction. The increase translates in improved customer quality of service delivery and growing organizational income. Internet banking services has led to increase in retention of highly valued customer and save time of transaction. Costs in term of money and time are negative factors when customer assesses the value of services (HO and KO, 2008). Bank average cost of payment through the use of e-banking platform is more than paper based equivalent or cash, it is clear that customers use ATM, internet banking and phone banking for transaction because of discount value of the cost benefit (Duca&VanHoose 2004). Customers respond to price charges on e-banking platform they do not welcome the opportunity to trade off of perceived payment preferences with relative prices when they pay directly for the service use via e-banking platform. Transaction based price is the main concern for customers to know how much is been charge on the usage of e-banking instrument, since it directly affects customers decision about payment for the service used. Whereas implicit price and fixed fees can have small behavioral effect since these cost do not differ with the usage and when imposed on each e-banking instrument is stable over time and non price effect such as availability of service, convenience, security and accessibility also influences payment for usage of e-banking platform (Duca et al 2004).

#### **4.4. Effects of E-banking System on Transaction Time**

According to Agboola, (2005) is of the opinion e-banking services allow the customer of the bank to access to their account always at any time and any place that the services is available through the internet, this save time of going to the bank to make transaction, customer can make use of his/her phone to check balances, transfer money easily without going to the branch. According Dimiz (2011), time factors significantly determine use of media of exchange, and sensitivity to these time factors depend on the income, age and demographic characteristics of the customers. Customers who have a strong preference for minimizing the length of a transaction would actively seek out e-banking platform that offers quick services. In contrast, those who have a strong preference for checks do not seek such accounts. In both cases, while the fees may differ according to payment type, the opportunity cost associated with the account should still be identical. In this interpretation, the observed payment instrument use reflects consumer preferences accurately and indeed, could potentially strengthen the results. Money revolved around the world, transaction with a cheque is time wasting because customers have to fill in their details and take it to the cashier for endorsement which take a long process and waste time before transaction will be completed, since money is the medium of exchange and time for transaction, in this regard exchange depend on the type of technology changes, the availability of media of exchange are the cash, cheque, ATM, phone banking, internet banking, debit and credit, the use of ATM, phone banking, debit and credit card is increasing continuously while that of cash is reducing due to time wasting in transaction (Klee, 2006).

### **5. EMPIRICAL STUDY**

Previous studies exist in the literature, which have examined the relative performance of banks offering internet banking services. In a study conducted by Eglund, Furst&Nolle (1998), Furst, Lang & Nolle (2000), it was found that in all categories of banks offerings internet banking was generally more profitable and tended to rely less heavily on traditional banking activities in comparison to non-internet banks. The study also found that the internet banking institutions were performing significantly better than the non-internet groups. It found a significant and positive link between offering of Internet banking activities and banks' profitability and a negative but marginally significant association between the adoption of Internet banking and bank risk levels particularly due to increased diversification. According to Furst, Lang and Nolley, (2000), in their study they estimated the number of US banks offering internet banking and analyzed the structure and performance characteristics of these banks. This study found no evidence of major differences in the performance of the group of banks offering Internet banking activities compared to those that do not offer such services in terms of profitability, efficiency or credit quality. In a study conducted by Jayawardhena (2000) showed that internet banking results in cost and efficiency gains for banks yet very few banks were using it and only a little more than half a million customers were online in U.K. Klee (2006) in his study of paper or plastic, the effect of time on the use of cheque and debit card, he found that the use of card for transaction is faster than the use of cheque. Finding of the study revealed that the time taken to resolve e-transaction failure discourages depositors to keep money in the bank, at time, they forfeit their money due to excess time required to resolve the issue.

#### **5.1. Transactions Cost Innovation Theory**

Niehans (2006) is the pioneer of the transaction cost innovation theory. It advocated that the dominant factor of Financial Innovation is the reduction of transaction cost and in fact, financial innovation is the response of the advance in technology which cause the transaction cost to reduce. The reduction of transaction cost can stimulate financial innovation and improvement of financial service. It state that, financial innovation reduces transaction cost. For instance, the use of internet – connected information technology can substantially reduce a firm's transaction

cost and time as its enable efficient co-ordination, management and use of information. Internet connected information technology may further lower transaction cost as it provide off-site access to the firm's internal data base and other relevance source of information which also reduced time consumption on data based management. Consequently reduction of operation costs through internet banking can influence growth in profitability of the banks. It is paramount to understand that, in a well internet-connected information technology, bank customer can have access to their account by the use of their mobile phone or through automated teller machine which has reduce transaction cost and time of going to the bank branch when the time of withdrawal of fund is due. According to Klee (2006) is of the opinion that the effect of time on the use of cheque and debit card and that the use of card for transaction is faster than the use of cheque. This finding of the study revealed that the time taken to resolve e-transaction failure discourages depositors to keep money in the bank, at time, they forfeit their money due to excess time required to resolve the issue,

## **6. METHODOLOGY**

The paper was undertaken in Maiduguri the capital of Borno State, Nigeria. Primary sources of data were used for the study. The bank customers were the sources of the primary data. The populations of this study were the entire customers of four commercial banks in Maiduguri Metropolis, Borno State, Nigeria with the total customers of 226,734. The sample size of 399 customers of the four selected commercial banks was used for the study. Data were collected through survey method with the use of questionnaire. Primary data obtain from individual responses were analyzed through the use of descriptive statistics, correlation was used to see how correlated the variables are and Statistical Package for Social Sciences (SPSS) version 20.0 was used for statistical analysis and inferential statistics of Multiple regression analysis was also used to test the hypotheses stated respectively.

*Table following on the next page*

*Table 1: Data presentation*

<b>Statement</b>	<b>SA</b>	<b>A</b>	<b>UD</b>	<b>SDA</b>	<b>DA</b>	<b>TOTAL</b>
E-banking services were offered at lower cost	112	198	12	43	17	382
Percentage (%)	29	52	3	11	4	100
E-banking platform has grossly reduced the cost of going to the bank branch for transaction	96	189	14	48	35	382
Percentage (%)	25	49	4	13	9	100
Cost of e-banking transaction is offset by the convenience provided by the e-banking platform	64	102	11	83	38	382
Percentage (%)	17	27	4	30	22	100
Banking hall transaction cost is lower than that of e-banking transaction	98	176	10	61	37	382
Percentage (%)	26	46	3	16	9	100
E-banking platform has reduced time taken by banks to deliver service to customers	91	147	11	75	58	382
Percentage (%)	24	38	3	20	15	100
E-banking platform has reduced waiting time in the banking hall.	114	186	10	46	26	382
Percentage (%)	30	48	3	12	7	100
It takes shorter time to complete transaction using e-banking platform	126	184	9	41	22	382
Percentage (%)	33	48	2	11	6	100
Time spent to resolve e-transaction failure discourage depositors to keep their money in the bank.	121	179	9	45	28	382
Percentage (%)	33	47	2	11	7	100

*Source: Field Survey, (2017)*

Table 1 shows that 112(29%) strongly agreed that e-banking services were offered at lower cost, 198(52%) agreed that e-banking services were offered at lower cost 12(3%) were undecided as to whether or not e-banking services were offered at lower cost, 43(11%) disagreed that e-banking services were not offered at lower cost 17(4%) strongly disagreed that e-banking services were not offered at lower cost. The inference from the table revealed that majority of the respondents agreed that e-banking services were offered at lower cost. It also revealed that 96(25%) strongly agreed that e-banking platform has reduced the cost of going to the bank branch for transaction, 189(49%) agreed that e-banking platform has reduced the cost of going to the bank branch for transaction, 14(4%) are undecided as to whether or not e-banking platform has reduced the cost of going to the bank branch for transaction, 48(13%) disagreed that e-banking platform has not reduced the cost of going to the bank branch for transaction, 35(9%) strongly disagreed that e-banking platform has not reduced the cost of going to the bank branch for transaction. The inference from the table revealed that majority of the respondents agreed that e-banking platform has grossly reduced the cost of going to the bank branch for transaction. It also shows that 64(17%) strongly agreed that the cost of e-banking transaction is offset by the convenience provided by the e-banking platform, 102(27%) agreed that the cost of e-banking transaction is offset by the convenience provided by the e-banking platform 18(4%) are undecided as to whether or not the cost of e-banking transaction is offset by the convenience provided by the e-banking platform, 115(30%) disagreed that the cost of e-banking transaction is not offset by the convenience provided by the e-banking

platform, 83(22%) strongly disagreed that the cost of e-banking transaction is not offset by the convenience provided by the e-banking platform. The inference from the table revealed that majority of the respondents disagreed that the cost of e-banking transaction is not offset by the convenience provided by the e-banking platform. It revealed that 98(26%) strongly agreed that even if banking hall transaction cost is lower than that of e-banking, they will still prefer to transact electronically due to its security, 176(46%) agreed that even if banking hall transaction cost is lower than that of e-banking, they will still prefer to transact electronically due to its security, 10(3%) are undecided as to whether or not if banking hall transaction cost is lower than that of e-banking, they will still prefer to transact electronically due to its security, 61(16%) disagreed that even if banking hall transaction cost is lower than that of e-banking, they will not prefer to transact electronically due to its security and 37(9%) strongly disagreed that even if banking hall transaction cost is lower than that of e-banking, they will not prefer to transact electronically due to its security. The inference from the table revealed that majority of the respondents agreed that even if banking hall transaction cost is lower than that of e-banking, they will still prefer to transact electronically due to its security. It shows that 91(24%) strongly agreed that e-banking platform has reduced time taken by banks to deliver service to customers, 147(38%) agreed that e-banking platform has reduced time taken by banks to deliver service to customers, 11(3%) are undecided as to whether or not e-banking platform has reduce time taken by banks to deliver service to customers, 75(20%) disagreed that e-banking platform has not reduced time taken by banks to deliver service to customers, 58(15%) strongly disagreed that e-banking platform has not reduced time taken by banks to deliver service to customers.. The inference from the table revealed that majority of the respondents agreed that e-banking platform has reduced time taken by banks to deliver service to customers. It also shows that 114(30%) strongly agreed that e-banking platform has reduced queue and waiting time in the banking hall, 186(48%) agreed that e-banking platform has reduced queue and waiting time in the banking hall, 10(3%) are undecided as to whether or not e-banking platform has reduced queue and time in the banking hall, 46(12%) disagreed that e-banking platform has not reduced queue and waiting time in the banking hall, 26(7%) strongly disagreed that e-banking platform has not reduced queue and waiting time in the banking hall . The inference from the table revealed that majority of the respondents agreed that e-banking platform has reduced queue and waiting time in the banking hall. It revealed that 126(33%) strongly agreed that it takes them shorter time to complete transaction using e-banking, 184(48%) agree that it takes them shorter time to complete transaction using e-banking, 9(2%) are undecided as to whether or not it takes them shorter time to complete transaction using e-banking platform, 41(11%) disagreed that it does not takes them shorter time to complete transaction using e-banking platform, 22(6%) strongly disagreed that it does not takes them shorter time to complete transaction using e-banking platform. The inference from the table revealed that majority of the respondents agreed that with e-banking platform it takes them shorter time to complete transaction. The table also shows that 121(33%) strongly agreed that time spent to resolve e-transaction failure discourage depositors to keep their money in the bank, 179(47%) agreed that time spent to resolve e-transaction failure discourage depositors to keep their money in the bank, 9(2%) are undecided, 45(11%) disagreed that time spent to resolve e-transaction failure discourage depositors to keep their money in the bank and 28(7%) strongly disagreed that time spent to resolve e-transaction failure discourage depositors to keep their money in the bank.

## **7. TESTING OF HYPOTHESES**

### **7.1. Hypothesis 1**

H<sub>01</sub>: There is no significant effect of electronic banking system on transaction cost of commercial banks

7.1.1. Regression 1

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.940 <sup>b</sup>	.884	.883	.37053

Source: SPSS version 20.0 Computation result (2017)

Independent Variable: E-Banking, Dependent Variable: Transaction cost

R=0.940 measures the correlation between the observed and the predicted values. Meaning there is high correlation between the observed values and those that will be predicted by the model. R-squared=0.884 measures the amount of variations in the dependent (transaction cost) variable explained by the independent variables. Adjusted R square is the modified version of R square after correcting for the number of independent variables and sample size. The standard error of the estimate (0.37053) is a measure of the accuracy of predictions made with the regression model; the smaller the standard error of estimate the better is the model, this suggests a better model.

Table 2.1: ANOVA<sup>b</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	393.657	4	98.414	716.820	.000 <sup>b</sup>
	Residual	51.759	377	.137		
	Total	445.416	381			

Source: SPSS version 20.0 Computation result (2017)

- a) Independent Variable: E-Banking System
- b) Dependent Variable: Transaction cost

The Anova, test for linear relationship between the dependent and independent variables, from the results it is obvious that there is strong linear relationship between the dependent and independent variables. With sig. value of less than 5% (i.e 0.000<0.05)

Table following on the next page



Table 2.2: Coefficients<sup>b</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.195	.046		4.280	.000
E-banking platform has grossly reduced the cost of going to the bank branch for transaction	.132	.113	.150	1.164	.039
E-banking platform has improved customer`s relationship with their bank	.795	.087	.903	9.161	.000
The cost of banking hall transactions is far greater than the cost of e-banking platform transaction	-.013	-.030	-.015	-.428	.069
The cost of e-banking transaction is offset by the convenience provided by the e-banking platform	-.043	-.024	-.058	-1.804	.072
Even if banking hall transaction cost is lower than that of e-banking, I will still prefer to transact electronically due to its security	.140	.070	.167	2.015	.045

Source: SPSS version 20.0 Computation result (2017)

a) Dependent variable: Transaction cost

The table contains the estimates of the population regression coefficients, their standard errors, the standardized coefficients and the values of the t statistics to test the regression coefficients with the corresponding two-sided p-values. The first column contains the independent variables; the B column contains the estimates for each of the independent variables. All the variable contribute positively and significant except product strategy did you use that is negative but significant Transaction cost = 0.132 E-banking platform has grossly reduced the cost of going to the bank branch for transaction+ 0.795 E-banking platform has improved customers relationship with their bank -0.013 the cost of banking hall transaction is far greater than the cost of e-banking platform transactions -0.043 the cost of e-banking transaction is offset by the convenience provided by the e-banking platform +0.140 even if banking hall transaction cost is lower than that of e-banking, I will still prefer to transact electronically due to it security. From the table above, it shows that the first, second and the fifth variables (E-banking platform has grossly reduced the cost of going to the bank branch for transaction, e-banking platform has improved customers relationship with their bank and even if banking hall transaction cost is lower than that of e-banking, I will still prefer to transact electronically due its security) contributes significantly to the transaction cost, since they all have sig. values less than 0.05. The result of the study revealed that there is a significant effect of electronic banking system on transaction cost.

## 7.2. Hypothesis 2

H<sub>02</sub>: There no significant effect of e-banking system on transaction time of commercial banks

### 7.2.1. Regression 2

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.915 <sup>c</sup>	.838	.836	.57586

Source: SPSS version 20.0 Computation result (2017)

- a) Independent Variable: E-Banking System
- b) Dependent Variable: Transaction time

R=0.915 measures the correlation between the observed and the predicted values. Meaning there is high correlation between the observed values and those that will be predicted by the model. R-squared=0.838 measures the amount of variations in the dependent (Transaction time) variable explained by the independent variables. Adjusted R square is the modified version of R square after correcting for the number of independent variables and sample size. The standard error of the estimate (0.57586) is a measure of the accuracy of predictions made with the regression model; the smaller the standard error of estimate the better is the model, this suggests a better model.

Table 3.1: ANOVA<sup>c</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	643.461	5	128.692	388.084	.000b
	Residual	124.685	376	.332		
	Total	768.147	381			

Source: SPSS version 20.0 Computation result (2017)

- a) Independent Variable: E-banking system
- b) Dependent Variable: Transaction time

The Anova, test for linear relationship between the dependent and independent variables, from the results it is obvious that there is strong linear relationship between the dependent and independent variables. With sig. value of less than 5% (i.e 0.000<0.05)

Table following on the next page

Table 3.2: Coefficients<sup>c</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.254	.080	.054	-3.182	.002
E-banking platform has reduced queue and waiting time in the banking hall	.027	.177	.022	.152	.047
It takes shorter time to complete transaction using e-banking platform	.295	.126	.237	2.349	.019
It is preferable to take to a person for my transactions than a machine regardless of how long it takes	-.406	-.034	-.404	-11.851	.056
The time spent to resolve e-transaction failure discourages depositors to keep money in the bank	-.348	-.183	-.297	-1.907	.057
At times, you have to forfeit your money due to failed e-transaction because of excess time required to resolve the issues	.700	.102	.609	6.891	.000

Source: SPSS version 20.0 Computation result (2017)

a) Dependent Variable: Transaction time

The table contains the estimates of the population regression coefficients, their standard errors, the standardized coefficients and the values of the t statistics to test the regression coefficients with the corresponding two-sided p-values. The first column contains the independent variables; the B column contains the estimates for each of the independent variables. All the variable contribute positively and significant except product strategy did you use that is negative but significant. Transaction time = 0.027 E-banking platform has reduced queue and waiting time in the banking hall+ 0.295 it takes shorter time to complete transaction using e-banking platform -0.406 It is preferable to take to a person for my transaction than a machine regardless of how long it will take -0.348 the time spent to resolve e-transaction failure discourages depositors to keep money in the bank + 0.700 at times, you have to forfeit your money due to failed e-transaction because of excess time require to resolved the issues. (From the table above, it shows that the first, second and the fifth variable, e-banking platform has reduced queue and waiting time in the banking hall, it takes shorter time to complete transaction using e-banking platform and at times, you have to forfeit your money due to failed e-transaction because of excess time require to resolve the issues) contributes significantly to transaction time, since they all have sig. values less than 0.05. The result of the study revealed that there is a significant effect of electronic banking system on transaction time in commercial banks, because it has contributed significantly in queue reduction in term of time.

## **8. DISCUSSION OF FINDINGS**

Analysis of hypothesis two (I) revealed that e-banking platform has positive significant effect on transaction cost of commercial banks in Maiduguri Metropolis. This answer the question of what are the effects of e-banking system on transaction cost. Finding of the study revealed that e-banking platform has grossly reduced the cost of going to the banking hall for transaction this can be done with the use of ATM, telephone and smart card at any hour of the day without necessarily going to the banking hall. This finding is in line with the finding of Lang & Nolle (2000), it was found that in all categories of banks offerings internet banking was generally more profitable and tended to rely less heavily on traditional banking activities in comparison to non-internet banks. The study also found that the internet banking institutions were performing significantly better than the non-internet groups, it also investigate the amounts invested in internet banking including number of 20 internet products offered by commercial banks on financial performance and found that Internet banking has reduced transaction cost.

Analysis of hypothesis three (II) indicates that e-banking platform has positive significant effect on transaction of time of commercial banks in Maiduguri Metropolis. This answer the question of what is the effect of e-banking system on transaction time. Finding of the study revealed that e-banking platform has reduced queue and waiting time in the banking hall, transaction are completed within short period of time using e-banking platform, this is true because most of the customers can use their ATM to withdraw money at any ATM point without necessary holding of withdraw slip and waiting for manual transaction in the banking hall, with the use of e-banking platform, transaction is completed within shorter time. This study corresponds with the study of Klee (2006) in his study of paper or plastic, the effect of time on the use of cheque and debit card, he found that the use of card for transaction is faster than the use of cheque. Finding of the study revealed that the time taken to resolve e-transaction failure discourages depositors to keep money in the bank, at time, they forfeit their money due to excess time required to resolve the issue.

## **9. CONCLUSION**

Based on the findings, the paper concludes that electronic banking have improve service delivery, save time, reduced cost of transaction whereby customers can access the account easily without necessary going to the bank branch. E-banking have help the banking industry with a greater opportunities and flexibility to customers, this has enable banks to be very fast in service delivery with the used of e-banking products such as Automated Teller Machines (ATMs), Telephone banking and internet banking which influence the performance of the banks. And finally paper concluded that e-banking services provides convenience and promptness to customers along with cost saving and banks in Maiduguri are also interested in expanding their market through internet services.

## **10. RECOMMENDATIONS**

Based on the findings and conclusion reached from the paper, the following recommendations were made;

1. Commercial banks in Maiduguri need to have regular routine maintenance and possible replacement of e-banking facilities or equipment to prevent system disruption.
2. Banks should work hard to get the trust of their customers because customer adoption of e-banking platform is based on trust.
3. Commercial banks in Maiduguri needs to be proactive in addressing the security, technology and infrastructural challenges in term of transaction cost and time associated with electronic transactions and ensure 24 hours uninterrupted network system in order to enable clients of commercial banks have improved quality of service.

4. Commercial banks in Maiduguri need to address the e-transactions failures within shortest time whenever it happens in order to reduce transaction cost and time.

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# THE USE OF PORT PERFORMANCE INDEXES IN THE TRANSPORT ECONOMY AND THE STRENGTHENING OF PORT COMPETITIVENESS

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## **ABSTRACT**

*Ports in the transport economy have an important role to play in the competitiveness of ports. There is an increasing climate of competition, which causes ports to invest in development and to improve their transport corridors, governance principles and pricing policies in order to strengthen international competitiveness of ports and to ensure that their management practices are in line with the positive international experience. In order to increase the efficiency of transport, to promote the use of environmentally friendly technologies and to improve the international competitiveness of port transport corridors, it is important for ports to determine their own KPI indicators that would be used to assess port performance indicators. As ports are responsible for the quality assurance of port services, even if they do not provide such services, monitoring and assessing of the KPI must be part of the quality assurance process. The objective of this study is to define the port performance-enhancing KPI indexes and to make suggestions for how KPI application in the transport economy can strengthen the international competitiveness of ports and ensure that their management practises international experience. The study's tasks are to define the appropriate KPI indexes, group them according to interlinked principles, and provide proposals on how to use them to improve the international competitiveness of ports and the main transport system multimodal integration.*

**Keywords:** *KPI, port performance, transport economics*

## **1. INTRODUCTION**

Information about the activity and efficiency of ports is scarce, but it is valuable for the common development of ports. Ports require analytical information to monitor their operations, as well as information on the competing ports for planning purposes. In turn port users require information to make informed choices, about which of the port's services to use. Analysis of information allows one to monitor whether the strategic objectives are observed, and at the policy level it provides a panel for informing the national and regional policy makers on the trading status of the port industry and shipping. The economic efficiency is the economic indicator that characterises the result obtained from the used funds. The efficiency is determined by attributing the obtained result (profit) to the used resources that have been necessary to obtain the result (profit). Society is interested in achieving more efficient production, since it will be able to better meet its needs, as well as the needs of each individual in the context of limited resources. By effectively using limited resources, products will be produced using less labour, financial and capital resources, thus the key issue of the economy – limitedness – will be better addressed. Assessment of port efficiency helps to confirm the new strategic development directions, to monitor their effective performance and achieving of the desired results, as well as to plan the long-term development of ports. Assessment of efficiency is related to the measurements of port productivity or performance indicators, which means that the port needs to provide maximum throughput to maximise the volume of cargo served, utilising minimal resources and maximising the profitability of the provided services. In order to ensure the most efficient port services, it is necessary to assess the performance of the port (Key Performance Indicators, hereinafter – KPI) – input data: capital, work, infrastructure,

output data: the volume of cargo serviced. A Key Performance Indicator is a measurable value that demonstrates how effectively a company is achieving key business objectives. KPIs can be used to evaluate how successful a company is at reaching specific targets. A high-level KPI may focus on big picture performance goals, while a low-level KPI may focus more on the daily processes in each department of an organization—such as marketing or sales (Sarwar N., 2013). KPIs are key measurements in all dimensions that will characterise the achievement of the desired goal. Clear objective – Only those indicators that best illustrate the goals are selected. Along with time, you can determine the desired measurement size, interval.

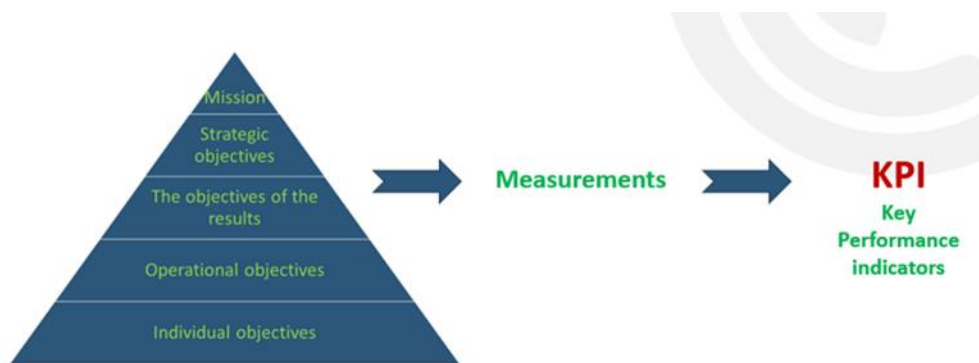


Figure 1: FORCEO goals model (author's construction, based on Juntunen S.M., 2017)

Mission denotes the highest objective of the organisation, its meaning and place of existence in the world. The strategic objectives indicate the desired state of the external environment. What is the effect that we want to achieve? The objectives of the results indicate the result visible outside the organisation that should be created to achieve the strategic objectives. They are measurable. The objectives of the results are the tasks of the strategic goals. The operational objectives indicate what to do to achieve the objectives of the results and how. They are determined differently for processes and projects. Operational objectives are the objectives of the target results (Port Indicators System: Methodology, 2016). The individual objectives specify what should be done by a particular employee. They result from the processes and projects, in which the employee participates. In addition they indicate which competences should be developed. Given the importance of the port industry and the need for specific indicators, in this study a system of port performance indicators has been established, which allows us to identify the potential for the greatest return compared to other international standards in the ports. It will also make it possible to determine the impact of the improvements made in the ports to their operations. Analysis of KPI indexes will promote competitiveness and help reduce the areas in which the national port system is lagging behind. The task of this study is to identify the possible performance indicators that will assess the impact of the port system on the society, the environment and the port economy. For port terminals, measuring KPIs to improve operational efficiencies and productivity is crucial. With vessel sizes on the rise, shipping companies are more demanding than ever. However, selecting high-quality KPIs isn't easy. The best way to evaluate the relevance of a KPI is to use the SMART criteria (Port Management Series: Port Performance, 2016). Acceptable and feasible Key Port Performance Indicators to measure the impact of the European Port System on society, environment and economy:

- Market trends and structure (Market Share, Maritime traffic, Vessel Traffic, Container dependency, Herfindahl-Hirschman Index (HHI), Call size)
- Socio-economic impact (Financial health, Investment, Employment (Direct & Indirect), Added value (Direct & Indirect), Direct Gross added value per FTE)

- Environment (Total water consumption, Total energy consumed, Amount of waste, Existence of monitoring programme, Carbon footprint)
- Logistic chain and Operations (Availability of Port Community Systems, Ship turnaround time, Mean-time customs clearance, On-time performance, Maritime and Intermodal container connectivity)
- Governance (Port authority investment, Market openness, Integration port cluster, Port authority employee productivity, Existence of Performance Measurement, Autonomous management, Extent of performance management)

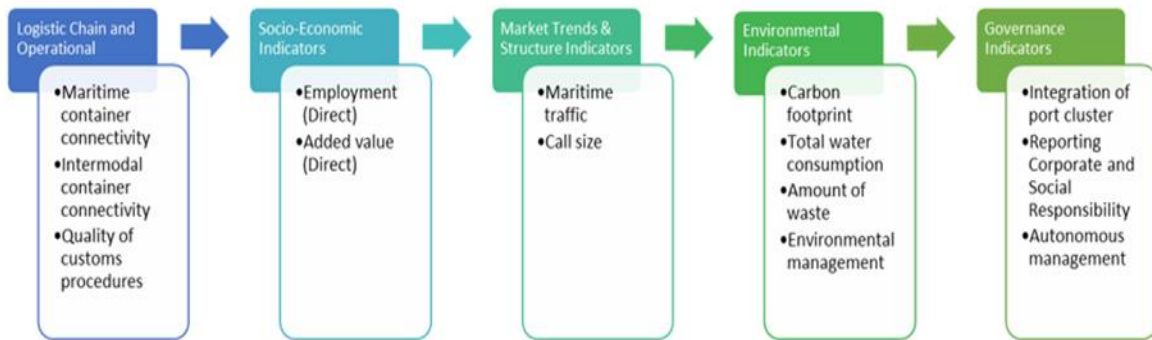


Figure 2: ESPO port performance criteria (author's construction, based on Port Performance Measurement in Practice )

## 2. LOGISTIC CHAIN AND OPERATIONAL

With the help of maritime and inland connection indicators, it is offered to assess the existence of the connections in order to meet the expectations of the customers. In the calculation of the indicator, it is proposed to assess the existence of connections in the context of Europe and the entire world, rather than in the view of a specific port or region. On time performance indicators, in turn, can help assess whether the port operations are carried out within the specified time limits. When assessing the aspects that affect the performance rate of the activities, it is possible to take measures to improve On time indicators, if necessary. The indicator of time spent for customs control gives an idea of how easy or complicated the customs procedures are for the port, and how they affect the efficiency of the overall logistics chain. Accordingly, the existence of a port association system indicator provides whether a port has a data exchange system to increase the efficiency of the port's processes. (Bentaleb F, Mabrouki C, Semma A, 2015) The time spent by the ships in the ports is considered an indirect indicator, which provides the efficiency of the port's operation.

## 3. SOCIO – ECONOMIC INDICATORS

The indicators of socio-economic impact, such as employment and value added indicators are important to demonstrate the economic contribution of the port to the city, region and state in general. The socio-economic indicators can be used as criteria for allocating funding for infrastructure improvements during the particular planning period in the transport sector. The author considers that these indicators can help persuade potential investors to invest financial resources and to develop their businesses in the particular port. Employment indicators accordingly help to assess the jobs created as a result of the port activities in the particular region. The European Commission proposes to assess the employment rates in the context of the volume of reloaded cargo and the created value added. (Metalla O., 2015) The value added indicators accordingly provide insight into the contribution of port activity to GDP.



#### **4. MARKET TRENDS & STRUCTURE INDICATORS**

Port indicators relating to market trends and market structures are intended for internal use of the industry in the context of development and competitiveness. Market trend indicators would allow the port authorities and the European Commission to monitor the development of port capacity and cargo concentration, the level of differentiation at the various geographical levels of the port systems, as well as in different market segments. The indicator for maritime transportation is selected to analyse the port traffic by calculating the volume of cargo or passengers, being reloaded and serviced in the port in the given time period. (Vitsounis T, 2016) According to the author the indicators of the market trends and structure can be used as key elements for developing port development strategies, as well as the common sector policies in a particular country or region. At the same time the calculation and disclosure of these indicators would ensure greater public understanding of the role of ports in the particular country or region.

#### **5. ENVIRONMENTAL INDICATORS**

Like any other organisation, ports also have the task of controlling the environmental impact of their activities. The calculation and assessment of the environmental indicators over a given period of time is essential to find out whether specific activities lead to positive or negative environmental changes. With the help of the consumed energy indicator, for example, the amount of natural gas, fuel, as well as the amount of electricity is identified that is used for the provision of port operation. The author believes that by comparing the amount of energy consumed, the ports can draw conclusions and develop action plans in order to use their activities more for the provision of renewable energy resources, thus reducing their negative impact on the environment. Systematic monitoring of the total water consumption indicator can help to use water resources more efficiently for the provision of port activities. Effective use would also reduce the total costs of water consumption. In turn, the carbon footprint is a means to measure the amount of greenhouse gas emissions directly or indirectly caused by the operation of the port. An indicator of the existence of an environmental protection plan and its control system demonstrates whether a plan for environment protection in the relevant port has been developed, as well as whether a control system has been developed that defines the processes and activities for describing and monitoring the environmental quality in the port. The waste quantity indicator demonstrates how much waste is generated according to their types – hazardous waste and non-hazardous waste. The assessment of waste quantities may indicate the measures that the port has or has not taken to reduce the quantity of waste. In turn, the list of strategic environmental aspects includes activities, products, services, etc., which have a direct or indirect impact on the environment.

#### **6. GOVERNANCE INDICATORS**

It is suggested to analyse the indicator of the investments made by the port authority in the context of cargo turnover in the port, but it might be difficult to assess the cargo turnover in terms of money. The indicator would help the port authorities to assess, whether the investments in port development have increased cargo turnover in the port. The indicator of port cluster integration is used to determine whether a system has been established in the port – a cluster for uniting different stakeholders. The market transparency indicator expresses the degree of market transparency in the port. The port performance scoreboard indicator can help assess the status, at which the port authorities are currently assessing their performance results, or whether the port authorities are assessing market trends and structural indicators, socio-economic indicators, environmental performance indicators, logistics chain indicators, as well as port management indicators. In turn, the port performance scoreboard indicator accordingly demonstrates whether the port does/does not have a comprehensive system complex, with the

help of which the overall port performance is assessed, including the assessment of performance indicators, quality standards, customer satisfaction, etc. These criteria set by ESPO are not sufficient to assess the port's performance or efficiency. The author has defined her set of performance indicators, which are in synergy with each other and form effective port activity, pointing to port development or growth.

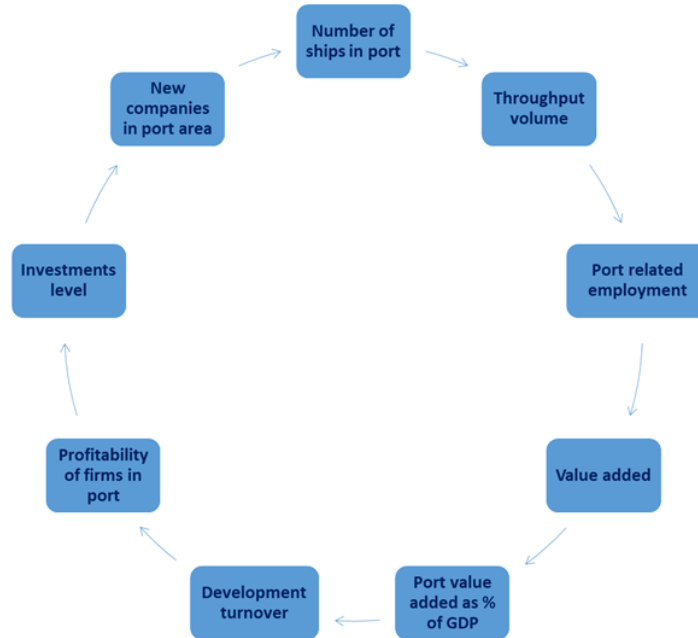


Figure 3: Port Development performance indicators (author's construction)

### 6.1. Throughput volume

Port throughput performance and cargo turnover are indicators that primarily characterise the importance of the port and allow it to be compared with other ports in the region, both by commodity sectors and product groups, as well as by the total volume of reloaded cargo. These are the primary indicators that characterise port performance.

### 6.2. Number of ships in the port

The number of ships serviced in the port directly affects the port cargo turnover, but at the same time nowadays the number of ships serviced at the port is decreasing, while the number of tonnes serviced is increasing and it is possible because of the rapidly changing fleet – the vessels are becoming larger and they can transport more and more goods.

### 6.3. Port related employment

Changes in the number of employees do not have a direct impact on cargo turnover in the port. The port authorities are conducting quality management and optimise the number of people employed in the port, redistributing the responsibilities and functions, thus reducing the labour costs. Port authority employees do not directly affect port cargo turnover, but they have an indicative effect on port cargo turnover. Of course, from a national point of view, it is important to increase the number of people employed in the port, and it must be implemented by expanding the range of services provided or by opening new plants.

### 6.4. Value added

The value added of the provided port services is an indicator that must definitely increase, when viewed over a period of time. Because the value added is the amount that is the port's direct return – the more efficiently the port works, the more value added it can bring.

The value added directly depends on the value of the goods handled, the type of service or the value of goods produced in the port. The value added of the cargo is measured not in tonnes, but in terms of money. This value added cannot be created by providing transit services; they must be replaced by complex logistics solutions: storage, assembly, labelling of the goods, etc. As the tonnage approach needs to be changed, we have to look at the cash value of the goods.

#### **6.5. Port value added as % of GDP**

The logistics industry and namely the port operations play an important role in the economy; along with the transport services provided, it forms the % impact on GDP. It should be emphasised that transport and logistics are related to the entire economic circulation. Everything that is manufactured is transported to the consumer – both the local and the foreign consumer. And the more that ports provide services, the greater contribution it brings to the GDP.

#### **6.6. Development turnover**

The capacities of the logistics system are not yet fully used, which means that there is still room for growth. And by developing new port areas and by expanding the range of services provided, it is also possible to develop port cargo turnover.

#### **6.7. Profitability of companies in the port**

Profitability, return or earning capacity is an indicator of the company's ability to perform such economic activity that is profitable. The profitability indicator can be used to analyse how the investments will be reflected in the future profits. Low profitability suggests possible problems in the company's development, which without solving them may result in insolvency.

#### **6.8. Investment level**

The attraction of investments to a port is not only the task of the port authority, but also the responsibility of the companies that work in the port. The task of the port authority is to create a favourable environment for the attraction of investments. The simplest formula for GDP calculation shows that investments are one of the components that increases along with the increase of GDP. In addition to local investments, the ports are also interested in attracting foreign direct investments (FDI). As both foreign and domestic investors seek to maximise the return on investment, the investment environment factors that they regard as important and capable of delivering this return are unlikely to be different. However, foreign investors are more interested in obtaining new information on the availability of major business factors in the area, unlike local companies that are better aware of the local situation. Therefore, those that make FDI and are looking for conditions that are provided by their home country, are evaluating the environmental factors more actively. Today, projects of EU Structural Funds provide invaluable contribution to the development of the ports and the increase of investment returns.

#### **6.9. New companies in port area**

The acquisition of new markets and the attraction of new investors to the port often also lead to the development of new businesses directly in the port. The very starting of new businesses not only adds extra cargo or goods produced to the port, but also creates new jobs and the amount of taxes paid. Therefore this is a very important performance indicator for each port that points to growth. The assessment and analysis of these criteria allow the port authorities to make important decisions and to draw conclusions as to whether the structure of the cargo is appropriate to the market conditions, whether diversification of the cargo structure is required,

or whether additional production capacity should be acquired by investing in the development of the territories.

## 7. CONCLUSION

The port authorities must conduct regular monitoring of data to assess the port's performance and to compare the data of their port with the performance indicators, infrastructure, output, capacity and development potential of other ports. In this process, it is very important to have a sufficient set of data in order to be able to analyse what can be achieved through the operation of a good port information system. Important work should also be performed by the port authority in cooperation with the policy makers, whose primary function is to promote the modernisation and consolidation of the port system, by developing and implementing policies, strategies and initiatives that improve the use of infrastructure, improve the services and strengthen the competitiveness of ports, while simultaneously monitoring the corporate integral rights of the port administrators applied by the government. Currently the ports are subject to global competition and on the basis of analysis, a number of indexes and indicators implemented by international organisations, such as the World Bank and the World Economic Forum, the port authorities can carry out both qualitative and quantitative analysis focusing on the perceptions of different members in the logistics chain regarding the transportation and distribution of goods. The proposed methodology significantly differs from other international indexes, given that it is based on the development of a set of interrelated quantitative indicators that includes the various links of objective synergy between the port and the transport logistics chain. An important element that is required to make the port indicator system effective is to provide an annual continuous flow of data and information that would guarantee long-term viability of the system.

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# THE IMPACT OF JAPANESE FIRMS ON THE ROMANIAN ECONOMY

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## **ABSTRACT**

*During the last decade, the economic relationship between Romania and Japan has increased significantly due to the existence of an Economic Partnership Agreement between the European Union and Japan. Recently, it was confirmed that certain Japanese investments will be made in the Romanian economy, mostly through the financial implication of listed firms on the Japanese stock exchange market. The main aim of this paper is to analyse the historical data and future impact of Japanese foreign direct investments (FDI) on the Romanian macroeconomic stability indicators. The foreign direct investments represent the amount of cross-border direct investments between firms residing in different countries, for example Romania and Japan. Direct investments usually refer to acquired equities, which allow control and ownership for more than 10% of an enterprise. The proposed macroeconomic stability indicators consist of real GDP, inflation rate, government deficit, government debt, exchange rates, long-term interest rate and unemployment rate. The empirical analysis and the results are estimated using econometric methodologies and techniques that include estimations of VEC models or VECM (Vector Error Correction Model), which are basically restricted vector autoregression models (VAR) that test the existence of cointegrated time series. By using VECM, the influence of foreign direct investments can be determined through causal relations between the aforementioned variable and other relevant macroeconomic variables. Based on past results mentioned in the international economic literature, these relations can be either unidirectional, bidirectional or non-existent. For this study, quarterly data, during the period 2005-2016, has been extracted from national and international databases, such as Eurostat, UNCTAD and NBR (National Bank of Romania). Based on the obtained results, only two econometric variables, the euro-national currency exchange rate and public debt, have a bidirectional causal relation with FDI.*

**Keywords:** *foreign direct investment, Japan, macroeconomic stability, Romania, VEC*

## **1. INTRODUCTION**

This study focuses on the influence of non-resident Japanese firms from Romania on the main macroeconomic stability indicators. The periodic publications of the National Bank of Romania (NBR, 2004-2017) define this type of investment as a long-term investment relationship between 2 entities, a resident one and a non-resident one. The ways in which these investments are made are different, starting from the purchase of a package of shares with controlling power and ending with the complete and new greenfield type investment. According to the Council of Foreign Investors of Romania, foreign investment will always be a source of funding capable of sustaining and ensuring economic growth, by providing new jobs with better salaries and better working conditions and by creating strong partnerships with local businesses. A first step at testing the effects of Japanese firms on the Romanian economy is to ask ourselves whether or not the Romanian economy is attractive to Japanese investors. The answer to this question is highlighted in the research work of the World Economy Institute (WEI) of the Romanian Academy (Oehler-Şincai, I. M., 2014). Despite the weaknesses of our indigenous economy, Japan has given our country in the year 1990 financial support in the form of development appropriations at convenient rates and through grants in industry sectors such as agriculture, health, culture, IT, media and environmental.

In 2014, between the new member countries entering the European Union, the leaders in attracting investment funds were Poland, the Czech Republic and Hungary, followed by Romania, Slovakia and Bulgaria. At that time, Romania drew around 2% of the total FDI offered by Japanese companies. Investments in the Romanian state have been and are still relatively low, because of 3 major considerations: operational costs, lack of legislative transparency and absence of dialogues with foreign investors and finally, the agglomeration effect along with geostrategic positioning. To examine the gradual penetration of Japanese multinational corporations, the study of (Marinov, Marinova, Morita, 2003) gives us a complete picture of the Japanese investment strategies for the Central East European area (CEE). The entry into the East European markets could only be achieved after the year 1989, when many of these countries, including Romania, went through a change of political regime. There were no foreign direct investments in Romania in the years before the transitional period and that Nippon enterprises started their investment activity by opening sales and showroom offices. Large companies such as Honda, Mazda, Nissan and Sumitomo have adopted this strategy in the car sales and automotive industries. The econometric modalities whereby FDI influxes could be shaped can be diverse. Some econometric models and analysis methods may target the discovery of possible valid determinants that can explain the level of foreign direct investments. Such an article written by Italian researchers (Casi, Resmini, 2010) assumed the determination of the variables responsible for the choice of investment location for the FDI carried out by MNE (Multinational Enterprises) in various regions of the European area. Another much more recent study on the impact of foreign direct investment (Enache, Merino, 2017) addresses the link between these direct investments and economic growth through the use of VAR models (Vector Autoregressive). The studied country is Romania, and the analysis period chosen for this study is 2007-2014, because this period is characterized by the global financial crisis. The Granger causality test is used in another model of a recent work (Simionescu, 2016) where the causality between the inward FDI stock in Romania and the level of real GDP is tested. The stock of foreign direct investments is researched in this case within a moving average model, as well as a Bayesian type regression. Romanian researchers also studied the role of FDI and its determinants at regional level, not only at national level (Antonescu, 2014). The reason behind such a research is the importance of foreign investment to facilitate the convergence process or even the integration into the European Union of developing countries by stimulating economic growth and by setting quality and efficiency standards for firms within the targeted regions. Possible to be the most appropriate methodology for analyzing the impact of FDI on other macroeconomic indicators, VEC models (fan, 2016) are a linear alternative to the use of DSGE (Dynamic stochastic general equilibrium) models, which assume the use of non-linear equations in logarithmic form. Another way to use the VEC model is used in a cointegration study focused on China's economy (Ford, Sen, Hongxu, 2010). In this situation, the objective was to determine whether foreign direct investments stimulate economic growth through one or more channels of action. This need is implemented by applying a model with simultaneous equations involving several influences of different macroeconomic factors. In a study conducted in partnership with the Academy of Economic Studies and the Council of Foreign investors of Romania (Horobeț, Popocivi, 2017), the level of FDI in Romania is analyzed comparatively throughout the period communist. According to this statistical study, without using econometric models, the investment strategies are described in famous case studies, such as the acquisition of PETROM by OMV or the privatization of Dacia in favor of the Renault group. Finally, another very detailed analysis of foreign direct investment in Romania are the NBR reports between 2003 and 2016, which can be found in the Regular publications section of the National Bank of Romania website. It reveals the differentiation of FDI data based on developed and poorly developed regions of the country, depending on the types of investment, the representation of the amounts and balances, depending on the division by industry sectors

and by countries of origin. The remainder of the paper is organized as follows: the next section describes the VEC model methodology and data. The results of the empirical analysis and applied tests are presented in the following section. The conclusion and refereneces are presented in the last section.

## 2. METHODOLOGY AND DATA

The type of econometric model used to shape the impact of FDI on the other variables is the VEC model. A VEC (Vector Error correction) model is a restricted VAR model designed to use non-stationary series and that are tested as cointegrated series. For this particular reason, VAR specific tests are also being used to describe the cointegration relationships between relevant variables. The linear combination resulted from the use of said variables in the model is a stationary one. The VEC model describes long-term cointegration relationships between variables and uses certain restrictions for the long-term behavior of endogenous variables, in order to converge on their cointegration relationships, also allowing short-term adjustments. The notion of cointegration also includes the error correction term, which represents the deviation from the long-term equilibrium and it gradually corrects the model by a series of short-term partial adjustments. The software used to estimate the VECM model is Eviews 10. Although in a single model one can use multiple variables, thus forming a system of simultaneous equations with more than 2 equations, the individual impact of FDI does not appear to be clearly distinguished, as simultaneous interference occurs from the other variables. Therefore, in this work, it was initially proposed, at best, to estimate 7 individual VEC models, but in the end the only selected models are those that meet the criterion of being cointegrated series. Unlike the estimation of a common VAR model, in the Eviews 10 software the VEC model requires the introduction of a series of restrictions applied to the cointegration equation so that the model can render the coefficient corresponding to the impact of foreign direct investments on the vector of cointegration  $Y_{t-1}$ . The applied restrictions are the following:  $B(1,2) = 1$ ,  $A(2,1) = 0$ . The first restriction relates to the fact that in the long term, the second term will have a coefficient with a value of 1, so that the long term effects of FDI in a balanced relationship can be observed. The general equation for the cointegration relation of the two variables will be presented in the following form:

$$Y_{t-1} = \beta_{11} \times FDI_{t-1} + \beta_{12} \times \text{exchange\_rate}_{t-1} + \varepsilon_{1t} \quad (\text{Cointegration equation 1})$$

$$Y_{t-1} = \beta_{11} \times FDI_{t-1} + \beta_{12} \times \text{publi\_debt}_{t-1} + \varepsilon_{1t} \quad (\text{Cointegration equation 2})$$

The cointegration vector contains the totality of the modified values produced at level of both analyzed variables as a result of their interaction. This interaction vector is their long-term relationship. Then this said equation is included in the VEC model, to form a system of simultaneous equations:

$$\Delta FDI_t = \alpha_{11} \times Y_{t-1} + \sum_{i=1}^{p-1} \beta_i \times \Delta FDI_{t-1} + \sum_{i=1}^{p-1} \rho_i \times \Delta \text{exchange\_rate}_{t-1} + \varepsilon_{1t}$$

$$\Delta \text{exchange\_rate}_t = \alpha_{21} \times Y_{t-1} + \sum_{i=1}^{p-1} \gamma_i \times \Delta FDI_{t-1} + \sum_{i=1}^{p-1} \theta_i \times \Delta \text{exchange\_rate}_{t-1} + \varepsilon_{2t}$$

and

$$\Delta FDI_t = \alpha_{11} \times Y_{t-1} + \sum_{i=1}^{p-1} \beta_i \times \Delta FDI_{t-1} + \sum_{i=1}^{p-1} \rho_i \times \Delta \text{public\_debt}_{t-1} + \varepsilon_{1t}$$

$$\Delta \text{public\_debt}_t = \alpha_{21} \times Y_{t-1} + \sum_{i=1}^{p-1} \gamma_i \times \Delta FDI_{t-1} + \sum_{i=1}^{p-1} \theta_i \times \Delta \text{public\_debt}_{t-1}$$

The changes in the current levels of the two variables are due to the sum of the values delayed by one period time, of the two variables, in the long term, corrected by the coefficient of error correction and individual historical changes.

### **2.1. Analyzed data**

The data was extracted directly from EUROSTAT, UNCTAD and BNR databases, except for the representative variable for the foreign direct investments. This variable was calculated as the ratio between the annual data of the influx of bilateral FDI between Romania and Japan and the annual data of the total influx for Romania, thus resulting in a general annual share of the Japanese FDI in the total FDI annually. The resulting share percentage was then applied to quarterly data of total FDI influx for Romania. We used this calculation process because of the insufficiency of quarterly data for the Romanian-Japanese bilateral FDI, the only data available being expressed in annual data. The variables are all time series. The data frequency is a quarterly, and the analysis period is 2005-2016, thus accumulating 48 observations for this time period. Negative values were corrected by adding a parameter with a constant value, and then all the time series were transformed into natural logarithms, in order to preserve a normal distribution for all the involved time series.

### **2.2. Description of the proposed variables**

The FDI influx of foreign direct investment is the sum of equity owned by non-resident firms, the reinvested sums and the credits received from those foreign undertakings. Real GDP is calculated as the ratio between nominal GDP and GDP deflator. Inflation is the relative increase, in the form of a percentage, of the general index of consumer prices. The budget deficit is equal to the difference between the total public revenue attracted by the government and the total government public expenditure. Public debt is all the government's internal and external financial obligations. The currency exchange rate, in this particular situation, is the ratio between the euro and the national currency in Romania. The long-term interest rate on state bonds is the coupon rate applicable to the nominal value of the state securities issued for a period of 10 years, in this particular situation. The unemployment rate is defined as the ratio between the number of unemployed and the total working population and looking for a job.

## **3. RESULTS**

### **3.1. The stationarity of variables**

A first step for estimating the VEC model was to test the stationarity of the two variables by applying the ADF drive root test. The augmented Dickey-Fuller test (ADF) analyses the null hypothesis that a unit root is present in a series of time and that it is therefore non-stationary over time, with a coefficient of autocorrelation equal to 0. The alternative hypothesis is to reject the null hypothesis, the coefficients of autocorrelation are different from 0, and the series is considered stationary. The result of this test shows that for these are not stationary at the level, but are stationary to a difference of a delay, or a lag. The public debt time series is stationary at the first difference for a 10% significance threshold and the rest of the series is stationary for a 1% significance threshold.

### **3.2. Johansen Cointegration test**

A cointegration relationship between two series of time does not necessarily imply the existence of a correlation, but affirms the existence of a long-term and mutually-binding balance relationship between them. Although the series analyzed are not stationary at the level, the linear combination of these, called cointegration relationship or cointegration vector, is stationary and integrated by an m order number. The VECM model may not be estimated unless the series is tested as cointegrated.



The Johansen test determines the existence of a cointegration relationship between two non-stationary variables at the level and integrated by the same order. The null hypothesis of the test (H0) asserts that no cointegration equation exists between the two indicators, and the alternative hypothesis (H1) affirms the certainty of a valid cointegration equation. The probability associated with the null hypothesis is the likelihood of it being rejected, and that probability must be below a 5% significance threshold. As can be seen in the table with the centralized data below, the only variables that can be cointegrated with the FDI variable are the public debt and the EUR/RON exchange rate.

Table 1: Johansen test

Johansen test	Public debt	Budget deficit	Exchange rate	Inflation	Long-term interest rate	Real GDP	UR*
Prob.	0.0058	0.1505	0.0000	0.6514	0.3245	0.2030	0.7924
Lag length	3	2	4	2	2	2	2
Number of cointegration equations	1	0	1	0	0	0	0

Source: own processed data in EViews 10

\*Unemployment rate

### 3.3. Estimation of VECM Models

The output of the VEC model consists of two distinct parts. The first part of the model, as mentioned above, consists in the formation of the cointegration equation. It can be defined as the sum of the long-term values between FDI and the exchange rate in this case. The second part is about calculating the error correction term and it is applied only to the FDI variable. Error correction is the short-term relationship. This coefficient shows how much the imbalance will be corrected in the levels of foreign investments within one year. After replacing the coefficients, the model, consisting of FDI and the EUR/RON exchange rate rate, will look like this:

$$D(\text{FDI}) = 5.073551 * (-0.088290 * \text{FDI}(-1) + \text{exchange\_rate}(-1)) - 0.001809 * D(\text{FDI}(-1)) - 8.575177 * d(\text{exchange\_rate}(-1));$$

$$D(\text{exchange\_rate}) = 0 * (-0.088290 * \text{FDI}(-1) + \text{exchange\_rate}(-1)) + 0.004922 * D(\text{FDI}(-1)) + 0.231852 * d(\text{exchange\_rate}(-1))$$

From the data calculated in the model, we can interpret that in the long term, in a steady relationship, FDI decreases by 8.82%, and in the short term imbalanceso from the direct investments will have to rise 5 times in order to be back to balance with the exchange rate EUR/RON. After replacing the coefficients, the model, consisting of FDI and public debt, will look like this:

$$D(\text{FDI}) = 2.164635 * (-0.527344 * \text{FDI}(-1) + \text{public\_debt}(-1)) + 0.276896 * D(\text{FDI}(-1)) - 3.061300 * d(\text{public\_debt}(-1));$$

$$D(\text{public\_debt}) = 0 * (-0.527344 * \text{FDI}(-1) + \text{public\_debt}(-1)) + 0.025947 * D(\text{FDI}(-1)) + 0.122253 * d(\text{public\_debt}(-1))$$

From the data calculated in the model, we can interpret that in the long term, in a steady relationship, FDI decreases by 52.73%, and in the short term the imbalances of the direct investments will have to increase 2.16 times in order to be able to balance again with the EUR/RON rate of exchange.

### 3.4. Model stability

The stability of the model can be determined based on the model's output or the graphical representation of the reverse self-regressive roots (AR Root Graph).

In both VEC models of the relationship between FDI and the EUR/RON exchange rate rate and in the case of FDI and public debt, with the exception of a single-edged root, all other inversed roots are in the stability zone of both models. If both VEC models are considered stable, then the analysis can continue.

### 3.5. Impulse-response functions (IRFs)

Impulse-response functions aim to track the change in value of the variables in response to the impulse of certain shocks. These shocks are changes to the levels of other indicators. The sudden change in the value of a macroeconomic indicator may have consequences for the value of other indicators. These functions help determine the existence of correlations between the analyzed variables. In the case of the relationship between FDI and the EUR/RON exchange rate, it can be noted that the exchange rate response to the change in the FDI has an increase at the beginning of the period of 0.06%, but thereafter its modification remains at a level of 0.004%. The response of FDI to the changes in the exchange rate is a more encouraging one. At the beginning of the period, it's value decreases by -0.1%, after which a continuous growth of 0.43% is observed and it is maintained stable towards the end of the analysis period. The response of FDI when modifying its own value is in a gradual decrease from 0.63% to 0.05% and it is maintained to this value towards the end.

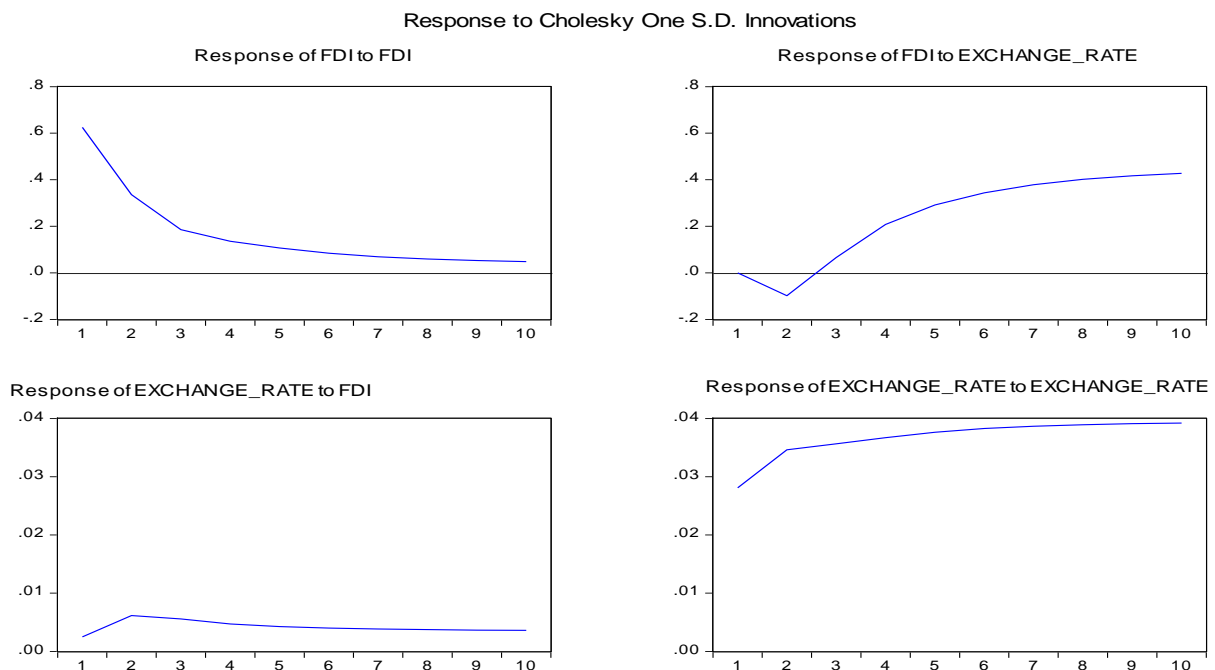
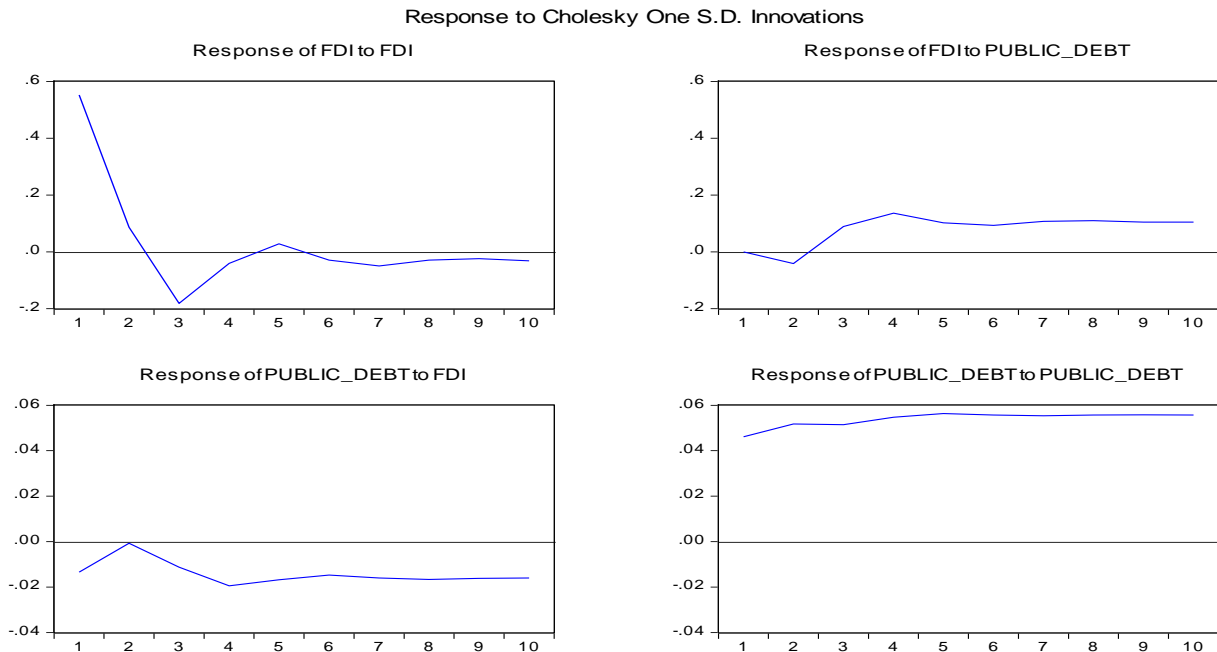


Figure 1: Impulse-response functions in the FDI - EUR/RON exchange rate relationship (own processed data in EViews 10)

In the case of the relationship between FDI and public debt, it can be seen that the response of the public debt to the FDI is an increase at the beginning of the period of 0.012%, starting at a

level of -0,01, 3% after which decreases to-0.019% and towards the end of the period is stabilized at a level of-0.015%. As a general reaction to FDI, public debt is dropping, but not very much. If the shocks are very small, then it hardens the idea that between the two variables there is a steady link that cannot be disturbed. The response FDI to the change in public debt is a more encouraging one. At the beginning of the period, its value decreases by 0.04%, after which it increases to 0.14% and remains stable towards the end of the period at a level of 0.11%. FDI responds when modifying its own value with a sharp drop from 0.55% to-0.18%. Towards the end of the period it varies between-0.05% and-0.02%. The response of the public debt to the modification of its own value is a relatively small increase up to a level of 0.06%, followed by a stagnation at 0.056%.



*Figure 2: Impulse-response functions in the FDI – public debt relationship  
 (own processed data in EViews 10)*

Looking at both models, it can be concluded that there are no impulses, shocks of large dimensions (less than 1%), and two other derived conclusions can be drawn from this analysis. Firstly, the lack of significant shocks between the FDI variable and the exchange rate, namely the public debt, proves that these indicators are very close to a level of equilibrium and that this balance remains in time. Secondly, the response of variables to altering its own historical values also proves that these time series are stable throughout the duration of the analysis.

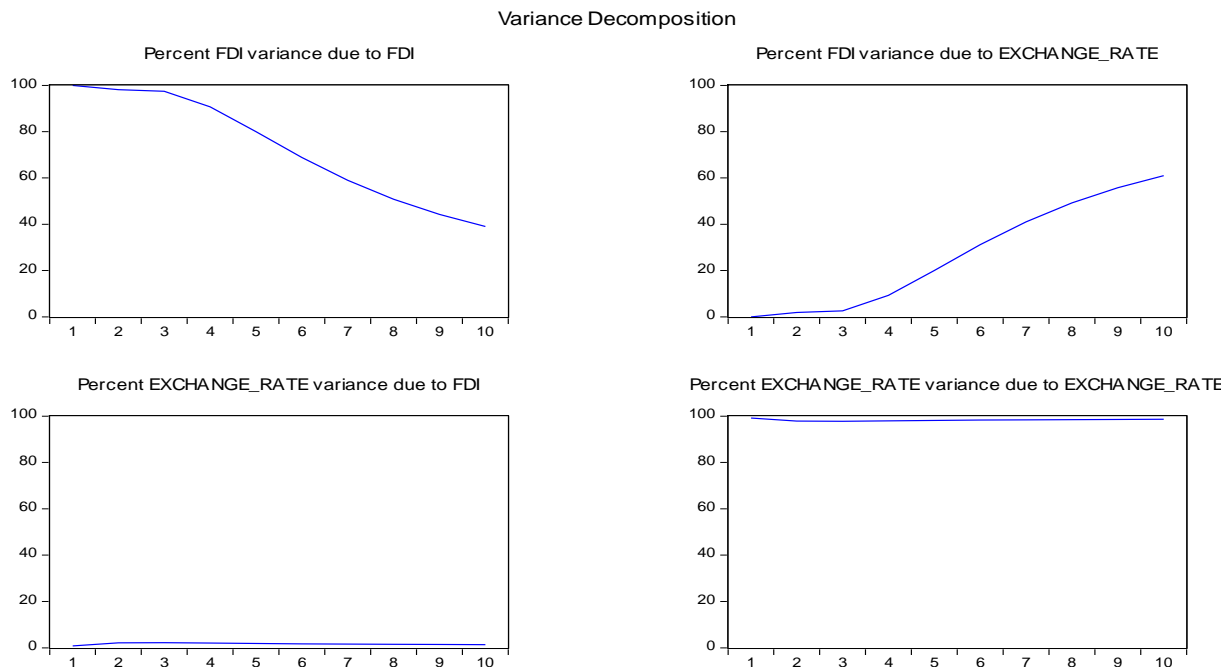
### 3.6. GRANGER causality test

In the case of VEC models with non-stationary series, the Granger causality test is applied directly to the VEC model output, instead of being applied to a groupe of stationary series, since the linear combination resulting from the estimation of the cointegration equation is a stationary one. The stationarity of the series is a mandatory requirement for the Granger test. In the case of this test, each variable is taken as a dependent variable, a value that depends or not on a value of another variable. In the short term, there may be a possibility of interdependence between variables. The null hypothesis of the causality test states that the first independent variable does not cause the dependent variable, the alternative hypothesis being the fact that there is a causal relationship in reality. According to the results of the model, the innovation or exchange rate change causes changes in the value of foreign direct investment, because the probability associated with the null hypothesis is below the critical threshold of 5%, which means that it

may reject the null hypothesis characterized by the lack of a causal relationship. However, the change in FDI does not, in turn, cause the exchange rate to change from one period to another. In this VEC model, there is no mutual causality in the short term. Concerning the causal relationship between FDI and public debt, innovation or change in public debt causes changes in the value of foreign direct investment, as the probability associated with the null hypothesis is below the critical threshold of Significance of 10%. The change in FDI also causes it to change from one period to another of the public debt. In this VEC model, there is a mutual causality in the short term.

### 3.7. Variance decomposition

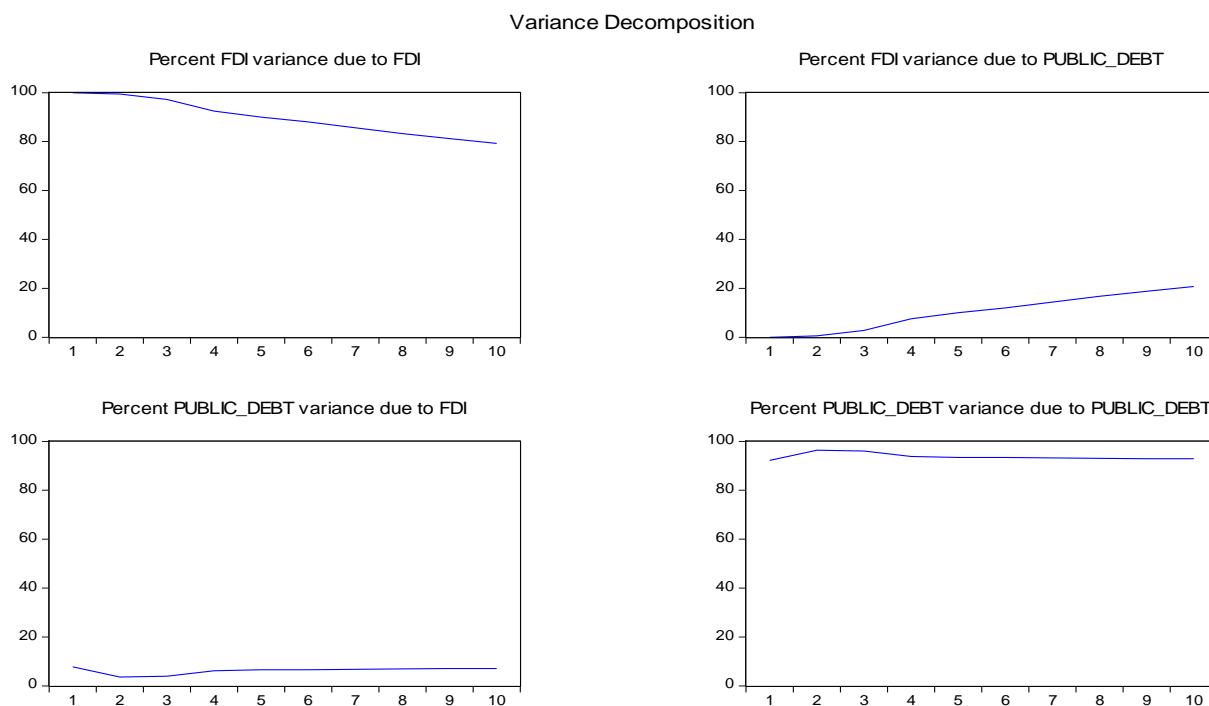
In the VEC model that pictures the relationship between FDI and EUR/RON exchange rate rates we observe that at the beginning of the analysis period, the exchange rate variance is due to a 2% variability of foreign direct investment and decreases to 1% at the end. At the beginning of the analysis period, the variance of FDI is not due to the exchange rate variance, but the correlation percentage is at 61%.



*Figure 3 : Variance decomposition in the FDI – public debt relationship  
 (own processed data in EViews 10)*

In the VEC model of the relationship between FDI and public debt it can be seen that at the beginning of the analyzed period, the variance of public debt is due to 8% of the variability of foreign direct investment and decreases at the end to 7%. At the beginning, the variance of foreign direct investment is due to 0% variability of public debt and increases to 21% in the end.

*Figure following on the next page*



*Figure 4 : Variance decomposition in the FDI – public debt relationship  
 (own processed data in EViews 10)*

#### 4. CONSLUSION

Of all the variables proposed at the beginning of the empirical research, only two variables, the EUR/RON exchange rate and the public debt, have been shown to have cointegration relations with the foreign direct investment with Japanese origins. These long-term equilibrium relationships have been shaped by using two VEC models, defined as a restricted variant of the VAR model, used for non-stationary and cointegrated time series, but whose linear combination is considered stationary. Both models proved to be stable in relation to the autoregressive reversed roots test. The Granger's causality test detected a mutual causal link between FDI and public debt. FDI is considered a macroeconomic variable, but it can also be built from a microeconomic perspective, thus being a variable that transcends the barriers of microeconomics and macroeconomics. Future research prospects include using the variable FDI and other transcendent variables (such as tax pressure) to determine the influence of a particular sector of activity (e.g. financial) on the macroeconomic stability. Types of models that could be used in this direction of research may vary from the use of DSGE type models and Bayesian estimation to the use of VAR and VECM models.

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## ENERGY EFFICIENCY OF POLISH ECONOMY IN YEARS 2000-2016

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### **ABSTRACT**

*To understand observed trends in energy performance of economy or specific sector, it is necessary to evaluate the driving forces underlying these changes. Index decomposition analysis measures the impact of energy efficiency gains on the level of energy consumption, at the most detailed sector disaggregation level allowed by the available data. The ODEX energy efficiency index was developed under the EU ODYSSEE-MURE program and is published annually for the 28 EU countries and Norway. Index is used in monitoring process of energy efficiency trends and measures in Europe in relation to the achievement of the EU energy policy objectives. In this paper, the index decomposition analysis of the ODEX indicator is carried out for Polish economy and its main sectors between 2000-2016. The aim of the study is to identify factors determining changes in energy consumption at the level of each end-use or sub-sector in Poland, and to recognize areas where there is still potential for further reduction of energy consumption. The analysis is extended into comparison to European statistics in the context of implementation and monitoring of the UE indicative energy targets.*

**Keywords:** *energy efficiency, energy use, indicators, structural decomposition analysis*

### **1. INTRODUCTION**

Energy efficiency provides both financial and environmental benefits as well as increased energy security. At the international level, numerous changes to the law has been introduced, which emphasize the importance of energy efficiency in reducing energy consumption and CO<sub>2</sub> emissions. In October 2014 The European Council agreed on a new 2030 Framework for climate and energy, including EU-wide targets and policy objectives for the period between 2020 and 2030, which include indicative target for an improvement in energy efficiency at EU level of at least 27% (compared to projections). The Energy Efficiency Index ODEX was developed under ODYSSEE-MURE European Union program comprising 28 EU Member States and Norway to monitor the indicative energy policy objectives introduced by Directive 2006/32/EC. The aim of the project is to monitor changes in energy consumption using two complementary databases: ODYSSEE database for energy efficiency and CO<sub>2</sub> emissions and MURE database for policy enforcement measures to reduce energy consumption. The purpose of the energy efficiency indicators is to assess the results achieved, the degree of achievement of the objectives, and to enable international comparative statistics to be carried out. The ODEX indicator is published annually by the European Environment Agency. In this article, the index decomposition analysis has been conducted for energy use in Poland between years 2000-2015. Decomposition of the ODEX index has been carried out at the level of the main sectors and all subsectors included in the index. The aim of the study is to determine the main factors improving the energy efficiency of the Polish economy in 2000-2014 and to identify areas that slow down this process and in which there is still potential for further reduction of energy consumption.

### **2. ENERGY EFFICIENCY**

One of the main issues of the literature is the identification of factors affecting changes in total energy consumption (Ang and Zhang, 2000, Liu and Ang, 2007). In publications and statistical studies on energy, it is quite common to assume that energy intensity and energy efficiency are equivalent measures of energy efficiency in the economy (after: Proskuryakova, L., Kovalev,

A., 2015). Many authors emphasize the differences between these notions, perceiving energy efficiency as an economic and technical term. Therefore, the indicators based on measurements in physical units are recommended for analysis (Ang, 2000, Farla et al., 1998, Neelis et al., 2007). Energy intensity is an economic or financial measure, which is calculated as the ratio of total energy consumption to total economic output in a monetary unit, i.e. Gross Domestic Product (GDP) (Bosseboeuf, Lapillonne, Eichhammer, 2005). Energy intensity is widely used in national and international statistics, but is based on monetary values at a very aggregated level, and therefore allows limited understanding of the processes of changes in energy consumption (Farla et al., 1998; Neelis et al., 2007). While there are other factors that affect total energy consumption and are not related to the efficiency with which energy is used. These reasons may be structural, behavioral or may result from demographic changes and weather conditions. The Energy Efficiency Index ODEX is a bottom-up indicator that aggregates energy efficiency changes based on detailed measures calculated for final users or subsectors at the most detailed level of disaggregation available. Methodologically, this tool is based on the index decomposition analysis, which was used to analyze energy trends since the 1970s. An aggregated component, like energy consumption of a given sector, can be divided into several factors determining its level. In the ODEX methodology, the impact of energy efficiency improvement on the observed fluctuations in energy consumption is analytically separated from structural, behavioral or climatic factors.

### 3. ODEX ENERGY EFFICIENCY INDEX METHODOLOGY

The ODEX index measures progress in energy efficiency for the whole economy and three main sectors, i.e. industry, transport and households. The methodology used allows calculating the indicator in several stages, each with a different level of aggregation. The index is the weighted average of the unit consumption indices calculated for individual sub-sectors, where the weights correspond to the share of each sub-sector in total energy consumption. Indices for subsectors are calculated on the basis of changes observed in unit energy consumption measured by physical units (e.g. tons of steel, m<sup>2</sup> of apartments). Some subsectors are not included in the ODEX calculation (e.g. mining, construction, small electrical equipment), because of difficulties in obtaining data. For this reason, it is assumed that all of these subsectors have an increase in energy efficiency equal to the sector average. The ODEX index is presented in percentage compared to the level in 1990. It does not focus on absolute values, but only indicates a change compared to the level of the reference year (ODEX value equal to 99 means an improvement by 1%). The disadvantage of this approach is that the value of the index strongly influences the situation in the base year (Enerdata, 2016; Lapillonne, Pollier, 2011). The ODEX index is calculated as follows:

$$\frac{I_t}{I_{t-1}} = \frac{\sum_i EC_{i,t}}{\sum_i A_{i,t} \cdot UC_{i,t-1}}$$

where:

$EC_{i,t}$  - energy consumption in the sector  $i$  in the year  $t$ ;

$A_{i,t}$  - variable activity of the sector and in year  $t$ ;

$UC_{i,t}$  - unit consumption of the sector and in the year  $t$ .

In the above formula,  $I_t$  indicates the index value for the year  $t$ , and therefore the  $I_t/I_{t-1}$  relation is the energy consumption in year  $t$  divided by the energy consumption that would take place



in year  $t$ , if the unit consumption was the same as in the year  $t-1$ . The ODEX index seeks to isolate other factors affecting energy consumption, such as short-term fluctuations, structural effects and the weather. The value of the index will depend undoubtedly on the disaggregation level of the sector - the greater the disaggregation, the more the structural effects will be eliminated from the indicator. The demand for energy is related to the average temperatures occurring in the analyzed year. In order to eliminate this factor, all data used to calculate the index are adjusted for the climatic factor. Trends observed for some subsectors are often irregular, although changes in energy efficiency should occur smoothly. Such disturbances may result from various factors, such as business cycles, poor climatic correction or statistical imperfections. In order to reduce random fluctuations in the index value, 3-year moving averages are used.

#### 4. INDEX DECOMPOSITION ANALYSIS

##### 4.1. ODEX index for the entire economy and three main sectors

The ODEX index for the Polish economy has been gradually decreasing, reaching the level of 71.4 in year 2016 (base year=2000). This means that energy efficiency increased by 28.6% during the period considered, with an average rate of 1.8% per annum. All sectors have contributed to improvement, with the largest decrease in energy consumption recorded in industry sector. Energy savings were achieved in subsequent years in all sectors in all years. In the analyzed period, the ODEX index for industry decreased by 3.5% annually reaching the level of 47.4 in 2016, which indicates huge energy savings made in this sector. Energy consumption in households and transport also decreased, but to a much lesser extent. ODEX for transport decreased very slowly until year 2011 and only in recent years reached a higher rate of decline. Finally, the index, decreasing by an average of 1.5% annually, reached the value of 75.4 in year 2016. After a rapid decline in years 2000-2004, ODEX for household was slightly improving in the subsequent period. Eventually it reached the level of 81.7 (1.1% annual average).

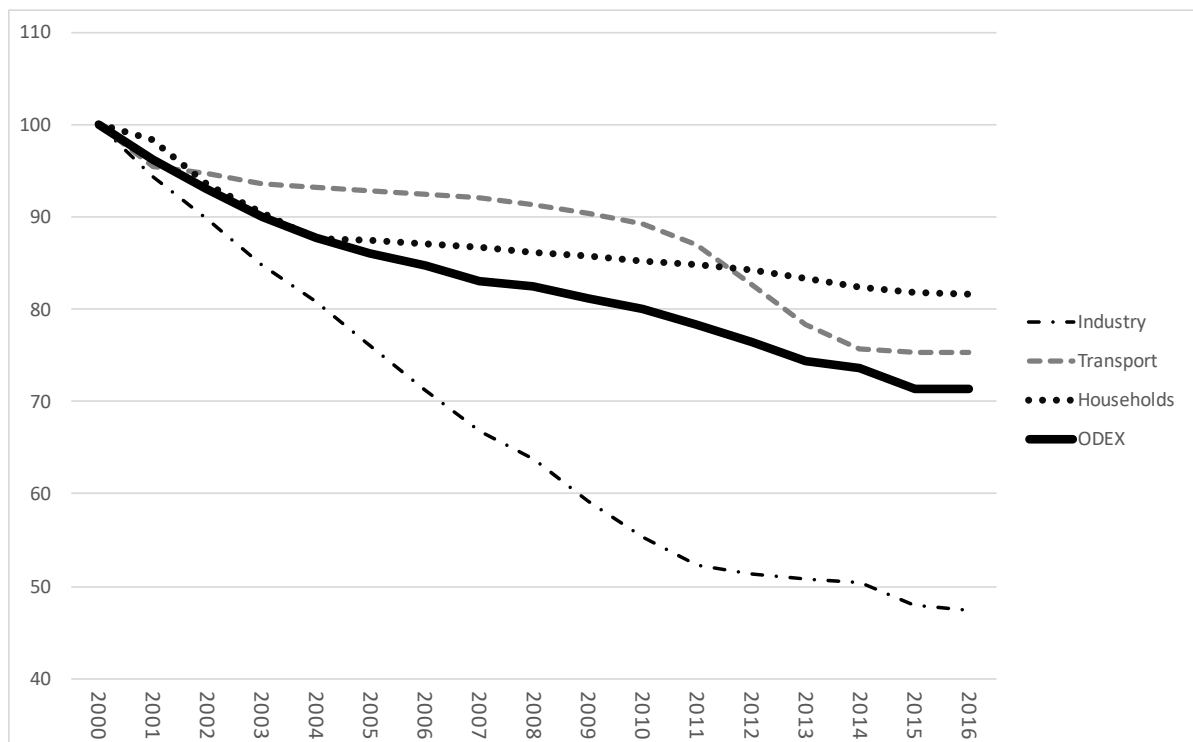


Figure 1: ODEX energy efficiency index for Poland 2000-2016 (Author's own elaboration based on Enerdata Odysee database)

The results of index decomposition analysis of the ODEX for each sector are presented below. The study was based on data made available for this purpose by Enerdata, the data administrator of the Odyssee database. Trends of changes in energy consumption were calculated on the basis of unit consumption in every subsector included in ODEX sectoral indexes, taking 2000 as the base year. Detailed analysis is limited to years 2000-2014 due to lack of all necessary data, as databases are upgraded with a delay.

#### 4.2. ODEX index decomposition analysis for industry

The unit consumption of energy is expressed in energy consumed per tonne of product for energy-intensive branches (toe/t) and as energy consumption for other branches (coe/EUR2005p). On this basis, an index of changes in energy consumption for each of the industries was calculated. The index for the industry sector is calculated on the basis of energy consumption indicators obtained from 10 subsectors (Enerdata, 2016):

- 4 main branches: chemicals, food, textile and leather, equipment goods;
- 3 energy intensive branches: steel, cement, pulp and paper;
- 3 residual branches: other base metals, other non-metallic minerals, another paper and printing industry.

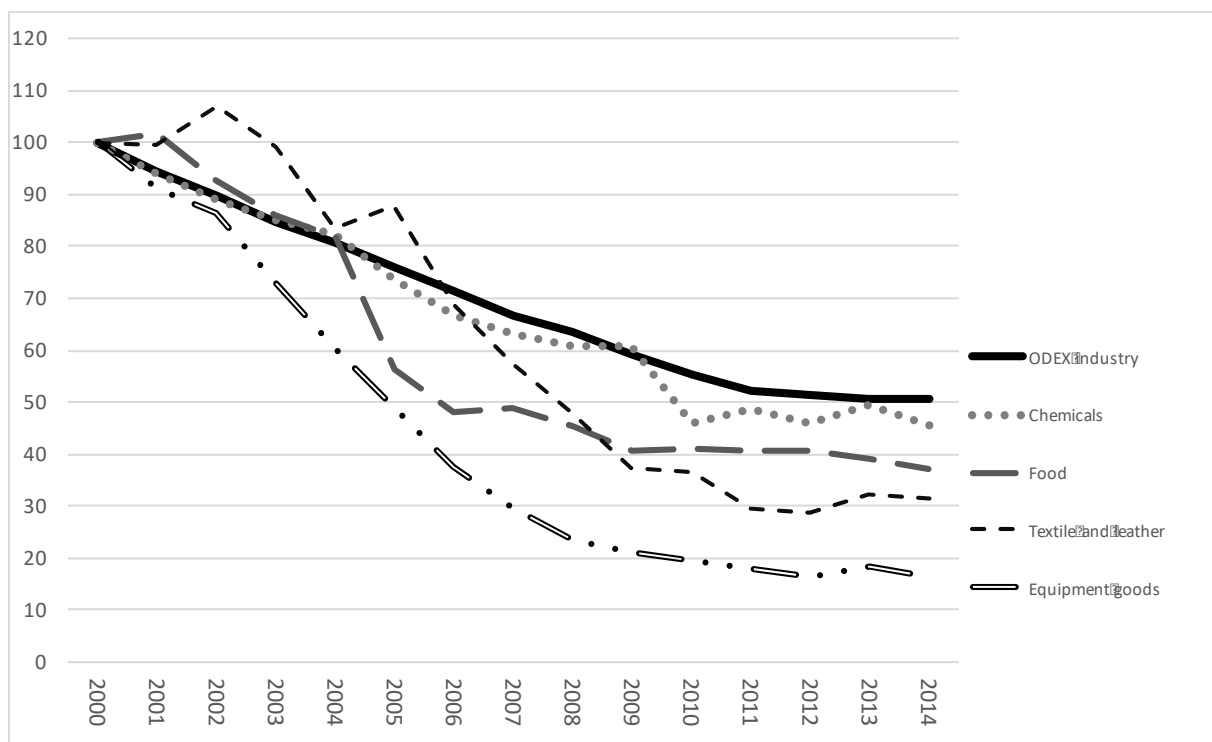


Figure 2: Energy efficiency index for 4 main branches of industry (Author's own elaboration based on Enerdata Odyssee database)

Figure following on the next page

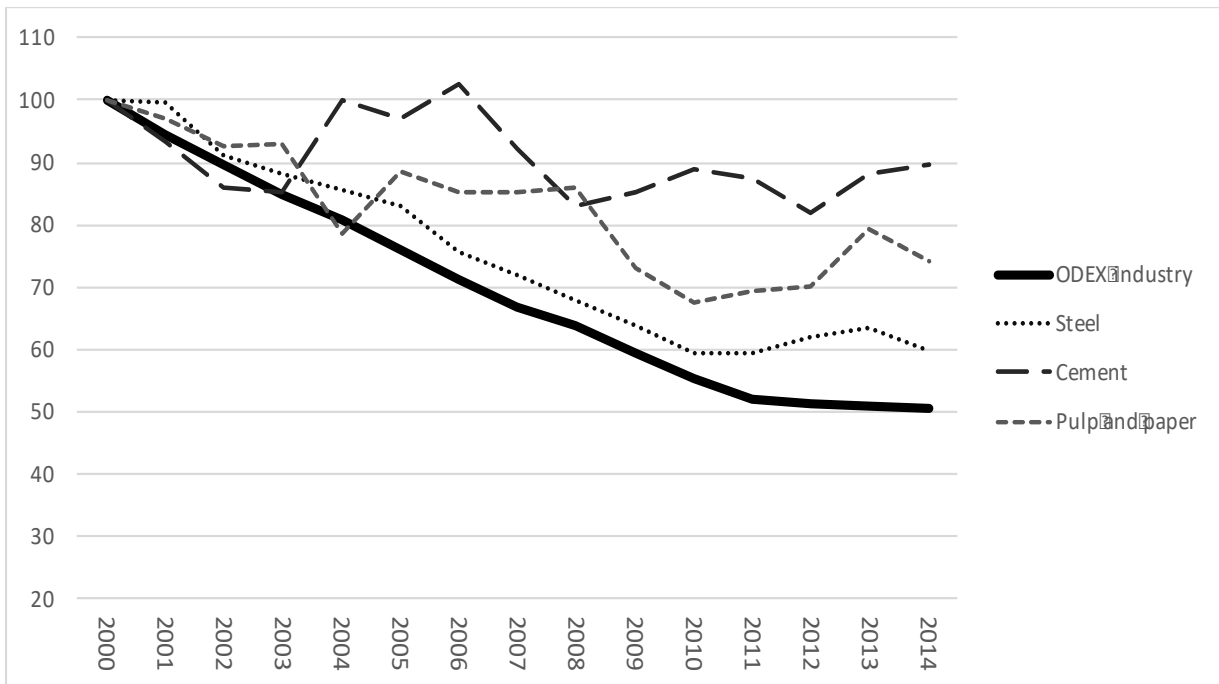


Figure 3: Energy efficiency index for 3 energy intensive branches of industry (Author's own elaboration based on Enerdata Odyssee database)

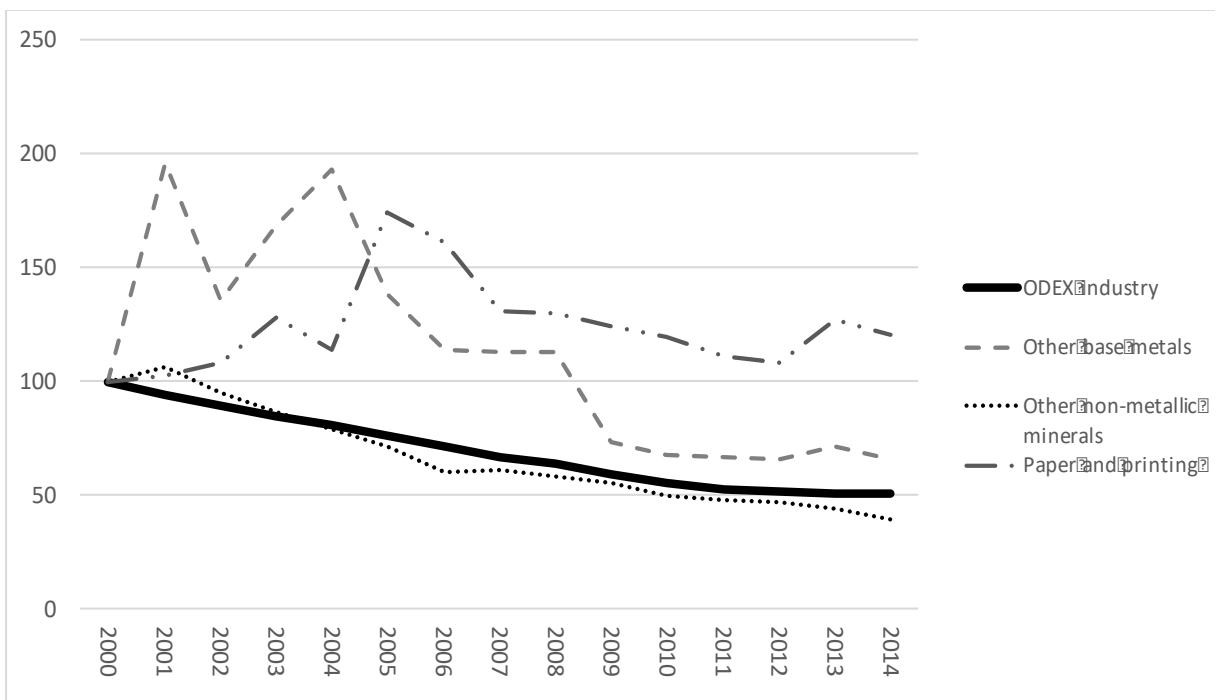


Figure 4: Energy efficiency index for 3 residual branches of industry (Author's own elaboration based on Enerdata Odyssee database)

The improvement in energy efficiency occurred in almost all analyzed branches of industry sector. Only in the pulp and paper sector an increase of 20.37% were observed. The largest increase in energy efficiency was recorded in four main branches, i.e. chemicals, food, textile and leather, equipment goods. It had a direct impact on a very large drop in the ODEX index for the industry. In the case of three energy-intensive branches, a downward trend can be observed as well.

#### 4.3. ODEX index decomposition analysis for households

Energy efficiency for households is carried out at the level of (Enerdata, 2016):

- 3 end-uses: heating (toe/m<sup>2</sup>), cooking and water heating(per dwelling);
- 5 appliances: refrigerators, washing machines, dishwashers, and TVs (kWh/year/device).

In case of Poland, there is no detailed data available for most of the listed items, except heating, which makes it impossible to carry out a full analysis.

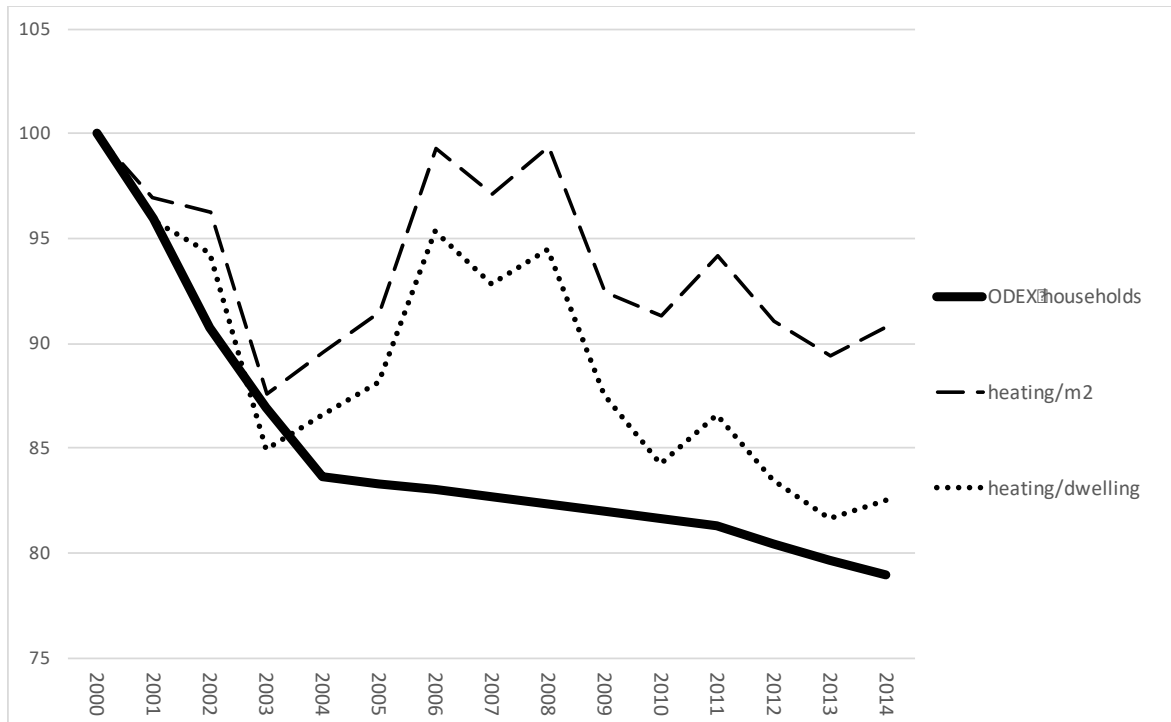


Figure 5: Energy efficiency index for heating (Author's own elaboration based on Enerdata Odyssee database)

In the years 2000-2014, the energy efficiency of households increased by 21%. Efficiency improved significantly in the years 2000-2004, after that the pace clearly decreased. The index of changes in energy consumption for heating initially shaped similarly to the ODEX index for households, after which it increased and for several years it attained much higher values. Finally, the energy consumption for heating per square meter decreased by 17.5% in 2000-2014.

#### 4.4. ODEX index decomposition analysis for transport

For transport, the ODEX calculation is based on energy consumption data for (Enerdata, 2016):

- 5 vehicles types: cars, trucks, light vehicles, motorcycles, buses;
- 3 modes of transport: air, rail, and water transport.

Depending on the type of vehicle or mode of transport, detailed indicators are expressed in consumption per vehicle, passenger or kilometer.

Figure following on the next page

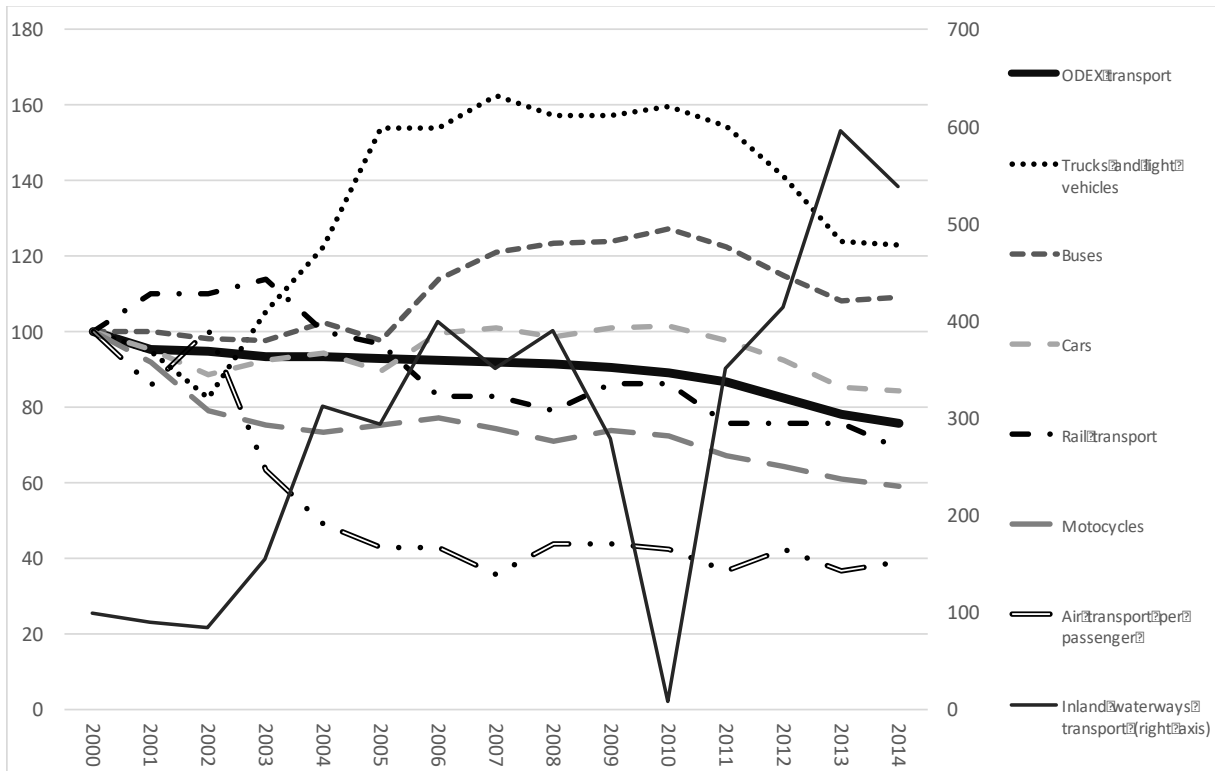


Figure 5: Energy efficiency index in transport (Author's own elaboration based on Enerdata Odyssee database)

As shown on Figure 5, energy efficiency in the transport sector increased by 24.3% in years 2000-2014, with an annual average rate of 1.73%. The largest decrease in energy consumption exceeding 60% was recorded in air transport. In the case of water transport, an increase of 438.5% was observed in relation to the base year. The energy efficiency of passenger cars improved by nearly 16%, and motorcycles by over 40%. The trends in case of trucks and buses were reverse. After the decline in efficiency, the index improvement can be observed after year 2012. Still both indexes, for trucks and buses, are 22.9% and 9.2% respectively above the base year.

## 5. CONCLUSION

The ODEX energy efficiency index has been developed to monitor progress in energy efficiency in the EU Member States. The index is obtained by the "bottom-up" method by aggregating changes in unit energy consumption observed at specific levels of end use in a given period of time. This methodology allows to illustrate the progress of energy efficiency at different levels of aggregation. Index decomposition analysis consists in breaking down an aggregated component, for example the energy consumption of one sector, into several determining factors to analyse their influence on the aggregate. (Weber, 2009). In Poland, the energy efficiency of the entire economy and the three main sectors has been systematically improving. In the analyzed period, the fastest pace of efficiency improvement occurred in industry, and much lower in transport and households. In industry in almost all subsectors, a clear downward trend can be observed in the entire analyzed period, which indicates huge total energy savings. Despite the decline in the ODEX index for transport, which is the effect of a significant improvement in efficiency in air, rail and car transport, unfortunately an increase in energy consumption in water transport, as well as by trucks and buses can be observed. The full assessment of the situation in the household sector is impossible due to the lack of data on energy consumption for cooking and heating water and used by electrical equipment.

The conducted decomposition analysis of the ODEX index for Poland in the years 2000-2014 at the level of all subsectors and end users included in the index, allowed to identify areas that have contributed the most to the improvement of energy efficiency of the Polish economy. However, the analysis presented above indicates that for some subsectors a very small improvement in energy efficiency or even an increase in unit consumption was recorded, which indicates areas in which there is still potential to reduce energy consumption.

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## ASSESSMENT OF THE USABILITY OF DISASTER RESILIENCE SCORECARD FOR CITIES IN THE CZECH REPUBLIC

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### **ABSTRACT**

*The article deals with an assessment of the usability of Disaster Resilience Scorecard for Cities (detailed level assessment) based on the United Nations Office for Disaster Risk Reduction (UNISDR) initiative which serves as a tool for assessing territory resilience to natural and anthropogenic threats. Assessing and building resilience are key elements when meeting the requirements of the SENDAI Framework for Disaster Risk Reduction. They contribute to enhancing security, economic and social stability of a territory, thus contributing to sustainable development. The article contains the assessment of the availability of data necessary for the use of the given tool at the municipal level in the Czech Republic which has agreed to meet the SENDAI framework requirements, but a resilience assessment has not yet been carried out to a large extent. The theoretical part of the paper contains a brief description of Disaster Resilience Scorecard for Cities along with the context of its use and it explains the principles of its function based on Ten Essentials for Making Cities Resilient and associated assessment criteria. The practical part of the paper, following the theoretical basis, evaluates possibilities of using Disaster Resilience Scorecard for Cities to assess resilience of municipalities in terms of data availability. The data availability is assessed on the basis of a comparison between data availability requirements stated in a tool for individual Essentials for Making Cities Resilient and data which is actually available to public and emergency authorities at the municipal level in the Czech Republic. The research presented in the paper focuses on Essentials 1,2,3 and 7 which are aimed at organizational, financial and social aspects of assessing and building resilience along with identification and assessment of current and future risk scenarios in given territories. Based on a comparison of the required and realistically available data, the usability assessment of Disaster Resilience Scorecard for Cities is carried out to assess resilience of municipalities in the Czech Republic.*

**Keywords:** *Data collection, Resilience, Risk, SENDAI, Threat*

### **1. INTRODUCTION**

Resilience can be defined as the ability of a system or society to resist, mitigate, absorb and recover from hazard effects, including the preservation and restoration of its essential structure and functions (Ministry of the Interior of the Czech Republic, 2016, p. 50). Assessing and building resilience are key elements when meeting the requirements of the SENDAI Framework for Disaster Risk Reduction 2015-2030 (UN, 2015). They contribute to enhancing security, economic and social stability of a territory, thus contributing to sustainable development. The Czech Republic is one of the countries that have agreed to meet the SENDAI framework requirements, but a resilience assessment has not yet been carried out to a large extent. To assess resilience of a territory in the Czech Republic, ideally carried out at the municipal level, it is necessary first to find or develop suitable tools. One of potentially useful tools is Disaster Resilience Scorecard for Cities (DRSC) (UNISDR, 2017a) based on the UNISDR initiative.

The content of the following text is the usability assessment of DRSC at the municipal level in the Czech Republic in terms of the availability of data that is required to assess territory resilience.

## **2. THEORETICAL BACKGROUND**

The following sections of the paper contain a brief description of DRSC along with the context of its use and they explain the principles of its function based on Ten Essentials for Making Cities Resilient and associated assessment criteria.

### **2.1. Disaster Resilience Scorecard for Cities**

DRSC is a tool for assessing territory's resilience at the local level providing the assessor with a set of assessment criteria based on UNISDR's Ten Essentials for Making Cities Resilient (hereinafter referred to as Essentials). At the same time, the tool helps to monitor and assess the progress towards meeting the requirements of the SENDAI Framework for Disaster Risk Reduction 2015-2030 (UNISDR, 2017a, p. 3). There are two DRSC variants that differ in the detail of the resilience assessment. The first option is the less detailed preliminary level assessment which enables to assess resilience of a territory in a 1 to 2 day multi-stakeholder workshop. Detailed level assessment is the other possibility. The title indicates that this document is for a more detailed, 1 to 4 month-long resilience assessment, which can subsequently serve as the basis for a detailed city resilience action plan (UNISDR, 2017b). For the detailed assessment, it is also possible to opt out of completing some assessment criteria if they are no relevant. (UNISDR, 2017a, p. 6). This paper will only deal with the detailed level assessment. The DRSC document can be divided into three parts. The first part contains a brief introduction to the resilience assessment issue, determination of the DRSC role in the given issue and information and instructions for using the tool. The second part contains Essentials and associated assessment criteria forming the core part of the document for the resilience assessment itself. The last part of the document consists of Appendices containing the glossary of terminology, history and evolution of the Scorecard and Conceptual linking of the Sendai targets and indicators to the Essentials and to other international frameworks (UNISDR, 2017a).

### **2.2. Ten Essentials for Making Cities Resilient and associated assessment criteria**

The criteria for the resilience assessment is structured around Essentials first developed as part of the Hyogo Framework for Action in 2005 and then updated to support implementation of the SENDAI Framework for Disaster Risk Reduction 2015-2030. The assessment has a multidisciplinary character. For this reason, the Essentials have been created to cover a wide range of tasks that entities need to address to become more disaster resilient at the local level (UNISDR, 2017a). According to (UNISDR, 2017a, p. 4), the tasks can be divided into categories: governance and financial capacity (Essentials 1–3), planning and disaster preparation (Essentials 4–8) and disaster response and post-event recovery (Essentials 9–10). The complete list of Essentials is as follows (UNISDR, 2017a, p. 4):

1. Organize for Disaster Resilience.
2. Identify, Understand and use Current and Future Risk Scenarios.
3. Strengthen Financial Capacity for Resilience.
4. Pursue Resilient Urban Development.
5. Safeguard Natural Buffers to Enhance the Protective Functions Offered by Natural Ecosystems.
6. Strengthen Institutional Capacity for Resilience.
7. Strengthen and Understand Societal Capacity for Resilience.
8. Increase Infrastructure Resilience.
9. Ensure Effective Disaster Response.



## 10. Expedite Recovery and Build Back Better.

For each Essential, a set of assessment criteria, which have the form of questions/assessment areas dealing with specific subjects/issues related to ensuring resilience, has been developed. Indicative measurement scale has been created for each questions/assessment areas. Each component of indicative measurement scale contains a point value in the range of 0 to 5 and a verbal description of the level of fulfillment of requirements related to ensuring resilience which is necessary to reach in order to achieve the assigned point value. It is very convenient that for each Essential there is a list of data which the assessment team needs for conducting the assessment (UNISDR, 2017a). To assess the score achieved using DRSC, UNISDR provides freely available tools for use in Microsoft Excel (UNISDR, 2017b). The maximum number of points the assessor can achieve in the detailed level assessment is 590 (without excluding any of the criteria). In addition, the available assessment tools allow to display results graphically for both the overall score and the parts of the assessment, which helps to interpret the obtained results better and identify the priority areas for further strengthening resilience of the territory (UNISDR, 2017c).

### 3. PRACTICAL PART

The practical part of the paper, following the theoretical basis, evaluates possibilities of using DRSC to assess resilience of municipalities in terms of data availability. The data availability is assessed on the basis of a comparison of data availability requirements stated in a tool for individual Essentials and data which is actually available to interested parties at the municipal level in the Czech Republic. The subchapters are focused on Essentials 1,2,3 and 7 which are aimed at organizational, financial and social aspects of assessing and building resilience along with the identification and assessment of current and future risk scenarios in given territories.

#### 3.1. Essential 1: Organize for Resilience

The first of Essentials addresses the introduction of organizational structures and identification of the necessary processes to understand and act on reducing disaster risks. In the domain of Essential 1, the following data is required for the use of DRSC: organization charts; lists of organizations by area, subject and other criteria; as applicable, memoranda of understanding and other role descriptions for each organization concerned; names of key individuals involved; meeting minutes and actions from the organizations concerned; a list of information and data available to each stakeholder (UNISDR, 2017a, p. 10). No problems with the availability of organization charts are expected. In the Czech Republic, elements as well as links of the public administration system (including crisis management authorities) are strictly defined at all levels in terms of vertical and horizontal structure. Rescue forces, operating within the Integrated Rescue System (IRS)<sup>1</sup>, also have a clear organizational structure. The internal organizational structure of private bodies is under the direction of the given body but for the sake of solving undesirable events, there is always at least one contact point that creates a link between the public administration system, Integrated Rescue System and internal structures of private bodies (General Directorate of Fire Rescue Service of the Czech Republic, 2015). Organization charts of crisis management authorities and Integrated Rescue System services are freely available on websites of relevant authorities and forces. More detailed information is available in planning documents for dealing with undesirable events or in information and communication systems of crisis management. Some information is publicly unavailable due to its sensitivity.

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<sup>1</sup> IRS is a system of links, rules, cooperation and coordination of emergency and rescue services, local authorities, natural as well as legal persons during joint execution of rescue and clean-up work as well as preparation for emergencies (Špaček, 2009).

Another requirement for the data availability is lists of organizations by area, subject and other criteria. Similarly to the organizational structures in the paragraph above, data about available organizations providing help during undesirable events is available in crisis documentation. The documentation consists of the emergency as well as crisis planning and a regional alarm plan (General Directorate of Fire Rescue Service of the Czech Republic, 2015). The above mentioned information is available to IRS services, crisis management authorities and other stakeholders through information systems, ARGIS and KRIZKOM in particular (Administration of State Material Reserves, © 2009). Furthermore, non-governmental organizations are also part of the official IRS structure. These NGOs are grouped on a communication and information platform known as PANEL in which they provide assistance in their own domain (Ministry of the Interior of the Czech Republic, 2014). Memoranda of understanding (MOUs) and other role descriptions for each organization concerned is the third requirement stated in DRSC. In the area of crisis management, the MOUs are more commonly used as international conventions regarding cross-border assistance of rescue services of individual countries (General Directorate of Fire Rescue Service of the Czech Republic, © 2018) and they do not immediately concern the resilience assessment. At present, the MOUs mainly deal with relief after an emergency situation and they rarely focus on prevention. Cooperation of crisis management authorities, IRS services and other stakeholders in the period before, during and after the occurrence of an undesirable event is stated in the legal system of the Czech Republic in the form of so-called crisis laws and related regulations (Czech Republic, 2016). Within IRS, mutual aid agreements are made between individual entities. These agreements are divided into groups based on the type of necessary aid or cooperation (Agh, 2017). As it has been mentioned above, the roles of the individual entities are clearly defined. The findings show that good data availability for DRSC can be expected in this area. Some assessment criteria may need to be adjusted to the system in the Czech Republic. The availability of meeting minutes and actions from the organizations concerned should also be possible. The minutes from meetings of crisis management authorities are available and other stakeholders also participate in the meetings, if necessary. Some of the facts stated in the reports are not publicly available. Particulars of the meeting reports can be found in the rules of procedure of municipal emergency committees (Town of Písek, 2012) and in the rules of procedures of municipal security councils (Town of Písek, 2011). The IRS services process reports and run statistical overviews of rescues and exercises (Agh, 2017). Names of key individuals involved and contact details for those individuals are part of emergency and crisis planning documents as well as the regional alarm plan. In the documentation, it is also possible to find data that should fulfill the data request formulated in DRSC as list of information and data available to each stakeholder. The data is also available to interested parties via information and communication tools (General Directorate of Fire Rescue Service of the Czech Republic, 2015). The public, primarily acting as a recipient of information, is a specific stakeholder. In the Czech legal system, the right to access to information is one of the basic human rights guaranteed by Act No. 106/1999 Coll. on Free Access to Information (Act, 1999). This law also defines cases in which the obligation to provide information does not apply to the public – in the investigated area, it primarily concerns special facts and classified information (General Directorate of Fire Rescue Service of the Czech Republic, 2015, pp. 282–283).

### **3.2. Essential 2: Identify, Understand and Use Current and Future Risk Scenarios**

The second of essentials deals with identification and understanding risk scenarios which help to identify threats, exposures and vulnerabilities in the assessed territory and with utilization of gained knowledge to support decision-making processes of the relevant authorities. In the domain of Essential 2, the following data is required for the use of DRSC: documentation of hazards, exposures and vulnerabilities; identification of critical assets and dependencies

between these (UNISDR, 2017a, p. 18). Documentation of hazards, exposures and vulnerabilities is processed in the framework of risk analyses for the Czech Republic and sub-territorial units on which crisis and emergency documentation as well as other related plans are based. The most detailed information, particularly from the point of view of exposures and vulnerabilities, is available for areas of emergency planning in the vicinity of significant sources of anthropogenic hazards (e.g. leakage of dangerous substances or radioactive radiation), for which emergency plans are prepared. Also, with respect to flood hazard, the information is available for areas for which flood plans are prepared. It would be an advantage if the assessed municipality had a response plan of municipal authorities to the occurrence of an extraordinary event containing information about hazards, exposures and vulnerabilities in the municipality area (General Directorate of Fire Rescue Service of the Czech Republic, 2015). Another way of obtaining the necessary data is the Fire Rescue Service of the Czech Republic and their procedures which determine the necessity of coverage by fire units in terms of number of units and their kind. Ensuring coverage is determined by the level of danger of the area which is determined on the basis of factors reflecting the number of people living in a given area, character of the area as well as the number of emergencies in previous years (General Directorate of Fire Rescue Service of the Czech Republic, 2005). Another requirement within Essential 2 is identification of critical assets and dependencies between these. Critical assets are assets (buildings, equipment etc.) which are important for the municipality in terms of operation of public administration, providing basic needs for protection of population as well as management of undesirable events. Within the preparation for dealing with emergencies, critical assets are identified and the subjects which own or operate them are required to participate in crisis planning and to prepare a plan for crisis preparedness (General Directorate of Fire Rescue Service of the Czech Republic, 2015, p. 219). It should be possible to obtain the required data from these planning documents. In connection with the previous paragraph, it is necessary to state that the Czech Republic, as a member of the European Union, applies a system of Critical Infrastructure (CI) Identification and Protection. This system brings together infrastructure elements, disruption of which would have a serious impact on the country's safety, providing population with basic needs, people's health or the economy of the state. Given the magnitude of possible impacts, this is an issue primarily addressed at the central level (General Directorate of Fire Rescue Service of the Czech Republic, 2015, pp. 217–223). During the resilience assessment, it is necessary to take into account critical infrastructure elements because one of them may be located within the municipality or disruption of one of them might reduce the municipality's resilience.

### **3.3. Essential 3: Strengthen Financial Capacity for Resilience**

The third of Essentials deals with understanding of the economic impact of disasters, the need for investment in resilience and identification as well as development of financial mechanisms that can support resilience activities. The following data is required for the use of DRSC in the domain of Essential 3: budget and capital plan documentation; documentation of any incentives or financing schemes (for example, loans for seismic upgrades) with a disaster resilience impact, together with take-up statistics for each area of the city and insurance coverage statistics (UNISDR, 2017a, p. 26). Public budgets, at individual levels of public administration in the Czech Republic, are the basic resources of funding in relation to the measures before, during and after the occurrence of an emergency. Public budgets are divided vertically into the national budget and budgets of territorial self-governing units (regions and towns) and horizontally into autonomous budgets of subjects of extra-budgetary (fund) financing. There is interdependence between the individual levels (Malachová, Urban, Kudlák, 2017, p. 15). Budget and capital plan documentation is related to municipal financial management. The first financial instrument of a city is its budget which shows the city's financial management for the

relevant calendar year (Malachová, Urban, Kudlák, 2017, p. 32). Data concerning revenues and expenditures of the city should be transparent and available. Complications may arise when determining the amount of expenditures to ensure resilience<sup>2</sup>. When classifying the budget, it is impossible to find the part which would directly address the expenditures on resilience. The reason is that ensuring resilience has a multidisciplinary character, thus the expenditures on a certain purpose come from different parts of the budget. Within their budget, cities earmark contingency reserves for crisis situations and elimination of their consequences along with funds necessary for preparation for crisis situations (Malachová, Urban, Kudlák, 2017, p. 60). Budget planning, auxiliary tool of financial management, is another tool which is compiled for a period of 2-5 years. The law does not regulate the classification or the detail of the budget outlook, it only imposes an obligation to prepare the outlook (Malachová, Urban, Kudlák, 2017, p. 32). Since the legislation does not regulate the classification or the detail of the budget outlook, the lower level of detail might facilitate the general estimate of expenditures which the city spends on ensuring resilience. To ensure prevention and preparation for crisis situations, cities may use program funding provided by ministries or regions. During crisis situations, cities may obtain financial assistance from the regional or national budget when the funds are exhausted. During the elimination of consequences of emergency events and restoration of the area, cities may use state aid and organize a public collection. Within the extra-budgetary financial tools, cities in the Czech Republic may, directly or indirectly, use fund financing. In connection with crisis management and building resilience, it is possible to use state funds and business support funds to help develop municipalities. Funds can also be obtained from European Union funding programs (Malachová, Urban, Kudlák, 2017). Similarly, for the above-mentioned funding methods, emphasis should be put on transparency and the data availability. In addition to the aforesaid general information, results of a research survey, which examined the economic security of crisis situations at the municipal level in practice, are available. The research survey focused on the allocation of municipal financial resources and logistical support in connection with the threat structure for a given territory. Following the results of the research, an initiative was developed in the Czech Republic to create a general planning algorithm for financial provision of municipal crisis measures which would have an impact on making the budget (Malachová, Urban, Kudlák, 2017, pp. 55–64). The aim of the research corresponds with the focus of part of the assessment criteria within Essential 3, thus the research results may be beneficial for the DRSC resilience assessment. Another requirement within DRSC named documentation of any incentives or financing schemes (for example, loans for seismic upgrades) with a disaster resilience impact, together with take-up statistics for each area of the city and insurance coverage statistics is formulated very generally. When examining specific assessment criteria related to the information mentioned in previous paragraphs, DRSC mainly deals with domestic insurance coverage, non-domestic insurance coverage, incentives to businesses organizations to improve disaster resilience (disaster plans, premises etc.), incentives to non-profit organizations to improve disaster resilience, incentives to homeowners to improve disaster resilience (UNISDR, 2017a, pp. 30–32). With domestic insurance coverage and incentives to homeowners to improve disaster resilience, there could be a problem with data acquisition. Private home insurance is provided by private insurance companies offering a wide range of products. Within the research presented in this paper, it was impossible to find any publicly available statistics of domestic insurance coverage by municipalities. A possible solution could be to carry out a survey in a specific area or modification of criteria in such a way that they would be based on data on damage and its insurance cover instead of data on insurance. In addition, presence of a local initiative in the assessed territory, which could provide the necessary data, can not be excluded.

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<sup>2</sup> The DRSC does not require an exact quantification of expenditures for building resilience. However, some assessment criteria are aimed for example at assessing the percentage coverage of planned expenditures of securing resources of funding.

The situation could be clearer in flood areas where a great deal of attention is drawn from the point of view of insurance companies' strategy (Hák, Oulehlová, Janoušková, 2015, p. 91) as well as in the vicinity of significant sources of anthropogenic threats where the 'Polluter Pays Principle' is applied in terms of damage cover. The same applies to incentives to homeowners to improve disaster resilience where incentives to increase resilience are managed within the flood of emergency planning. However, these incentives are in most cases not purely financial in nature. On the other hand, increase in premium amount in a territory with a high flood risk which could affect the willingness of the population to live in such areas and build additional measures could be a purely financial incentive. Non-domestic insurance can be divided into public and private property insurance. Cities may provide data on used insurance, which usually includes the public property, liability and coverage of agriculture risks (Malachová, Urban, Kudlák, 2017, p. 84). Private property insurance is a matter of the owner and the data can only be obtained in the context of an individual survey of the insured. In the case of identified significant sources of anthropogenic risks, based on Major Accident Prevention Act (Act, 2015), property damage insurance for possible damage caused by the accident is mandatory by law. If the financing of the insurance obligation in terms of coverage of damage exceeds the acceptable level for individual entities (e.g. nuclear facilities), these entities can be grouped into insurance pools (Hák, Oulehlová, Janoušková, 2015, p. 85). Information on whether a subject insured according to law (Act, 2015) is located in the municipality is available. Incentives to businesses organizations to improve disaster resilience include, for example, crisis preparedness plans of CI subjects that were already dealt with in Essential 2. In addition, it is possible to include rights and obligations arising from crisis legislation (Czech Republic, 2016) and requirements for the protection of the population. NGOs are funded through contributions and grants which are provided by ministries and central administrations. Within incentives to non-profit organizations, funds are provided to NGOs not only in the field IRS, but also to crisis management, population protection and volunteer services. NGOs are further encouraged to engage in population preparation through projects, discussions and public events (General Directorate of Fire Rescue Service of the Czech Republic, 2015, p. 30). Due to the nature of funding from public budgets, emphasis is placed on transparency of NGOs as well as reporting their activities.

### **3.4. Essential 7: Understand and Strengthen Societal Capacity for Resilience**

The seventh of Essentials deals with understanding and strengthening societal capacity for resilience and refinement of manners for social connectedness which promotes a culture of mutual help through recognition of the role of cultural heritage and education in disaster risk reduction. The following data is required for the use of DRSC in the area of Essential 7: list of grass-roots organizations and information on their size, roles and how they operate; details of how the city works with disadvantaged groups – for example, those in areas of high poverty; transient or nomadic communities; slum/favela residents; the elderly; physically or mentally sick or disabled; children; non-native language speakers (UNISDR, 2017a, p. 56). List of grass-roots organizations and information on their size, roles and how they operate is available as NGOs unite in NGO PANEL and provide on-demand assistance according to their specialization within IRS services. DRSC emphasizes that they are local (grass-roots) organizations, which does not play a key role in providing assistance in the Czech Republic through NGOs. Nonetheless, the presence of grassroots organizations representing local specifics and providing help in their local area is maintained within NGO PANEL. In the Czech Republic, there are usually no significant areas of high poverty or slum/favela areas which would be significantly separated from the point of view of availability. Within the population of the Czech Republic, minorities can be found, but except for some cases, these people are able to speak Czech.

In order to overcome any language barriers, some of the rescue personnel have the ability to speak another language. In the Czech Republic, there are no population groups which would be significantly different in terms of lifestyle (for example nomadic communities). Based on the aforementioned information, it can be said that in terms of details of how the city works with disadvantaged groups, it is necessary to deal primarily with the following population groups: the elderly, physically or mentally sick or disabled, children. At the same time, based on the limitations of the mentioned groups, it is possible to conclude that it is necessary to address two priority areas: evacuation (and related problems with hiding, emergency survival etc.) and the possibility of education (e.g. preventive educational activities for children in the field of individual protection, fire prevention). The evacuation is dealt with in the framework of evacuation planning (General Directorate of Fire Rescue Service of the Czech Republic, 2015, pp. 108–109) where the information should be available. Education can be tied to different subjects, such as rescue units, school, public authorities, NGOs, homes for the elderly etc. The data should be available but it will probably be necessary to obtain it through questioning of the listed subjects.

#### 4. CONCLUSION

The research presented in the paper discusses the assessment of feasibility of the research on resilience of cities in the Czech Republic in terms of the data availability for selected parts of the DRSC tool. Based on the research results, data availability for Essentials 1 and 2 can be characterized as very good. However, for further research, it will be necessary to establish cooperation with stakeholders in order to obtain information which is secret or contains special facts. Within Essential 3, there may be a problem with identification of expenditures which municipalities invest in building resilience from their budgets. Another obstacle may be data collection about financial security of households and private entities in terms of resilience. For these reasons, before the assessment itself, it may be necessary to adjust some of the assessment criteria to be based on data which is available at the appropriate level. On the other hand, in terms of availability, the emphasis on transparency of budgetary and extra-budgetary funding instruments as well as data availability from the results of the research which dealt with the economic security of crisis situations at the municipal level in practice, can be positively evaluated. Regarding Essential 7, no major problems with the data availability have been identified. The assessment criteria set may need to be adjusted so that the assessment will be more adapted to the social framework corresponding to the conditions in the Czech Republic. Based on the research results, the resilience assessment of cities in the Czech Republic through the DRSC tool can be recommended for areas within Essentials 1, 2, 3 and 7. At the same time, it is recommended to modify the assessment criteria in response to the identified problems with the above mentioned data availability. Further research in this area should, in addition to these recommendations, focus on assessing data availability for the remaining six Essentials. In the light of the findings, the assessment criteria for all ten Essentials should be modified. The resulting set of the assessment criteria should be applied in practice in order to verify functionality and gain feedback.

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## CRIMINAL LAW FRAMEWORK TO COMBAT CRIMINAL OFFENSES OF CORRUPTION IN CROATIA AND SERBIA

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### **ABSTRACT**

*Corruption today is the first-rate problem of human society and the international community. In transitional countries such as Croatia and Serbia, offenses of corruption are very pronounced, especially since legal and institutional frameworks for combating corruption have not been developing for a long time. The paper deals with the notion, characteristics and dimensions of corruption in the function of discussion on criminal offenses of corruption in these countries. It gives a brief overview of the major international legal sources that Croatia and Serbia have adopted and incorporated into national legislation. The central part of the work is devoted to national legal framework for the fight against corruptive acts, a comparative legal representation and the most common criminal offenses were pointed out in more detailed. Concluding considerations are devoted to some de lege ferenda proposals to suppress criminal offenses of corruption.*

**Keywords:** *corruption, criminal offences, national and international legal framework, Croatia, Serbia*

### **1. INTRODUCTION**

Corruption today is undeniable a global problem. This phenomenon, known since the emergence of human society, has remained rooted to date by very skillfully changing its forms and adapting to social circumstances. Corruption today represents one of the biggest threats to a developed society and its legal order. Acts of corruption equally threaten the rich and poor countries, especially affected are countries in transition. Social changes in the world at the end of the last century have also affected the area of our region, which unfortunately escalated in a war conflict and enormous increase in crime rates. Corruption was an indispensable companion of this process and in some places it has become even a phenomenon that is to some extent socially acceptable. Equally threatened are both the public and private sector and citizens' trust in the state and its authorities, which led to a huge mistrust of potential foreign investors in the economy of the newly created states. After the war, Croatia started the harmonization of legal norms with the legal instruments of EU, whose member it became in 2013. In that context, Croatia adopted legal solutions and anti-corruption mechanisms and established an institutional and legal framework. Serbia is in a more difficult position because it is still in the process of applying for EU membership and is still in the process of building a legal and institutional framework. In the field of corruption Serbia is given serious recommendations by the specialized international organization GRECCO that need to be adopted and implemented. Of particular importance are chapters no.23 and 24 of accession negotiations with the EU where the recommendations that Serbia needs to incorporate into its legislation are listed.



## 2. GENERAL CONSIDERATIONS ON CORRUPTION

Corruption (Lat. corruptio) implies perversion, disgrace; bribing;<sup>1</sup> and is known since the earliest days of human society. One of the most famous philosophers of ancient Greece, Aristotle, pointed out that the system of ephorea at the time was conducive to the development of corruption in society because "the greatest crimes have not been committed to obtain the necessary, but surplus."<sup>2</sup> In the essence of corruption is the human nature and the need for unlawful material gain, which remains to the present day of the modern era. The conceptual definition of corruption is different in contemporary doctrine and practice, so there is no uniform definition. According to the sociological concept of corruption, acts that violate moral and legal norms relate to the concept of general good and public interest.<sup>3</sup> The legalistic view is based on ancient laws such as the Hammurabi Code and the Roman Law (Table 12).<sup>4</sup> The socio-legal attitude equally respects the sociological and legal elements of corruption.<sup>5</sup> The current standpoint is based on the position of the World Bank, which, under corruption, implies abuse of the public position in order to achieve private benefit. International organization for the fight against corruption Transparency International defines corruption like as abuse of power for private gain.<sup>6</sup> Based on the accepted definitions, public powers (in the public or private sector), abuse of authority and unlawful property gain (for themselves or others) can be distinguished as the most important elements of corruption. The most important elements of corruption are:

1. public powers (in the public or private sector),
2. abuse of authority
3. unlawful property gain<sup>7</sup>

Manifestations of corruption can be: individual, systemic, indirect, competitive, active and passive and other forms (institutional and idiosyncratic, conventional and indirect, street, contractual and political, transactional, exiting and investing, nepotistic and autogenic).<sup>8</sup> Political Corruption is grand corruption which is primarily represented among high government officials, which makes it particularly dangerous due to the great power of individuals. Petty Corruption is the kind of corruption which refers to responsible persons employed in public administration who decide on the rights of natural persons (citizens) and legal entities.<sup>9</sup> Etiological dimension of corruption includes the causes and conditions of corruption that may be endogenous (personal character, motivation and initiative) and exogenous (political, social, institutional, legal and economic).<sup>10</sup> Exogenous causes are mainly related to the weaknesses of the political, economic and legal system, such as the absence of adequate legal solutions and anti-corruption mechanisms. This affects the distrust of citizens in the state and its institutions and contributes to the absence of the rule of law.<sup>11</sup> Victimological dimension of corruption includes the protection of victims and injured parties in corruptive acts.

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<sup>1</sup> Anić Š, Klaić N, Domović Ž, Rječnik stranih riječi, Zagreb, 2002, p.752.

<sup>2</sup> Aristotel, Politika, NIO Kultura, Beograd, 1960, p. 1270.

<sup>3</sup> Derenčinović D, Mit o korupciji, 2001, p.36-38.

<sup>4</sup> *Ibid.* p.130-134.

<sup>5</sup> Milutinović M, Kriminologija, Beograd, 1990, p.34.

<sup>6</sup> Božić V, Nikač Ž, Fight Against Corruption in the Area of the Region with Particular Reference to Croatia and Serbia, Istraživački centar Banja Luka, Collected papers, p.359-380.

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<sup>8</sup> *Ibid* in note 3. p.130-134.

<sup>9</sup> Božić V, Kesić T, *The Criminal Justice Responses to Corruption with Proposals de lege ferenda*, Zbornik radova, Tara, 2016, p. 455-483.

<sup>10</sup> See more: Ignjatović Đ, Kriminologija, Pravni fakultet, Beograd, 2015.

<sup>11</sup> Božić V, Nikač Ž, *Criminal liability for bribery as a reward for promised service*, 2017, Conference proceedings "Services and Rules on Services" Kragujevac, Pravni fakultet, p. 925-943.

This dimension is of particular importance for strengthening and encouraging the position of victims to report even the smallest acts of corruption.

### 3. INTERNATIONAL LEGISLATION FOR FIGHTING CORRUPTION

International anti-corruption legislation encompasses the most important multilateral conventions adopted at the UN and Council of Europe levels. UN Convention against Corruption<sup>12</sup> stipulates the obligation of the signatory states to envisage anti-corruption measures in their national legislation, adequate legal and institutional mechanisms for combating corruption, training of staff and the incrimination of corrupt criminal offenses in national law.<sup>13</sup> Among the most important incriminations are mentioned: bribery, embezzlement, unlawful appropriation or other redeployment of property, trade in influence, abuse of office, unlawful engagement, money laundering of assets gained by a criminal offense, obstruction of justice, the responsibility of legal persons and punishment of all persons who have contributed to the commission of the criminal offense. UN Convention Against Transnational Organized Crime<sup>14</sup> also provides for obligation of the signatory states to incriminate corruption offenses in national legislation. Convention provides for the formation of specialized bodies to combat all forms of organized crime and the use of special investigative techniques.<sup>15</sup> Regarding corruption, the Convention in a similar way determines the term, subjects and acts of the commission of corrupt criminal offenses. Criminal Law Convention on Corruption<sup>16</sup> was adopted at the level of the Council of Europe which foresees the obligation to incriminate the following corruptive acts such as: bribery in the public and private sector, trade in influence, money laundering acquired by corruptive offenses and financial crime.<sup>17</sup> Civil Law Convention on Corruption<sup>18</sup> defines corruption as any act that relates to the direct or indirect search, offering, giving or receiving of bribes or any other unauthorized use, as well as the ability to obtain such benefits. Based on the Civil Law Convention on Corruption formed is an international expert organization GRECO - Group of States against Corruption, whose basic task is to monitor the application of the Convention in practice, prepare a report on the state of corruption in each signatory state and make recommendations for combating corruption.<sup>19</sup>

### 4. NATIONAL LEGISLATION FOR FIGHTING CORRUPTION

#### 4.1. Legislative of Republic of Croatia

Croatia has become a member of the EU on July 1, 2013 and has accordingly harmonized its legislation with EU law. Criminal justice framework for the suppression of corruption is made up of several important regulations: Criminal Code,<sup>20</sup> Criminal Procedure Code,<sup>21</sup> Law on the Prevention of Conflict of Interest in Public Functions,<sup>22</sup> Law on USKOK,<sup>23</sup> Law on Prevention of Money Laundering and Financing of Terrorism,<sup>24</sup> Law on Responsibility of Legal Persons

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<sup>12</sup> UNCAC, UN Treaty Series, 2003, vol. 2349, 41; Doc. A/58/422

<sup>13</sup> *Ibid.* art.5-6, 15-23.

<sup>14</sup> UNCATOC, UN Treaty Series, 2000, vol.2225.

<sup>15</sup> Božić V, Nikač Ž, *Criminal incriminations based on the UN Convention against Transnational organized crime in the criminal legislation of the Republic of Croatia and the Republic of Serbia*, FB Skopje, International scientific conference "St.Clement's messages for ethics, morality and values" Conference proceedings, Skopje, 2016, p.89-111.

<sup>16</sup> Criminal Law Convention on Corruption, CoE, 1999, ETS 173.

<sup>17</sup> *Ibid.* art.2-14.

<sup>18</sup> Civil Law Convention on Corruption, CoE, 1999, ETS 174.

<sup>19</sup> Božić V, *Criminal Offense of Bribery Focusing on Corruption of Family Physicians by Pharmaceutical Industries*. Godišnjak Akademije pravnih znanosti, Vol.VI, no 1, Zagreb, p.101-150.

<sup>20</sup> Criminal Code, OG No 125/11,144/12,56/15, 61/15,101/17

<sup>21</sup> Criminal Procedure Code, OG No 152/08, 76/09,80/11, 121/11, 91/12, 143/12, 56/13, 145/13, 152/14, 70/17

<sup>22</sup> Law on the Prevention of Conflict of Interest in Public Functions, OG No 26/11, 12/12, 124/12, 48/13, 57/15

<sup>23</sup> Law on USKOK, OG No 76/09, 116/10, 145/10, 57/11, 136/12, 148/13, 70/17

<sup>24</sup> Law on Prevention of Money Laundering and Financing of Terrorism, OG No 108/17

for Criminal Offenses,<sup>25</sup> Witness Protection Act,<sup>26</sup> Law on Access to Information<sup>27</sup> and the Law on International Legal Assistance in Criminal Matters.<sup>28</sup> Criminal Code Republic of Croatia (CC RC) provides for the following corruptive offenses: Bribing and receiving bribes, Abuse of position and authority, Money laundering, Trading in influence, Giving and receiving bribes in economic business, Bribing for trading in influence, Misuse of public procurement procedure, Illegal favoritism, Receiving and giving bribes in bankruptcy proceedings, Bribing member of parliament. Amendments to the Criminal Code RC have introduced several criminal offenses, such as art.254. Misuse of public procurement procedure and art.292. Illegal favoritism. The Criminal Procedure Code Republic of Croatia (CPC RC) provides for the criminal investigation to be conducted and chaired by the Public Prosecution RC that has available the improved legal mechanisms such as the treaty of parties with regard to the admission of guilt and consequently lower sentences. Law on USKOK determines the structure, organization and competences of the Office in the fight against corruption and organized crime. It enters into the legal order of Croatia the Council Framework Decision 2005/212/PUP of 24 February 2005 on the confiscation of property gains, assets and property acquired by a criminal offense<sup>29</sup> and Council Framework Decision 2002/465 / PUP of 13 June 2002 on joint investigative teams.<sup>30</sup> Strategic documents have been adopted in the fight against this plague: The Strategy for the Suppression of Corruption from 2015 to 2020<sup>31</sup> and the Action Plan for 2017 and 2018 with the Strategy.<sup>32</sup>

#### 4.2. Legislative of Republic of Serbia

Serbia is a candidate country for EU membership and is in the process of harmonizing its legislation with EU law. Criminal justice framework for the suppression of corruption is made up of several important regulations: Criminal Code,<sup>33</sup> Criminal Procedure Code,<sup>34</sup> Law on Organization and Competence of State Bodies in Suppressing Organized Crime,<sup>35</sup> Law on the Program for the Protection of Participants in Criminal Procedure,<sup>36</sup> Law on Withdrawal of Proceeds of the Criminal Offense,<sup>37</sup> Law on the Anti-Corruption Agency *Zakon o agenciji za borbu protiv korupcije*<sup>38</sup> and Law on the Protection of Whistleblowers.<sup>39</sup> Criminal Code of Serbia (CC RS) incriminates the following criminal offenses: Receipt of Bribes, Giving Bribes, Giving and receiving bribes related to voting, Abuse of the Position of a Responsible Person, Misuse of Public Procurement, Violation of employment rights and during unemployment, Trading in Influence, Abuse of Official Position, Abuse in the Privatization Process, Bribing in Execution of Economic Activities, Acceptance of a Bribe in the Execution of Economic Activities, Causing Bankruptcy, Causing False Bankruptcy and Money laundering. In early 2018, the last amendments to the Criminal Code of Serbia came into force by which Serbia criminalized several new criminal offenses involving corruption. Criminal Procedure Code of Serbia instead to the earlier investigative judges, has entrusted the investigation to the Public

<sup>25</sup> Law on Responsibility of Legal Persons for Criminal Offenses, OG No 151/03, 110/07, 45/11, 143/12

<sup>26</sup> Witness Protection Act, OG No 163/03, 18/11, 73/17

<sup>27</sup> Law on Access to Information, OG No 25/13, 85/15

<sup>28</sup> Law on International Legal Assistance in Criminal Matters, OG No 178/04

<sup>29</sup> Council Framework Decision 2005/212/PUP of 24 February 2005, SL L 68, 15. 3. 2005

<sup>30</sup> Council Framework Decision 2002/465 / PUP of 13 June 2002, See more: Nikač Ž, Božić V, Simić B, *Joint investigative teams as a mechanism of The UN Convention against transnational organized crime*, 7th International Scientific Conference Archibald Reiss Days, Conference Proceedings, Tom 2, p. 269-283.

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<sup>32</sup> Action Plan for 2017 and 2018 with the Strategy, OG No 60/17

<sup>33</sup> Criminal Code, OG No 85/05, 88/05, 107/05, 72/09, 111/09, 121/12, 104/13, 108/14, 94/16

<sup>34</sup> Criminal Procedure Code, OG No 72/11, 101/11, 121/11, 121/12, 32/13, 45/13, 55/14

<sup>35</sup> Law on Organization and Competence of State Bodies in Suppressing Organized Crime, OG No 94/16

<sup>36</sup> Law on the Program for the Protection of Participants in Criminal Procedure, OG No 85/05

<sup>37</sup> Law on Withdrawal of Proceeds of the Criminal Offense, OG No 32/13, 94/16

<sup>38</sup> Law on the Anti-Corruption Agency, OG No 97/08, 53/10, 66/11, 67/13, 112/13, 8/15

<sup>39</sup> Law on the Protection of Whistleblowers, OG No 128/14

Prosecutor's Office of RS, to whom the criminal police is subordinated. For the collection of evidence and prosecution of suspects for corruption, great importance is given to basic (art.85-159) and special evidence (art.160-187).<sup>40</sup> Law on Organization and Competence of State Bodies in Suppressing Organized Crime provides for the formation of Special Department of the Higher Public Prosecutor's Office for Combating Corruption and the Special Departments of the High Courts for the Suppression of Corruption.<sup>41</sup> Police affairs related to the suppression of corruption are performed by the Office for the Fight Against Organized Crime. Law on Withdrawal of Proceeds of the Criminal Offense is an important regulation that, among other things, regulates the seizure of property acquired by criminal offenses of corruption.<sup>42</sup> Following strategic documents were adopted in the fight against this plague: National Anti-Corruption Strategy for 2013-2018 and the Action Plan for the Implementation of the Strategy from 2013 to 2018.<sup>43</sup>

<b>CROATIA</b>		<b>SERBIA</b>	
<b>Art.CC</b>	<b>Corruption criminal offence</b>	<b>Art.CC</b>	<b>Corruption criminal offence</b>
251	Receiving and giving bribes in bankruptcy proceedings	227	Abuse of the Position of a Responsible Person
252	Receiving bribes in economic business	228	Misuse of Public Procurement
253	Giving bribes in economic business	245	Money laundering
254	Misuse of public procurement procedure	359	Abuse of Official Position
265	Money laundering	366	Trading in Influence
291	Abuse of position and authority	367	Receipt of Bribes
292	Illegal favoritism	368	Giving Bribes
293	Receipt of Bribes	156	Giving and receiving bribes related to voting
294	Giving Bribes	228a	Abuse in the Privatization Process
295	Trading in Influence	230	Acceptance of a Bribe in the Execution of Economic Activities
296	Bribing for trading in influence	231	Bribing in Execution of Economic Activities
339	Bribing member of parliament	232	Causing Bankruptcy
		232a	Causing False Bankruptcy

*Table 1: Most frequent offenses of corruption in CC RC and CC RS*

According to the more frequent corruptive offenses listed in the previous table, the compliance of incriminations with the legal regulation of EU is evident. In Croatia, the most often committed criminal offense of corruption is art.291 Abuse of position and authority. Second place is the criminal offense art.294. Giving Bribes, while in third place is the criminal offense art.293. Receipt of Bribes.<sup>44</sup> In Serbia the most often committed criminal offense of corruption is art.359. Abuse of Official Position. Second place is the criminal offense art.227. Abuse of the Position of a Responsible Person, while in third place is the criminal offense art.367.

<sup>40</sup> *Ibid.* in note 37.

<sup>41</sup> *Ibid.* in note 35. art.13-18

<sup>42</sup> *Ibid.* in note 42.

<sup>43</sup> Conclusion of the Government RS 05 no.110-7203/13, 25.08.2013.

<sup>44</sup> See Source: *Adult offenders in the Republic of Croatia, reported, accused and convicted in 2017*, National Bureau of Statistics, 2018.

Receipt of Bribes.<sup>45</sup> As can be seen from the comparative table, among incriminations in CC RS there are no criminal offenses of Receiving and giving bribes in bankruptcy proceedings and Bribing for trading in influence, so the suggestion is to incorporate them into criminal law.

## 5. CONCLUSION

Corruption is today an indisputable social phenomenon that crosses the state borders and is justifiably considered a global problem. It has equally affected the public and private sector, developed and underdeveloped countries. Particularly affected are transition countries that did not have developed enough legal and institutional mechanisms to combat corruption. In our Region, corruption has progressed in all newly emerged states and has become a de facto way of life for a number of people, which has questioned the started reform of the legal system and the social order. In response to the challenges, risks and threats of acts of corruption, the legislator in Serbia and Croatia has adopted established international standards and solutions from previously signed and ratified documents. On this basis, the criminal law in those countries has been revised, and in this respect with the recent amendments of the CC the RS has criminalized seven new corruption-related offenses. In Serbia, the situation is somewhat more favorable because Croatia's earlier application for EU membership has aligned its legislation with EU regulations. In the prosecution of corrupt criminal offenses and their perpetrators in RC and RS, specialized bodies of detection and persecution have had a leading role, as well as the use of special investigative techniques and methods based on the US and developed EU countries. We are of the opinion that we should *de lege ferenda* adopt the Law on whistleblowers in Croatia as soon as possible, as done in Serbia, primarily for the protection of persons who report criminal offenses of corruption. It is necessary for Serbia to act according to the recommendations of GRECO experts from the last year's report and strengthen the independence of the courts and the independence of the prosecution, ensure the selection of staff according to professional standards and pursue the depoliticization of the judiciary.

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## **SOLUTION TO THE EMERGENCY SURVIVAL OF THE POPULATION IN THE EVENT OF BLACKOUT**

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### **ABSTRACT**

*Prevention and crisis preparedness are among the crucial activities of crisis management authorities. Their goal is to prevent crisis situations, increase resilience, reduce territory vulnerability and increase preparedness of the territory to deal with crisis situations. Implementation of emergency survival is one of the main tasks of crisis management authorities, Integrated Rescue System (IRS) components and other stakeholders to provide protection of health and life of the population affected by the crisis situation. It is necessary to be prepared for tasks related to the emergency survival before the actual crisis situation arises. For this reason, within preparation of each exercise of crisis management authorities, different plans are conceived, one of which is the plan of emergency survival of the population. During preparation of the Blackout 2017 exercise in the South Bohemian Region, Czech Republic, working groups were established to analyse the impacts on life and health of the population, property and environment with regard to ensuring functionality of all key stakeholders. The article focuses on the findings of a working group dealing with a possibility of providing emergency food supplies to the affected population. The findings presented in the article are based on a detailed analysis, working group discussions and a questionnaire survey conducted among the food producers and distributors in the South Bohemian Region. Results show that storage operators, producers (especially of bakery, meat and dairy products), distributors and food sellers are minimally prepared for the blackout (unconnected spare power sources, lack of stock supplies, impossibility of providing food) and they are not prepared to provide protection and quality of food in accordance with the legislation. This is due to the high dependence of other infrastructures used in the food industry (e.g. water management, gas distribution) on the power supply. The most effective way to ensure emergency food supplies is to deliver food from non-affected areas. Food stored in the affected area in contradiction to the law, must be removed.*

**Keywords:** *blackout, crisis management, emergency survival, exercise*

### **1. INTRODUCTION**

Increasing number of disasters affects security of the society and thus sustainable development. The key international link between the crisis management and sustainable development came into existence on the United Nations grounds at the Earth Summit in 1992. States recognized the need to integrate disaster issues into national plans for sustainable development. Since then, there has been a deeper interconnection of both areas. To maintain sustainable development, it is imperative to identify, assess, minimize and monitor the risks of disasters and thereby enhance the security of the territory.

The most common security threats in the developed countries include: terrorism, proliferation of weapons of mass destruction, cyber attacks, blackouts, economic instability, political instability, social instability, military invasion (Dukiewicz, 2018), climate change and natural disasters. Crisis management have to use proper tools to deal with all these threats. Dynamic development of the security environment and more frequent occurrence of extensive blackouts indicate that it is necessary to pay adequate attention to this threat. Energy security issues are mainly linked to the protection of critical infrastructure (Rehak, Hromada, Novotny, 2016). Blackout can be of natural or anthropogenic origins or a combination of these. Blackout and its cascading impacts represent an extraordinary event with high economic loss and complications for the population (Wu, Chang, Hu, 2017), (Kamali, Amraee, Hu, 2017). Despite the implementation of all measures to strengthen European energy infrastructure, particularly in the area of electricity supply stability, it is necessary to become prepared for dealing with the blackout. The purpose of this article is to present results of the analysis of food supply functionality on the territory of the South Bohemian Region for the needs of the implemented Blackout 2017 exercise. Based on the results of the analysis, problem areas which need to be dealt with have been identified. The results obtained were used to change and supplement the crisis documentation for entities performing tasks from the crisis preparedness plans and the crisis management body of the South Bohemian Region.

## **2. CURRENT STATE**

### **2.1. Emergency survival**

Providing emergency survival measures represent a summary of activities and practices of materially competent authorities, other stakeholders and citizens themselves carried out to minimize negative impact of an extraordinary event (EE) or crisis situation (CS) on the health and lives of the affected population (Fire Rescue Service of the Czech Republic, 2014). These are the measures that follow the evacuation of the population from the affected area of EE and CS or are implemented directly in the area of EE or in the zone of emergency planning. The measures are developed in detail in the Emergency Survival Plan (ESP) (Act N. 241/2000, 2000), which is part of the regional emergency plan and includes:

1. Emergency accommodation;
2. Emergency food supply;
3. Emergency drinking water supply;
4. Emergency supply of basic services to the population;
5. Emergency power supply;
6. Organization of humanitarian aid;
7. Distribution of responsibility for the implementation of emergency survival measures for the population (Decree No. 328/2001, 2001).

Emergency basic food supply provides basic types of food and ready meals. These commodities include basic food stuff that must be provided for the members of the Integrated Rescue System (IRS), but primarily for the civilian population affected by CS. For this purpose, it is necessary to have a logistical support system designed to provide basic food to be distributed among affected people and members of the IRS when CS (Decree No. 328/2001, 2001) arises. The main task of logistical support during CS is to create, design and provide supply of the right commodities, at the right time on the right place. After the CS declaration, regulatory measures can be set for supplying the population in order to mitigate the impact of the CS on the population and the national economy in a period of insufficient supply from the usual sources. Regulatory measures for the population are graded according to the situation in the supply of individual goods. A stricter option of reducing food consumption is the use of the ration card system. However, this cannot be used in the event of a several-day power outage.



The reason is that the ration cards are printed for a particular EE or CS. Their delivery time is 40-60 days from the start of printing. Such a long-term power outage has not currently been recorded and has even not been considered in relation to the power supply system interconnection. In spite of the legal obligation of the Czech state (Decree No. 328/2001, 2001), (Act N. 239/2000, 2000), transferred to regions and municipalities, inhabitants are advised to have their own food, water and other supplies ready for at least 72 hours. In the case of a long-term blackout, it is not realistic nor technically possible to immediately meet the needs of all inhabitants. In spite of this, crisis management authorities and humanitarian employees will carry out their tasks to provide the necessary assistance to the population in the field of emergency survival. Help can thus come in a few hours, but it may also take several days (Fire Rescue Service of the Vysočina Region, 2016). The Federal Government Civil Defence Concept (Bundesministerium des Innern, 2016), valid in Germany, gives much stricter recommendations for emergency food supply. It states that the citizens are recommended to create a personal food supply for ten days with a specific list of food and beverage items. If the citizens respected this recommendation, they would make a significant contribution to reducing the load put on IRS components during a long-term power outage.

## **2.2. Czech Republic**

Territory of the Czech Republic (CR) has not yet been affected by an extensive spatial and long-term power outage. In 2016, a threat analysis was conducted for the Czech Republic, where the risk of a large-scale electricity supply outage (45.73 points out of 100) and the risk of a large-scale food supply disruption (31.11 out of 100) were assessed as unacceptable risks. For both unacceptable risks, a type plan has been developed. A similar risk analysis was also carried out at the level of regions. Regions have taken over the national semi-quantitative methodology of risk analysis and applied it on the regional territory. When carrying out the threat analysis for the regional territories, the risk of a large-scale electricity supply disruption was identified as unacceptable risk in 13 out of 14 regions of the Czech Republic (Government of the Czech Republic, 2016). On the contrary, the risk of a large-scale food supply disruption has not been identified as unacceptable in any of the regions. Threat of food supply disruption in the common situation is almost ruled out due to a number of manufacturers, storehouses, distributors and food sellers. All national approaches in available scientific literature address emergency food supply as a result of a different EE or CS. Its secondary emergence is mainly associated with floods, transport problems, food self-sufficiency, epizootics or epiphyseis. It has not been separately solved how to proceed in the event of a long-term power outage, when storehouses, manufacturers, distributors and sellers are affected, i.e. a standard system based on power supply cannot be applied. Crisis management authorities of the regions as well as of municipalities with extended powers are required to incorporate type plans into their crisis plans. The crisis documentation also includes ways of ensuring emergency survival, the essential part of which is the emergency supply of the population. In spite of these facts, crisis management authorities have a legal duty to become prepared for dealing with the CS through exercises. Exercise topics are selected by crisis management authorities in relation to identified threats to the area.

## **3. OBJECTIVE AND METHODOLOGY**

The aim of the paper is to investigate possible ways of providing emergency food supply in the event of a long-term power outage on the territory of the South Bohemian Region in the Czech Republic. The partial objective is to explore the possibilities of providing emergency food supplies within the region examined and to highlight the key issues that have not been addressed in this area. This solves the basic task of the crisis management authorities and of the IRS components when helping the EE/CS affected population.

The basic method of work was analysis. The analysis of individual storehouses of primary commodities and products of food production, production plants, distribution depots and food sellers and their ability to respond to long-term power outage was performed. The information was obtained through research of literary and information sources (predominantly crisis preparedness plans) and, in particular, through discussions in the form of semi-structured interviews and questionnaires with representatives of individual entities providing some of the activities in the food industry. The created questionnaire contained both open and closed questions (yes x no). Questions were related to the entity's ability to secure its operation at the time of long-term, large-scale electricity supply disruption. Follow-up meetings of the Food working group used a brainstorming method, which is based on creation and solution of ideas. The resulting information was synthesized and the resulting conclusions were formulated using the deduction method which comes from assumptions (premises) to the conclusions.

#### **4. RESULTS AND DISCUSSION**

13 working groups were created as a part of the preparation of the Blackout exercise in the South Bohemian Region (CR), which took place in December 2017. For the exercise, a power outage longer than 3 days was considered. Each working group focused on key areas (food, drinking water, fuel, education, transport, gas supply, healthcare, veterinary measures, social topics, communication, funeral services, prison operation and public administration) which were affected by the long-term power outage with a view to providing security and protection for the population. The task of each working group was:

1. Identify elements within the thematic area,
2. Determine the impacts of the power outage,
3. Identify preserved activities,
4. Decide what is necessary to be provided in emergency state in the area,
5. Determine how to address impacts in the affected area,
6. Suggest entities for the provision of basic functions in the affected area for the priority electricity supplies.

Analytical and evaluation activities of the working group took place 10 months before the exercise realization. It was a time-consuming work that required mostly personal discussions with individual stakeholders. The article deals with the analysis of the territory in terms of providing emergency food supply in the event of a large power outage in the region, with an emphasis on producers, storehouses, distributors and food sellers. Analysis of the territory was carried out at two levels - regional and municipal (with extended powers). The regional level was carried out by the representatives of the South Bohemian crisis management bodies and by the Regional Fire Rescue Service in cooperation with food company owners and operators, especially those responsible for operation and its safety. Analysis of the territory of municipalities with extended powers was carried out by the employees of the municipal crisis management. Their main task was to analyze the possibilities of supplying the population with food and ready meals (takeover and distribution in a specific place and to specific people).

1. The following elements have been identified in the area of food supply within the regional and national scope:
  - A. Storehouses of food commodities and products, protection of production stock and foodstuff (3 storehouses),
  - B. Production (8 manufacturers),
  - C. Distribution (0 distributors),
  - D. Sale (7 sellers).

It is not possible to indicate the names of the individual entities involved in the research in the article. The reason is that some of them are classified as critical infrastructure entities and information concerning them is considered classified information, or they did not approve to publish their name for protecting of business secret reasons. At the beginning of the research, it was assumed that entities with a regional and national level of competence should have a higher ability to provide emergency food supply in the event of a large-scale extraordinary event occurring on the regional territory; therefore increased emphasis was put on them. Identification of the entities able to provide emergency food supplies was also carried out by the crisis management authorities at the level of the municipality with extended power. Their detailed results varied for individual municipalities with extended powers depending on the size of the territory, the number of inhabitants, their purchasing power and the degree of economic maturity. These were mostly small supermarkets, corner shops with longer opening hours, bakery product manufacturers and regional food producers. Their storing, production and sale capacities do not allow for emergency food supply for the population during long-term power outage. Results of the analysis of municipalities with extended power therefore are not the content of the presented article. However, some conclusions can also be applied to that level.

2. After identifying the entities that can participate in the emergency food supply, the impacts of the long-term power outage on their preparedness and capacity in dealing with the CS in favour of the protection of the population were defined. Long-term supply disruption for food business operators has a key effect on their functionality and ability to ensure operation hygienic safety. Individual priority and secondary impacts are described according to the identified elements.

- A. Storehouses of food commodities and ready foodstuff, protection of production stocks and foodstuff. The storehouses store meat and meat products, milk and dairy products, cereals and flour, eggs and vegetables. Deteriorated storage conditions that do not comply with hygiene regulations would lead to the damage of the stored goods. All owners of storehouses stated that their storehouses do not have their own motor generator or a connection to it. Its construction requires both construction and technical modifications to the building. This would result in total or partial loss of stored goods due to failure of:
- a) Storage technology - cooling, air conditioning, ventilation,
  - b) Electronic security systems - security locks, electronic fire alarms (EFA), electronic security signalling (ESS), cameras and automated fire extinguishers, if installed,
  - c) Electronic storage control systems,
  - d) Takeover and delivery of stored stock - takeover and dispatch of ordered goods (entrance gateways and gates are only electronically controlled),
  - e) Failure of electronic means of communication,
  - f) Stockpile protection.

Secondary impacts of stock of food commodity supply and products failure are:

- a) Damage to stored commodities and foodstuff due to failure to comply with storage technology, such supplies must be disposed of in accordance with the Food and Waste Act,
- b) Possibility of entering unauthorized persons into the building and occurrence of looting,
- c) Making it impossible to takeover and deliver commodities/foodstuff to/from the storehouse,
- d) Looting.

- B. There were 3 meat and meat product producers, 4 bakery product producers and 1 milk and dairy product producer among 8 identified producers. Their production is dependent not only on the electricity supply, but also on water, natural gas, heating and input commodities supply, their deliveries are based on Just in Time logistic principles. Bakery manufacturers have a maximum of one-day stock of primary commodities. In the case of food manufacturers, providing a motor generator or connection to it would not solve the situation, and the restoration of production would not take place earlier than the energy and primary commodities supply was restored. The production of bakeries, dairies and meat factories would be completely disrupted due to total or partial loss, in particular of:
- a) Supply of primary commodities - animals, milk, eggs, flour, oil, sugar and others from primary producers (breeders) or from storehouses from external suppliers in composition by type of production,
  - b) Production stock - rapid damage to commodities requiring storage under required temperature conditions (HACCP system),
  - c) Supply of technological media necessary for the production (water, gas, heat, cold, fuel),
  - d) Electronic and electrical control systems for the takeover of production commodities, production, storage and delivery of ready foodstuff,
  - e) Electronic security systems - cameras, security locks, EPS, automatic fire extinguishing devices, if installed,
  - f) Staff - who would not get to work due to traffic complications.
- C. Since no central food distributor for sales networks has been identified, the article only lists general predictable problems associated with food distribution on the regional territory:
- a) Restriction or end of the food supply from the producers and to/from distribution depots,
  - b) Failure of electronic communication means for ordering, delivery/takeover and distribution of foodstuff in storehouses, in commercial network and carriers,
  - c) Shortage in fuel and lubricants (FL) for transport means for the transport of foodstuff to/from storehouses and shops,
  - d) Reduction of foodstuff transport safety due to formation of traffic jams.

The secondary impact would be the restriction of food supply to the sales network.

- D. The trader plays the most important role in the provision of food for the population. This concerns places where residents are likely to come up and demand food supply in the event of a long-term power outage. In particular, a wholesale network was researched, where it was found that half of it does not own a motor generator or a connection to it. The other half owns a motor generator which has, however, limited fuel supply (for at maximum 8 hours of operation) and a capacity that does not provide power supply to the entire factory. In the case of wholesalers, the sale of foodstuff would be primarily restricted or completely stopped due to:
- a) Interruption in food supply to commercial network - automated dispatch of orders and takeover of delivered goods,
  - b) Lack of food in the sales network,
  - c) Lighting failure in the shop,
  - d) Failure of electronic food sale control systems - commodity prices, cash registers failure,
  - e) Outage of the food sales network functionality due to the failure of the means of communication.

The identified synergic effects caused by a power failure at sellers include:

- a) Disruption or restriction of sale due to:
  - Unavailability/lack of foodstuff,
  - Degradation of fresh foodstuff of animal and plant origin,
  - Degradation of frozen and refrigerated food in stores.
- b) Impossibility of obtaining food by the population in the area in a common way,
- c) Failure to send EET and audit reports to the Tax Office,
- d) Receiving customer payment cards - limiting the sales to the customers without cash which nowadays represent a major problem as most payments at retailers are made by credit card and the households do not have cash,
- e) Failure of ventilation and air conditioning for heating of hypermarkets,
- f) Failure of electronic security systems - cameras, security locks, EPS, EZS, fire automated extinguishers, etc. having a direct impact on the safety of the customers in the shop,
- g) Failure of bakeries for bakery production in the shops - fresh and frozen,
- h) Deterioration of the hygiene conditions of the sale,
- i) Possibility of an epidemics breakout caused by consumption of degraded food,
- j) Possibility of looting and usury - with the point below it requires a priority dealing with the situation by the security components when the CS blackout arises,
- k) Deterioration of public order and security,
- l) Regulation of the distribution of basic foodstuff within the scope of emergency survival in accordance with the legislation.

3. With respect to the above described impacts and limited use of motor generators, hygienic requirements for food quality and safety, malfunction of the systems (logistical, technical and technological, financial, banking, etc.), employee unavailability and new security threats emergence, minimal or no functioning provision of storehouses of food commodities and food products as well as food production could be expected. The only preserved storage units of food commodities in the storehouses would be those storing non-perishable commodities (so-called dry food, canned food and cereal storage). Production capacities would be unusable and it would be more appropriate to disrupt their operation until the supply of commodities was restored. In terms of food distribution, significant transport complications could be expected which would delay the delivery of foodstuff to the designated locations. Despite these complications, distribution from non-affected to affected areas should be functional with some time delay. For shops with a back-up power source, limited operation may be assumed. Restricted operation would be towards the goods offered, the sale area, the number of employees who might not be able to come to work and payments would be possible only in cash. From the point of view of the population protection, the situation would be difficult to be solved independently from the level of the region and it would be necessary to ask for cooperation of other regions that would not be affected by a long-term power outage to provide food and ready meals supply.

4. The results of the analysis of the territory show that in order to ensure functionality of the food industry, the supply of electricity to the sellers and storage units must be provided as a matter of priority. Moreover without the supply of water, gas and heat, it is not possible to restore food production operation. Based on the results of the survey, a list of priority locations for food area was created. For priority locations, power supplies should be provided, in particular, by alternative power sources that form part of the entities or would be installed on a one-off basis. The supply of fuel and lubricants must be provided for the operator of the facility, the crisis management authorities and the IRS components to these substitute power sources.

Fuel to priority locations must be delivered according to the motor generator consumption within 6 hours of the blackout emergence.

5. From the point of view of providing emergency supply requirements as a necessary component of the emergency survival of the population, crisis management authorities and IRS components in the affected area, it is necessary to address the following issues in relation to the identified impacts in point 2.

- A. For storehouses of food commodities and products, protection of production stocks and foodstuff, it would be necessary to ensure:
  - a) Takeover, distribution and handover of foodstuff commodities and products from distribution facilities and from manufacturers,
  - b) Power supply in the necessary range, fuel, gas and water (according to the type of a storehouse);
  - c) Guarding and keeping public order in and around the facility premises to prevent its disturbance.
  
- B. For the production at selected manufacturers, it would be necessary to ensure:
  - a) Necessities for the production - supplies of commodities, water, gas, electricity and heating according to local conditions,
  - b) Power for storing commodities and products,
  - c) Quality of the food produced - unless the two previous points are met, the quality of the food would not be ensured, the only possible way of use would be to destroy the food,
  - d) Sufficient number of staff for production,
  - e) Public order and security.
  
- C. For distribution, it is essential to ensure:
  - a) Purchase, takeover, distribution and dispatch of food to/from distribution depots, from producers, from material reserves of the Administration of State Material Reserves and Humanitarian Aid for the regional territory,
  - b) Sufficient number of the means of transport, including drivers,
  - c) Safety of food transport,
  - d) Fuel for transport vehicles;
  
- D. In the sale/distribution area, it is essential to ensure:
  - a) Sellers' needs - supply of basic food, electricity, receipt of payments (cash, credit cards), fuel, water,
  - b) Storage of the food sold at the shop,
  - c) Quality of the food sold,
  - d) Dealing with food distribution, including regulatory measures,
  - e) Sufficient number of staff for the sale,
  - f) Public order and security.

Ensuring functionality in storage and production area is mainly dependent on the possibility of restoring gas, water, heat supply, etc. There is a major problem in this area as the above mentioned infrastructure is also dependent on the power supply. Ensuring the functionality of the identified elements had to be approached individually and in most cases it proved to be impossible. If there was a real chance of partially restoring the operation of the elements, there was a problem with providing the staff for its operation. Another key issue for the entire food supply area is providing regular supplies of fuel.

The most important thing is preserving food sales/distribution points to which most requirements are linked. Without removing the above mentioned impacts and problems in point 2, it would not be possible to provide their preservation.

6. In designing bodies for providing basic functions in the affected area, entities that play the key role in providing food storage, production and sale for the needs of emergency food supply to the population, the IRS components and the crisis management bodies have been proposed. All these entities are privately owned and their involvement in crisis management can be addressed by fulfilling the tasks resulting from the crisis plan of a region/municipality with extended powers or by concluding a contract on planned on-demand assistance with the Fire Rescue Service of the respective region. The first option is more advantageous as the entities have to prepare a crisis preparedness plan to ensure their own functioning in crisis situations and to ensure fulfilment of the tasks resulting from the crisis plan of the region/municipality with extended powers. Fulfilling these plans is binding and it is the only tool to increase crisis preparedness of these entities in addressing crisis situations.

## 5. CONCLUSION

Food is one of the key components for the survival of the population, not only under normal conditions but also under crisis ones. In the case of CS blackout, the situation is all the more complicated that the food safety may be threatened, food supply disrupted or heavily regulated. This situation may cause secondary security problems. The article presents the extent of the impacts and problems related to providing emergency supply to the population on the six basic steps of the analysis of the area for the blackout exercise preparation. The results of the food supply analysis carried out show that, without providing food supply from non-affected areas and facilities, whose functionality would be partly maintained thanks to alternative power sources, it would not be possible to meet the standards for emergency supply to the population. The added value of the presented article is providing an overview of the functionality and malfunction of the relevant food commodities and products storehouses, production, distribution and sale of food on the territory of the South Bohemian Region in the event of an extensive blackout. This makes it much easier for the crisis management authorities to prepare for this situation by modifying the documentation and procedures of the IRS components activities. Addressing the issue of providing an emergency supply to the population in the case of the real outage, increases crisis preparedness. An important problem encountered by the working group was the minimal solution to the threat of blackout at the level of individual food entities. These entities only exceptionally have a motor generator with a limited fuel supply. Most of the motor generators were owned by hypermarkets. There are no engine generator connections at key storehouses and food manufacturers. Without electricity and a back-up source, it is not possible to ensure activities related to the storage, production and sale of food. For the sake of information protection, it was not possible to present all the information in detail.

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## PERFORMANCE EVALUATION OF BANKING SECTOR BY USING DEA METHOD

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### ABSTRACT

*Performance evaluation of financial institutions is crucial for the development and improvement of financial system and the whole national economy. Most of traditionally structured financial systems, particularly those in the post-transition EU countries, are strongly determined by the domination of banking sector and underdeveloped financial markets. Nevertheless, research of banking performance can be further improved as a stimulus for the further development of financial system and to provide important information for creditors, investors and stakeholders. The efficiency of financial institutions has been widely and extensively studied in the recent years. In this paper, the Data Envelopment Analysis (DEA) method is applied. This nonparametric approach has become one of the most commonly used methods in measuring technical and cost efficiency of financial institutions. The purpose of this paper is to determine factors, i.e., inputs and outputs of models which evaluate the relative efficiency of banking sector as well as the relative efficiency of particular banking institutions. The paper emphasizes a number of variables that can be used in DEA models for banking institutions, for example asset value, number of employees, interest and non-interest income, deposits and loans. The main results of the research will be the comparative analysis of different theoretical and empirical scientific research regarding banking sector evaluation especially for the new EU member countries, including Croatia. Although authors present the research achievements of the relative efficiency of banking sector, this can be the basis for further empirical studies of banking sector efficiency measurement.*

**Keywords:** bank efficiency, banks, Croatia, DEA analysis

### 1. INTRODUCTION

One of the most important functions of management is to evaluate and measure performance of different units or entities operating under the same circumstances or similar conditions in order to identify their shortcomings and devise strategies for business improvements. Performance evaluation of different financial institutions is crucial for the development and improvement of financial system and the whole national economy. Most of the traditionally structured financial systems, particularly those in the post-transition EU countries, are determined by the domination of banking sector and underdeveloped financial markets. Research of banking performance can be further improved as a stimulus for the further development of financial system.

Therefore, performance evaluation of banking institutions or banking sector is the object of this paper. The efficiency of banking institutions has been widely and extensively studied in the recent years. In this paper, the Data Envelopment Analysis (DEA) method is applied. This nonparametric approach has become one of the most commonly used tools in measuring different efficiency models and approaches of the financial institutions. The purpose of this paper is to determine factors, i.e., inputs and outputs of models which evaluate the relative efficiency of banking sector as well as the relative efficiency of particular banking institutions. The paper emphasizes a number of variables which can be used in DEA models for banking institutions, for example, asset value, number of employees, interest and non-interest income, deposits and loans. Finally, the main results of the research will be the comparative analysis of different theoretical and empirical scientific research regarding banking sector evaluation especially for the new EU member countries, including Croatia. Using DEA method, the evaluation of the performance of banking institutions has become a very interesting research topic that can provide important information for creditors, investors, stakeholders and academic researchers as well.

## **2. DIFFERENT APPROACHES AND METHODS OF EVALUATING THE BANKING SECTOR**

Various methods which evaluate the performance of banking industry or banking institutions can be found in literature. Generally, they can be divided into two major segments: traditional financial indicators and relatively new methods which can be nonparametric (DEA method) or parametric (SFA method). The most commonly used traditional ratios or indicators include Return on Assets (ROA) and Return on Equity (ROE), liquidity, loan portfolio quality, cost, balance sheet structure, capital adequacy, etc. (Gavurova et. al., 2017). For example, evaluating the performance of South Africa's commercial banking sector during the period 2005-2009, Kumbirai and Webb (2010) examine the following three performances: a) profitability performance (Return on assets (ROA), Return on equity (ROE) and Cost to income ratio (C/I)); b) liquidity performance (Liquid assets to deposit-borrowing ratio (LADST), Net loans to total asset ratio (NLTA) and Net loans to deposit and borrowing (NLDST)); and c) asset credit quality (credit performance) (Loan loss reserve to gross loans (LRGL)). Also, some of the authors use traditional ratios, particularly ROA and ROE to assess the performance of banks (e.g. Said, Tumin, 2010; Bičo, Ganić, 2012). Disadvantages of traditional financial ratios are the complicated comparability of bank entities due to their different characteristics (size, specialization, etc.) and significant differentiation of financial results, which make it difficult to create reference comparable groups. For that reason, new techniques efficiency assessment have emerged. The most famous and the most commonly used methodology is surely Data Envelopment Analysis. DEA is a reliable and suitable method for assessing the relative efficiency of comparable units that use similar business technology and operate in similar conditions. As a nonparametric method, it does not require knowledge of functional relationship between inputs and outputs, as opposed to other approaches to efficiency assessment, for example, with regression analysis method. In addition to reliability, simplicity and flexibility, its advantages are especially reflected in the following two characteristics (Mantri, 2008): 1) it is assumed that there is a connection between selected variables, i.e., inputs and outputs of the model, which does not require analytical determination, but it should be confirmed; 2) variables of a model may be expressed in different units of measurement. This method is often used in assessing the efficiency of financial institutions, especially banks. While evaluating the efficiency of banking institutions by applying the DEA method, several types or models of the DEA (Othman et al., 2016) can be determined. The basic DEA model is the CCR model (named according to authors: Charnes, Cooper and Rhodes) based on constant returns to scale (CRS) assumption, and efficiency defined as the ratio of output to input (Charnes, Cooper, Rhodes,

1978). Another commonly used DEA model based on the assumption of variable returns to scale (VRS) with piecewise linear efficiency frontier is the BCC model (named according to authors: Banker, Charnes and Cooper) (Banker, Charnes, Cooper, 1984). Also, those may vary according to the choice of path projection of an inefficient unit on the efficiency frontier in order to improve efficiency (models that are oriented on the reduction of input or increase in output). Although efficiency determination is carried out under static conditions, i.e., at a given point in time, the dynamic component of efficiency is also often analysed in research, i.e., change in efficiency over time, the so-called "window analysis" (Maradin, Cerović, 2014). DEA methodology allows comparison of selected units/entities with the best ones in the sector, i.e., with entities achieving the highest level of efficiency. Also, it is important to point out that, with this methodology, it is also possible to determine the sources of banking institutions' inefficiency and to have an impact on their elimination. This methodology provides the regulatory authorities, which are responsible for stable and efficient operation of the banking sector, with the opportunity to establish appropriate mechanisms or measures to improve efficiency of the aforementioned sector. There are a few different approaches which can be used for defining the input-output relationship in financial institution behavior using DEA method:

- a) *the production approach* views banks as a producer of products and services using labour and other resources as inputs and providing deposits, loans and other services (in value or number of transactions) as outputs;
- b) *the intermediation approach* studies the intermediary role of banks in order to examine banks' efficiency in collecting deposits and other funds from customers (inputs) and then lending out money in various forms of loans, mortgages, and other assets (i.e., investments);
- c) *the profitability approach* examines the process banks' usage of its inputs (expenses) in order to produce revenues (Paradi, Rouatt, Zhu, 2011; Tuškan, Stojanović, 2016).

The next section presents the results of the research of relative efficiency in banking sectors of different EU countries using DEA method.

### **3. EMPIRICAL REVIEW OF THE RELATIVE EFFICIENCY IN THE EUROPEAN BANKING SECTOR**

Many studies have been conducted in evaluating relative efficiency of banking sectors or banking institutions in the European countries using DEA methodology. The DEA model was first modified by Sherman in order to measure banks' performance in 1984, and since then, was extensively used by banking industry to measure banks' operational efficiency (Sherman, Zhu, 2006). Only the most significant studies are mentioned in this section. Novickytė and Drożdż (2018) examine the efficiency of seven DMUs (banks) in Lithuania (a low interest rate environment) during the 2012–2016 period by applying input-oriented DEA method with CRS and VRS assumptions. The research sample consists of six commercial banks operating in Lithuania; seven branches of foreign financial institutions are included in the sample as one aggregated bank (financial data of foreign bank branches). Five alternative models with different input-output combinations were developed, based on production, profitability and intermediation approaches, as follows: 1) deposits as input and operating profit as output, 2) labour expenses as input and loans as output, 3) deposits and debts to banks and other credit institutions as inputs and profit before tax as output, 4) deposits as input and loans as output, 5) deposits as input and net interest income as output. The Lithuanian bank's efficiency analysis based on the VRS assumption illustrates that local banks demonstrated better results. The technical efficiency analysis based on the CRS assumption shows other results: the banks owned by the Nordic parent group and the branches have higher pure efficiency than local banks and are successful in working at the right scale. It is stated that the large Lithuanian banks (subsidiaries) applied a more appropriate business model than small (local) banks operating in

Lithuania. Moreover, the profitability and efficiency of banks in Lithuania are marked higher if compared to other banks operating in the EU. Bucevska and Hadzi Misheva (2017) investigate the relevance of structure-conduct-performance (SCP) hypothesis versus the efficiency hypothesis in explaining bank performance by analysing 127 commercial banks from six Southeast European countries (Slovenia, Croatia, Serbia, Bosnia and Herzegovina, Montenegro, and Macedonia) during the period 2005–2009. In order to account for the dynamic nature of bank profits, it uses a GMM estimator in testing the determinants of bank profitability. The estimation results suggest that profits persist to some extent, indicating that the deviation from a perfectly competitive market structure is marginal. In addition, the findings suggest that efficiency is significantly and positively associated with profitability, whereas the industry concentration variable is insignificant in explaining profitability, indicating support in favour of the efficiency hypothesis. Moreover, among the bank-specific control variables, only size is reported insignificant, and the rest of the variables affect bank profitability in the anticipated manner. The results suggest that neither inflation nor economic growth has an impact on bank profitability. In their study, Serrano Cinca, Mar Molinero and Fuertes Callén (2016) analyse the selection of inputs and outputs in the context of financial institutions in the DEA methodology. There are various views of what constitutes inputs and outputs in a financial institution. The study uses multivariate statistical techniques (33 regressions were performed) in order to explore point of various combinations in which inputs and outputs are equivalent, and to explore the point at which efficiency score obtained by a given institution changes under the various combinations of inputs and outputs. This helps in the search for the best specification, and can direct other specification search tools such as the bootstrap. Although the methodology is applied to the particular case of American banks efficiency, it could be a starting point in the selection of inputs and outputs of financial institutions in future studies. Tuškan and Stojanović (2016) analyse and compare efficiency results in the banking industry during the period 2008–2012 on a sample of 28 European banking systems using two different approaches: financial indicators and the DEA methodology. In the indicator-based approach, they used chosen accounting ratios (Return on Assets - ROA, Return on Equity – ROE and Cost to Income Ratio - CIR) and the descriptive statistics methodology to conduct analysis. In the DEA approach (output-oriented DEA models), interest expenses and total operating expenses as input data, and interest income and total operating income as output data are used for measuring efficiency using CRS, VRS and window analysis of DEA method. Given the aforementioned, the profitability approach (analysis of bank profit efficiency) is used. The results of the different ways of measuring efficiency suggest that the DEA methodology can be a useful alternative or complementary analytical tool in detecting early signs of inadequate business strategies, which can lead to the slowdown of business activities or poorer efficiency results. Importantly, this is also true in times of an unstable financial or macroeconomic environment, as it may facilitate the detecting of early signs of a crisis, earlier than by using accounting indicators. In general, the results of both approaches suggest that banking systems in post-transition countries have a higher cost efficiency. Such systems continue to be dominantly financed through long-term deposits and are also exposed to a specific risk. Řepková (2014) examines the efficiency of 11 Czech commercial banks (with regard to mergers and acquisitions of banks) during the period 2003–2012 by applying DEA window analysis SBM (slack based model – non-radial) based on input-oriented model. Two inputs (labour and deposits) and two outputs (loans and net interest income) are used. Labour is measured by the total personnel costs covering wages and all associated expenses, and deposits by the sum of demand and time deposits from customers, interbank deposits and sources obtained by bonds issued. Loans are measured by the net value of loans to customers and other financial institutions, and net interest income as the difference between interest incomes and interest expenses.

In the analyzed period, the average efficiency under CRS reached 70–78% and average efficiency under VRS reached 84–89%. The most efficient bank was GE Money Bank and the least efficient bank was Československá obchodní banka. The large bank group (Československá obchodní banka, Česka spořitelna and Komerční banka) was less efficient than other banks in the banking industry. The reasons of the inefficiency of the large bank group were the excess of deposits in balance sheet and inappropriate size of operation. Jurčević and Mihelja Žaja (2013) identify and compare the efficiency measurement results of 30 banks and 19 insurance companies using DEA method and accounting indicators in the period before and after the onset of recent economic crisis (2005-2010) in the Republic of Croatia. For each bank, the inputs were interest expenses, non-interest expenses and other expenses (labour-related and capital-related administrative expenses and other expenses from bank's business activity); outputs were interest incomes, non-interest incomes and other incomes from business activity. The main difference in results between DEA approach and accounting approach was shown in the accounting approach efficiency measurement scores lag during the crisis period. DEA efficiency scores had the lowest values in the 2007 for insurance industry, and in 2008 for banks but with visible lower values already in 2007. The lowest ROA and ROE accounting ratios in the 2009 can be explained by the fact that although financial institutions tend to operate more efficiently during crisis period in view of expense and income results, accounting ratios cannot achieve such good levels during crisis periods as during periods of expansion due to the deteriorated market conditions and restrictive business policy. Memić and Škaljić-Memić (2013) analyse and compare the efficiency of 26 commercial banks in the territory of Bosnia and Herzegovina by using financial ratio measures combined with the DEA method during the period between 2008 and 2010. Two entities of Bosnia and Herzegovina (Federation of Bosnia and Herzegovina, and Republika Srpska) are observed separately because of the peculiarity of the institutional and legal regulations of the banking sector in Bosnia and Herzegovina. Five financial ratios (Return on Assets, Return on Equity, Net Interest Margin, Profit/Loss per employee, Efficiency Ratio) were chosen to reflect efficiency as well as profitability dimensions of banks' performance. It can be concluded that the overall efficiency of banking sector has improved over the observed period between 2008 and 2010, even though the profitability has declined significantly. Moreover, there is no significant difference between performance of banks in different entities of Bosnia and Herzegovina, and between small and large banks. The research (Wozniowska, 2008) was carried out in the biggest commercial banks operating in Poland during the period 2000–2007, computed by means of financial indicators and DEA method. The value-added approach (the production approach) has been chosen using different variables in the DEA model – net fixed assets and the total number of employees as inputs, and the volume of loans, deposits and non-interest income as outputs. The results achieved by both methods show an increase of the efficiency of banks' performance in the second part of the observed period. Moreover, empirical results show that the efficiency measures give similar, although not identical, outcomes of Polish commercial banks' performance. These results are complementary to each other and suggest that the DEA method is really valuable and worth applying in bank practice. Jemrić and Vujčić (2002) measure the relative efficiency of banks in the Croatian market according to size, ownership structure, date of establishment and quality of assets in the period from 1995 until 2000 (individually for each year) using both DEA models, i.e., the CCR and BCC models. DEA models were used under two different approaches in estimating the relative efficiency of the banks: 1) operating approach and 2) intermediation approach. These two approaches reflect two different ways of evaluating bank efficiency: one from the perspective of cost/revenues management, and the other, a more technical one, which takes banks as entities using labour and capital to transform deposits into loans and securities. Different sets of inputs and outputs were used for the two approaches in estimating efficiency.

The results of the research can be summarized as follows: averagely, foreign-owned banks were the most efficient; the new banks were more efficient than the old ones; smaller banks were globally efficient, but large banks appeared to be locally efficient when variable returns to scale was applied. There has also been strong equalization in terms of average efficiency in the Croatian banking market, both between and within the peer groups of banks. Regarding particular inputs, the most significant cause of inefficiency among state-owned and old banks vs. foreign-owned and new ones is the number of employees and fixed assets. In terms of size, the most efficient in various specifications are either the smallest or largest banks, and the technically more efficient banks are those that have, on average, less non-performing loans, but this conclusion becomes more obvious only with the gradual consolidation in the banking sector.

#### 4. CONCLUSION

Based on the literature review, this paper analyses both in theory and empirically, the performance evaluation of financial institutions, i.e., the relative efficiency assessment of banking sector as well as the relative efficiency for particular banking institutions by applying the Data Envelopment Analysis method. The efficiency of banking sector or banks is crucial in terms of competition during the transition to a market economy, especially in the post-transition EU countries, and for the development and improvement of financial system and the whole national economy. Nowadays, well-functioning financial markets and banking institutions are usually considered to be a condition favorable to economic growth. Thus, it is necessary to analyse and evaluate banking performance, determine their relative efficiency and eliminate possible sources of inefficiency. Empirical research from a number of authors show different approaches, DEA methods and variables used in efficiency measurement. Approaches such as production, intermediation and profitability approach can be found. DEA methods can be regarding the constant returns to scale (CCR model) or variable returns to scale (BCC model), input-oriented or output-oriented which refers primarily to the evaluation approach, by one year efficiency assessment or during a time period (window analysis), etc. Also, a number of variables which can be used in DEA models for banking institutions, for example asset value, number of employees or labour expenses, interest income, deposits and loans is emphasized. The research of banking performance can provide important information of relative efficiency among the examined entities in the sample, as well as sources and amounts of inefficient banking institutions which are of interest for creditors, investors and stakeholders. Finally, in reviewing the literature, the conclusion is that most studies deal with some slight differences in the relative efficiency measurements of banks over a period of time. Furthermore, this research can be the basis for further empirical study of banking sector efficiency measurement.

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## PHYSICOCHEMICAL AND BACTERIOLOGICAL ANALYSIS OF SURFACE WATER AND SEDIMENT SAMPLES OF PINDIGA AREA OF GOMBE STATE, NORTH –EASTERN, NIGERIA

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### **ABSTRACT**

*The Physicochemical and bacteriological analysis of surface Water and Sediment samples of Pindiga area of Gombe state, north –Eastern, Nigeria were investigated. A total of 150 samples were collected by standard method from six sampling points during dry (March to May) and wet (July to September) season respectively. Results showed varying concentration and values with respect to season and location. Physicochemical parameters showed significant difference between seasons  $P < 0.05$ . High mean BOD values were observed in both water and sediment samples (raining season) with values ranging from  $6.63 \pm 0.03$ ,  $4.62 \pm 0.04$  and  $3.40 \pm 0.09$  mg/l respectively. The values correlates' to lower mean DO range of  $2.67 \pm 0.54$  to  $4.48 \pm 0.72$  mg/l across the area. Temperature,  $P^H$ , total solid, hardness and trace elemental concentration in water and sediments samples were within the WHO permissible limit except Iron ( $26.35 \pm 0.23$  mg/l); lead ( $0.13 \pm 0.01$ ); manganese ( $0.19 \pm 0.01$ ) and cadmium ( $0.86 \pm 0.04$ ) which showed higher values during raining season. The turbidity mean value of  $12.30 \pm 0.21$  Ntu was also high during the rainy season which may be attributed to the high deposition of domestic waste and agricultural runoff to the river during rainy season. Presumption and conformity test showed varying coliform count with 17% excellent, 3.2% satisfactory, and 22.3% intermediately polluted and 16% grossly polluted. The Microbial examination results could be associated with high turbidity levels most especially during the rainy season which suggested water to be highly polluted and hence not suitable for human consumption. Further treatment of water by inhabitants across the area before usage is highly recommended.*

**Keywords:** *Physicochemical, Water and Sediment, Pindiga, Gombe, rainy and dry season, North –Eastern Nigeria*

### **1. INTRODUCTION**

Water is an integral part of life as it affects all living and non-living things. . water is approximately 75 percent of human body. Over two third of the world is covered with water but the quest for clean and portable water is still a challenge globally. Natural and anthropogenic activities do influence the quality and quantity of water, exposure to such undesired substances could lead to the pollution of the water resource. Heavy metals are natural trace components of the aquatic environment, but their levels have increased due to industrial waste, geochemical structure, agricultural and mining activities (Singh et al, 2006; sprocati et, et al., 2006). All these sources of pollution affect the physicochemical characteristics of the water, sediment and biological components and thus the quality and quantity of the aquatic stocks (Al.Rawi, 2005). Exposure to very low levels of elements such as lead, cadmium and mercury has been shown to have a cumulative effects, APHA (2011). Excess concentration of metals could lead to several forms of disorder to the human system (Kolo and Bukar, 2005). High concentration of lead (Pb) can cause severe damage to some sensitive organs of young boys ,while arsenic (As) could cause skin itching, skin cancer and bone marrow disorder ; similarly, manganese(Mn) can impact taste and non-suitability in laundry.(Kolo, et al;2010).



## 2. METHODOLOGY

### 2.1. Sample and Sampling

Waste water samples and control samples were collected from three different sampling points daily for a period of three weeks in already pre-cleaned plastic containers and appropriately labeled. Some of the samples were analyzed on site while the other samples were separated into two parts for which one part was used for analysis while the other kept for 5 days in a dark well-corked container for the BOD examination.

### 2.2. Digestion of Samples

To a beaker, 100cm<sup>3</sup> of the sample was transferred and 5cm<sup>3</sup> of aqua regia (HNO<sub>3</sub>/HCl; ratio 3:1) was added. The beaker with its content was placed on a hot plate and evaporated in a fume chamber. The beaker was then cooled and another 5cm<sup>3</sup> of the aqua regia added again (though beaker covered) and heated on a hot plate until all the residue has dissolved. (Skoog and West, 1975; Radojevic Bashkin, 1999). The procedure was repeated for every other sample analyzed.

### 2.3. Analysis of samples

#### 2.3.1. Determination of pH

The pH meter was switched on for about 5 minutes and the sample was stirred and poured in a 250ml beaker into which the electrode was dipped and agitated for sometimes. The pH reading was taken and recorded when the pH display readout becomes steady; the pH electrode was cleaned with tissue paper continuously further use and the process was repeated for other samples.

#### 2.3.2. Determination of Temperature

The temperature of samples was measured on site by the use of a thermometer (0-360°C) range.

#### 2.3.3. Determination of Total Dissolved Solids (TDS)

A clean crucible dish was dried at 105°C in an oven until constant weight was obtained. This was cooled to room temperature in a desiccator. 50cm<sup>3</sup> of the water sample was pipetted and filtered with clean filter paper (Whatman No.1). The filtrate was transferred into a pre-weighed crucible and evaporated to dryness on a hot plate. The crucible was dried in an electric oven at 105°C cooled in desiccators and reweighed. The process of drying, cooling and weighing was repeated so that constant weight was achieved. The result for total dissolved solids was calculated using the expression below;

$$\text{Total dissolved solids (mg/l)} = \frac{W_2 - W_1 \times 10^3}{V}$$

Where

V = Volume of the sample taken  
W<sub>1</sub> (g) = Weight of dried (at 180°C) empty crucible  
W<sub>2</sub> (g) = Weight of crucible + (dried at 105°C).

#### 2.3.4. Determination of Total Suspended Solid (TSS)

100ml of water sample was filtered through an already weighed filter paper. The residue retained on the filter is dried in an oven at 103 to 105°C until the weight of the filter no longer changes. The increase in weight of the filter represents the total suspended solids.

### *2.3.5. Determination of Chlorine (Ortho-Toluidine Method)*

50 ml of water sample was placed in a 50 ml Nessler cylinder and 0.5 ml of 0 – Toluidine reagent was gently added and allowed to stand for 10 minutes until a yellow color was developed. The color sample was then compared with a standard Nesslerise Disc.

### *2.3.6. Determination of Dissolved Oxygen (DO) in water*

The dissolved oxygen (DO) was determined on site using the DO probe meter

### *2.3.7. Determination of Biochemical Oxygen Demand (BOD) in water samples*

Using a clean graduated cylinder, 420 ml of water samples was measured and poured on to an amber coloured sample bottles. The sample was cooled to about 20°C and poured into a BOD track sample bottle. To each bottle 3.8 cm magnetic stir bar was dipped and one BOD nutrient Buffer pillow added for optimum bacteria growth. A stop cork was greased and applied to the lip of each seal cap and placed on the neck of each bottle. To each seal cup, one lithium hydrochloride powder was added by use of funnel and placed on the chassis of the BOD track. Tubes were then connected; caps tightened tagged, and finally placed in an incubator. The stir bars were made to rotate properly and appropriate test duration (5 days) programmed by pressing channel number corresponding to each bottle. After 5 days period, BOD results were read directly from the BOD track display by pressing the key corresponding to each sample. In above analysis, as a caution, the lithium hydrochloride particles were not allowed to fall into the sample, hence the use of funnel.

### *2.3.8. Determination of Heavy Metals Analysis (AAS methods)*

The heavy metals were analyzed using the atomic absorption spectrophotometer. The prepared water samples were analyzed using AAS instrument at stipulated wavelength, temperature and lamp current. In this, appropriate lamps were placed in operating position and currently adjusted to the recommended value and pertinent wavelength selected for each element studied. The prepared aqueous sample solution was then aspirated into the flame and the absorbance readings were recorded. The readings were then compared with those of the standard from where the actual concentrations of the elements were determined. Dilution factor were used in calculating the concentration of traced which was obtained by dividing the volume to which the sample solution was made of taking the weight of the sample used. The actual concentration of the trace metal in sample was obtained by multiplying these factors obtained with the concentration of trace metal analysis by AAS (mg/l).

## **2.4. Bacteriological Analysis**

### *2.4.1. Presumptive test for coliform organism*

Five tubes each of 50ml;10 ml and 1ml of single strength mc Conkey broth medium were inoculated with volumes of the water samples and incubated at 37oc for 24 hours. The tubes were examined for growth as indicated by yellow colorations of the broth and gas formation as indicated by displacement of medium in the Durham tube. The number of tubes, which showed the presence of acid and gas, were considered positive while those that showed no change were negative. The numbers of positive tubes were recorded and the most probable number (MPN) of presumed coliform bacteria present in 100ml of the original sample was estimated by referring to the Mccrandy's table. The negative tubes were re-incubated for additional 34 hours and examined again for growth and gas production.

### *2.4.2. Confirmatory test for coliform organisms*

Each of the positive tubes was agitated and one loop of suspension was sub- cultured into the brilliant green lactose bile broth medium. The tubes were incubated at 44 °C for 24 hours, and

examined for turbidity and gas production. Positive tubes were recorded and computed from Mc Crady's table (Mc Crady, 1918).

### 3. RESULTS AND DISCUSSIONS

Table 1: Mean Physical characteristic of samples of Pindiga area of Gombe, Nigeria

<u>Sample</u>	<u>pH</u>	<u>Temperature(°)</u>	<u>Turbidity</u>
Water	12.0± 0.16	28.0 ± 0.07	12.0±0.16
sediment	11.0± 0.14	27.5 ± 0.05	6.0±0.10
Control	7.8±1.29	25±1.32	4.0±0.13
<b>Recommended Standard</b>	<b>6.5-8.5</b>	<b>&lt;25</b>	<b>5.0</b>

Table 2: Mean concentration (mg/l) of some Heavy metal in samples of Pindiga area of Gombe, Nigeria

<u>Sample</u>	<u>Pb</u>	<u>Cr</u>	<u>Mn</u>	<u>Fe</u>	<u>As</u>	<u>Cu</u>	<u>Cd</u>
<b>Water</b>	0.13±0.01	0.08±0.02	0.19±0.01	26.35±0.2	0.04±0.01	0.50±0.03	0.86±0.14
<b>Sediment</b>	0.12±0.02	0.08±0.01	0.08±0.01	14.68±0.1	0.030±0.01	0.56±0.07	0.72±0.13
<b>Control Recommended</b>	0.05±0.01	0.06±0.02	0.04±0.01	3.55±0.09	0.03±0.01	0.97±0.02	0.22±0.06
<b>Standard</b>	<b>0.05</b>	<b>1.00</b>	<b>0.05</b>	<b>3.00</b>	<b>0.05</b>	<b>1.00</b>	<b>0.05</b>

Table 3: Mean values (mg/l) of some Organic pollution indicators in sediment samples of Pindiga area of Gombe, Nigeria

<u>sample</u>	<u>COD</u>	<u>BOD</u>	<u>TDS</u>	<u>TSS</u>	<u>Chloride</u>
<b>Water</b>	110±1.20	3.40±0.09	1200±13.26	345±2.19	185±1.29
<b>Sediment</b>	98±1.29	6.63±0.03	1234±12.20	234±9.20	187±1.23
<b>Control Recommended Standard</b>	63±1.66	3.66±0.69	965±21.43	88.79±1.29	163±0.09
<b>Standard</b>	<b>150.00</b>	<b>3.00</b>	<b>500.00</b>	<b>100.00</b>	<b>150.00</b>
<u>Percentage occurrence (%)</u>		<u>season</u>		<u>Quality grading</u>	

17	Dry	excellent
3.2	Wet	satisfactory
22.3	Dry	intermediate
16.1	Wet	grossly polluted

### 3.1. Discussion

Result of the analysis showed high BOD (>6mg/l); pH (>12) and temperature (>27); which suggest water to be alkaline and since temperature directly influences aquatic organisms; it regulates dissolved oxygen concentration thereby making the water polluted. pH is influenced by the geology of the area, agricultural runoff and buffering capacity of water. The trend of value shows alkaline trend with resultant enhancement of heavy metal concentration (Hoa *et al.*, 2000; USEPA, 1999,). BOD is measure of concentration of organic matter present in water. High values suggest low oxygen available to support both aquatic and human life. Similarly, the high COD suggest toxic conditions and the presence of biologically resistant organic substance of Total dissolved solids (TDS) and Total suspended solids (TSS) could be attributed to the high colour. The solids present in water affects the growth of plants directly, soil structure, permeability and aeration thus affecting plant growth(). The concentration levels of heavy metals vary considerably between water and sediment samples with high values of lead, iron, cadmium and manganese in the water. High levels of heavy metals suggest pollution of the environment which could be due to anthropogenic activities associated with the area since it's the major source of water for consumption by both humans and animals.(UNEP,1991). The quality grading of the water samples in order of frequency of occurrence showed 0% was found to be excellent; 11.55% satisfactory, 88.45% intermediate and 0% was grossly polluted. The presence of animals within the water body could have influenced the level of bacteria activities of the surface water. (Wilzer, W.G and Hinter, J.U.1978). The water though not grossly polluted but was within the potential risk factor of causing water borne diseases if urgent treatment is not carried out before consumption. Statistical analysis was carried out using Statistical Package for Social Sciences (SPSS) version16. The data were subjected to descriptive statistics and confidence intervals were also computed to determine if the results agree with W.H.O. standard. From the results, parameters such as Cr, Pb, and C were statistically significant at  $p < 0.05$ . In conclusion high concentration of some parameters and heavy metals affect the flora and fauna of that area. Thus, there is an urgent need for the proper management of Pindiga surface water in the area of the state so as to avert diseases associated with pollutants.

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## THE ROLE OF OPEN INNOVATION AMONG SMES IN THE REGIONAL DEVELOPMENT

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### ABSTRACT

*Open innovation begins to play an increasingly important role in the innovative development of small and medium-sized enterprises. This is the effect of significant benefits that they achieve as a result of presenting attitudes, which are open to the environment. Increase of the importance in relation to open innovation results directly from the benefits that these enterprises get from the environment's exploration. Furthermore, innovative development – as emphasized in many researches – would be impossible without the use of open innovation models. Hence, it is reasonable to state that open innovation is one of the main determinants of this development. This is particularly important for small and medium-sized enterprises due to their limited resources. In the majority of situations, the environment acts as a buffer to fill in existing gaps. Therefore, these enterprises are mainly focused on the exploration of the environment. The aim of this article is to show the relation between open innovation and innovative development, as well as perform its overall characterization. The research took place in 2016 among the selected (at the high level of innovation development) small and medium enterprises (SMEs) in the framework of the research project. The study included those entities which over the last three years conducted innovation activities in business areas.*

**Keywords:** *Open innovation; innovative development, SME, regional development*

### 1. INTRODUCTION

Innovative development is a key element that affects the improvement of the competitiveness of small and medium-sized enterprises in the market. Hence, in the European knowledge-based economy, it becomes the overriding aim for the majority of these types of entities, who want to succeed not only on the national scale, but above all on the international scale. This development is carried out through innovation, i.e. through the implementation of new (or improved) technical, economic or other solutions realized within the framework of determined entrepreneurial strategies beyond the borders of the organization (Reinmoeller, 2005, pp. 61-66). The wording "across the borders of the organization" takes on special meaning here, because it means the elimination of existing borders between enterprises and the environment. In practical terms, this is reflected in a greater level of openness and the promotion of open attitudes – i.e. willing to cooperate. A manifestation of open attitudes is open innovation (OI). Usually, this term is identified with two-way flow of knowledge, including ideas, ideas necessary for the innovative development of enterprises. The particular importance of OI is gained in respect of small and medium-sized enterprises. This results from the fact that the reliance of these entities on their own research achievements is definitely limited due to resource shortages.

Therefore, they are looking for ready-made solutions outside their own enterprise and as a result they explore the environment. Moreover, it results in a specific feature of models used by these entities – in the majority of situations they use one-way transfers of intangible assets, i.e. knowledge inflow – what is a manifestation of their pragmatic approach to open innovation (Leydesdorff, Ivanova, 2016, pp. 1-12). Open innovation models among the discussed enterprises are becoming increasingly important. This is due to a number of important reasons, which undoubtedly include benefits from their use (lower costs and involvement in R&D, the ability to combine multiple solutions into one, the opportunity to expand markets and others) (Marques, 2014, pp. 196-203) or inevitable deepening of globalization phenomena not only on the continental scale, but also in the scale of the whole world, as well as growing “fashion” for the implementation of model solutions based on partnership connections and inter-organizational networks. This all contributes to the decrease in the importance of “close innovation” models in favor of “open innovation”. Taking into account the increasing importance of open innovation in the innovative development of SME and cooperation element that constitute the fundamental plane of openness, it is possible to formulate the research hypothesis, H1: the most common partners of small and medium-sized enterprises on the innovative development place are other small and medium-sized enterprises. On the other hand, it is necessary to ask about support units (universities, transfer centers, research institutes, etc.). Is their mission to increase the entrepreneurship and innovation in the economy? Are they important development partners? There are many barriers for the transfer of knowledge and technology between support entities and SMEs. Transfer is a particularly important, but difficult process for universities, not only in Poland (Margaret L. S., Shen-Yao C., Thompson T., Yuh-Feng L., 2013, pp. 461-478). Therefore, H2 hypothesis was proposed: universities rarely appear as a development partner for small and medium-sized enterprises. The aim of this article is to determine the impact of open innovation on the innovative development of small and medium-sized enterprises what was achieved in the basis of Polish enterprises.

## **2. THEORETICAL BACKGROUND**

The title of this article indicates the need to define the two basic concepts of open innovation (OI) and intellectual development (ID). Open innovation was introduced to the literature of the subject by H. Chesbrough in 2003 (Chesbrough, 2003). According to him, the enterprise should use both internal and external resources in order to improve its innovation. While internal resources are connected with the need to carry out research and development activity, the external resources are a type of buffer, which ensures the acquisition of useful innovative solutions in a relatively short time. The overriding target of permanent search for new ideas is their commercialization in order to achieve tangible benefits by the entity. This forces the cooperation with different “actors” that allow the „creation, use and connection of new and existing knowledge” (Larsen, Salter, 2006, pp. 131-150). The only limitation in this regard is the level of tendency to such cooperation. Therefore, it must be stated that the necessary condition for using open innovation among enterprises is to develop open attitudes based on existing on newly created relations. Open innovation as a term is interpreted in a very different way (Guertler, Lindemann, 2016). However, these interpretations are connected through the common element – i.e. the openness of the organization to the environment by setting its strict limits. In the discussed “open innovation” concept, the organization becomes a flexible entity, which is willing to establish relationships with other entities in the environment, depending on the existing needs. Such an approach is presented by one of the definitions. It states that OI just a “purposeful process based on managing the flow of knowledge beyond the enterprise’s borders (...) using certain financial mechanisms (or outside financial) in accordance with its business model” (Chesbrough, Bogers, 2014, pp. 3-28). This means that borders between the enterprise and the environment are not too tight.

This enables easy transfer of innovations both inside and outside. Acquisition of new solutions in the environment is connected with its exploration. The source of news can be: clients, competitors, business environment institutions, scientific and academic centers. Innovative solutions may concern changes related to the use and management of intellectual property in relation to new techniques and researches conducted in this field (West, Gallagher, 2006, pp. 319-331). On the other hand, the aim of such understood open innovation becomes an internal innovative development, which indicates the creation of new and useful solutions from the point of view of a specific economic organization (Obal, 2012, pp. 786-804). This development may include not only “novelties”, but also improvements (modernization) of existing products, processes or services (Beckett, Blarney, Saunders, 2016, pp. 72-85). For the purpose of this article, OI means the phenomenon related to the cooperation of enterprises with other entities in the environment. In the long-term perspective, this results in the innovative development. It is also necessary to clarify the concept of “innovative development”. ID is implemented through the implementation of innovative solutions, i.e. it includes a number of different operations, methods, activities and tasks. Their realization is intended to contribute to the production of innovative products, technologies or realization of organizational changes (Kalinowski, 2010, p. 17). Therefore, this development should be considered in terms of the process leading to the development of new or improved products or services and their delivery to the market in order to achieve the market success by the organization (Gumusluoglu, 2009, pp. 461-473). From the point of view of this article, it is extremely important to answer the question about the importance of OI in the innovative development of small and medium-sized enterprises. Due to the limited resources at their disposal (Rahman, Ramos, 2010, p. 479), these entities are forced to search them in the environment – in contrast to large business organizations. These large organizations undertake cooperation, guided mainly by the expected benefits from this cooperation. However, some researches point out that small and medium-sized entities are able to “earn” higher profits from the use of OI rather than large entities (Gassman et al., 2010, pp. 213–221) because of less bureaucracy, increased willingness to take risks or greater flexibility and faster reaction to changes in the environment (Parida et al., 2012, pp. 283–309). Therefore, the environment is a reservoir for the acquisition of material and non-material resources. From these resources, the most important for the development of enterprises is knowledge. Hence, it can be stated that open innovation plays the role of a determinant of the discussed development with high potential and opportunities in relation to small and medium-sized entities (Lee et al. 2010, pp. 290–300).

### **3. THE RESEARCH METHOD**

The results presented in this article constituting the basis for conclusions were obtained with the use of own studies conducted in 2016 within the framework of the scientific project. Selection of the test sample was achieved through the use of a multistage sampling scheme - due to the fact that there is no sampling frame in the form of a set of innovative enterprises. In the first step, these enterprises were selected from the population of small and medium-sized enterprises (target selection). The next step was connected with a drawing, which helped to choose a group of approx. 10 000 innovative entities (general population). 800 entities from the above-mentioned group took part in the study. The researches were carried out using two research techniques, i.e. CATI and CAWI. The first one was treated as the main tool for collecting information (approx. 70% of entities were examined with the use of this technique), and the second one was a support for the first technique (approx. 30% of cases). This involved the following cases: lack of ability to answer questions in real time, need to rethink the answers, etc. The use of these techniques (together) has improved the level of maneuverability of the completed questionnaires. In the case of “established contacts”, this share was more than 20%, and in relation to the “completed questionnaires” – over 23%.



By characterizing the test sample, it should be stated that two groups of enterprises dominated – i.e. micro (35.5%) and small (40.1%). The remaining part, i.e. 24.4%, constituted medium-sized entities. 75% of entities functioned on the market for more than 4 years and less than 12 years. Only 10% of entities showed a market experience longer than 12 years. The vast majority of them are active in the international (approx. 49%), national (19%) and global (approx. 26%) market. The structure in terms of the economic activity points to the advantage of manufacturing enterprises (88%) over service (5.6%) and commercial (5.6%) enterprises. These researches covered six voivodships with differentiated structure of the level of innovation.

#### 4. OPEN INNOVATION AS A SOURCE OF INNOVATIVE DEVELOPMENT – RESEARCH HYPOTHESES

One of the analyzed factors directly influencing the innovative development among SMEs, and closely linked to open innovations is the cooperation with other organizations. Cooperation with other enterprises is more often established by micro (54.2%) and medium (51.3%) enterprises, less often by small (46.4%) enterprises. However, the overall result indicates that only one of the two enterprises analyzed in recent times has been cooperating. Taking into account the present turbulent and very competitive environment, it seems to be the average result. Cooperation with supporters is even less popular (40.8%). These support units include business environment institutions, research units and government agencies. The main type of research units' activity is the performance of research and development works aimed at supporting enterprises in this regard, because in the majority of Polish small and medium-sized enterprises, R&D costs are very low. By analyzing the obtained results, it can be observed that micro and small enterprises prefer to cooperate with other entities, which run business activity. Alternatively, in the second place, they are looking for natural persons (not company's employees), who do not run their own business activity, e.g. individual customers. On the other hand, medium-sized enterprises equally treat cooperation with other entities (51.3%) and support units (49.7%), and natural persons are their rarer business partners (40.5%) (Table 1).

*Table 1: Significance of cooperation between sme sector companies and other organizations*

Cooperating organizations	Micro enterprises			Small enterprises			Medium enterprises			Total average	
	note	N	%	note	N	%	note	N	%	note	%
Other enterprises	3.46	154	54.2	3.54	149	46.4	3.74	100	51.3	3.56	50.4
Supporting entities	3.57	109	38.4	3.60	120	37.4	3.73	97	49.7	3.63	40.8
Natural persons	3.56	125	44.0	3.50	143	44.5	3.52	79	40.5	3.53	43.5

In the above comparison, the majority of small and medium-sized enterprises cooperate with other entities in this sector, although this number is not significantly greater than the number of companies cooperating with supporters and natural persons. The obtained results enable the preparation of a positive verification of H1 hypothesis: the most common partners of small and medium-sized enterprises on the innovative development plane are other small and medium-sized enterprises. More interesting results in the area of open innovation's role have been obtained through the analysis related to the significance of individual business partners for enterprises. The magnitude of cooperation was identified by using a 5-step measuring scale in the questionnaire, where value 1 responded to a very small meaning, and value 5 corresponded to a very large importance. The following table shows the average evaluation of the importance in relation to the enterprise's size. Although micro enterprises are less likely to cooperate with a group of supporters, it turns out that this cooperation is more important for the development of an innovative company (3.57) than if the partner is another company (3.46). A similar dependence has been identified for small enterprises. Professionalism and specific range of cooperation and activity of research and development units, specialized government agencies

and other entities supporting small and medium-sized enterprises are reflected in the evaluation of enterprises. The formulated conclusion should be an important factor for the activation of these entities when selecting specific units and organization for cooperation in the field of innovative development. To better diagnose the characteristics of cooperation with supporters, answers to the questions about the identification of frequency, type of cooperation and adopted role were analyzed. Moreover, a wide range of specific entities (universities, research institutes, research centers and technological parks, as well as other existing units) was prepared. The full list of the specification is shown in Table 2.

*Table 2: Popularity of support units along smes as a business partner*

Support unit	Micro enterprises		Small enterprises		Medium enterprises		Total average	
	N	%	N	%	N	%	N	%
Universities and Institutes of the Polish Academy of Sciences	58	53.7	73	60.8	63	64.9	194	59.70
Research institutes and research centers	62	57.4	71	59.2	63	64.9	196	60.30
Technological parks and special economic zones	11	10.2	21	17.5	14	14.4	46	14.20
Training and coaching centers	14	13.0	24	20.0	10	10.3	48	14.80
Technology transfer centers and business incubators	8	7.4	8	6.70	6	6.2	22	6.80
PAED and regional development agencies	20	18.5	28	23.0	25	25.8	73	22.50
Commerce and industry chamber	14	13.0	18	15.0	13	13.4	45	13.80
Other	3	2.8	6	5.0	3	3.1	12	3.70

More interesting results in the area of open innovation's role have been obtained through the analysis related to the significance of individual business partners for enterprises. The magnitude of cooperation was identified by using a 5-step measuring scale in the questionnaire, where value 1 responded to a very small meaning, and value 5 corresponded to a very large importance. The following table shows the average evaluation of the importance in relation to the enterprise's size. Although micro enterprises are less likely to cooperate with a group of supporters, it turns out that this cooperation is more important for the development of an innovative company (3.57) than if the partner is another company (3.46). The largest number of enterprises, among the analyzed organizations, selected a university and/or institutes of the Polish Academy of Sciences, as well as research institutes and research centers as a collaborator supporting the innovative development. Taking into account the conclusions drawn from the previous responses, it is possible to indicate the high effectiveness and significant importance of mutual relations between these entities. Other assessed organizations are less likely to become partners, regardless of the enterprise's size. Cooperation of universities with enterprises is the process of co-creating innovation, in which the transfer of knowledge, technologies and research results should be the main mission of the university. Institutes, research centers, as well as universities are eager to cooperate not only in the last stage of the innovation process (searching for buyers), but also during the planning and creation of ideas, market analysis and prototype verification. In some rapidly developing industries, the creation of knowledge and technologies in research centers should be related to the analysis and prediction of the enterprise's future strategy (Silver-Pagaza, Coraz-Flores, 2005). The third support institution, which is used in 22.5% of the analyzed enterprises, is PAED (Polish Agency of Enterprise Development) and regional development agencies.

PAED as a government agency (subject to the Minister of Economy), apart from the financial support realized through competitions and operational programs, seeks to stimulate and create entrepreneurial attitudes and innovation. However, among Polish entrepreneurs, its activities are less used in the creation of open innovation than the offer of universities and research institutes. PAED usually treats the support for business as a transfer of technology in the simplest sense – i.e. presentation of scientific research results. This is not an effective method, so it often discourages entrepreneurs from establishing cooperation on the field of innovative development (Bakalarczyk, Pomykalski, Samolejova, 2014, pp. 124-126). On the other hand, the low popularity of technological parks and business incubators, which are aimed at supporting local entrepreneurship development and innovative attitudes, may be connected with their key mission. These institutions usually support natural persons when setting up and registering their new businesses. Moreover, they offer them help in the development of a newly established company and acquisition of customers in the first years of their business activity. Therefore, the main beneficiaries are small and medium-sized enterprises. Another important aspect within the framework of open innovations is the role played the organization during the cooperation with small or medium-sized enterprise. Three most popular groups were selected for the analysis of supporting units: universities, research institutes and PAED. Due to the fact that the examined entities often cooperated with many entities, the sum of percentages in individual categories is higher than 100%. The obtained results confirm the previous conclusions. Universities are the most important supporting units in the innovative development of surveyed enterprises. 68% of enterprises indicated universities as a development partner, and additionally every fourth company pointed it out as the best implementation partner. Institutes and research centers were indicated as a development partner by almost 60% of respondents, and the PAED – almost 47% of respondents (Table 3).

*Table 3: The role of selected supporting units in the area of open innovation*

Position	Universities and Institutes of the Polish Academy of Sciences		Research institutes and research centers		PAED and regional development agencies	
	N	%	N	%	N	%
Providers	27	13.9	41	20.9	6	8.2
Recipients	23	11.9	18	9.2	1	1.4
Development partner	132	68.0	117	59.7	34	46.6
Implementation partner	47	24.2	74	37.8	22	30.1
Marketing partner	9	4.6	12	6.1	6	8.2
Intermediary	5	2.6	5	2.6	19	26.0

By analyzing the obtained results, it is possible to adopt the hypothesis H2, because the vast majority of the surveyed enterprises pointed out to universities as a development partner. Furthermore, they are the most popular supporting unit along many entities presented in the questionnaire. By analyzing the situation in the same plane concerning the relationships with other enterprises, it can be observed that the number of indications for a development partner, both in relation to micro, small and medium-sized enterprises, has significantly decreased. The cooperation in B2B sector usually concerned the role of a supplier or recipient of ready-made business solutions. In the context of innovative development, it is not as important as the development, implementation or even marketing partner (Table 4).

*Table 4: The role of other enterprises in the area of open innovation*

Position	Micro enterprises		Small enterprises		Medium enterprises	
	N	%	N	%	N	%
Providers	66	46.5	109	52.2	80	45.7
Recipients	64	45.1	93	44.5	90	51.4
Development partner	54	38.0	67	32.1	62	35.4
Implementation partner	43	30.3	68	32.5	59	33.7
Marketing partner	15	10.6	24	11.5	17	9.7
Intermediary	26	18.3	30	14.4	17	9.7

However, this does not mean that the role of a development or implementation partner for these entities is completely marginal. On the contrary, small and medium-sized enterprises indicated them as next in level of importance. Hence, it can be said that the role of these entities is definitely more universal than in the case of previous supporting institution or research units. Only the “marketing” and “intermediary” role is relatively unimportant.

## 5. CONCLUSION

The performed analysis and verification of hypotheses lead to the conclusion that SMEs usually cooperate within the framework of innovative development with other entities of this sector. However, micro enterprises best evaluate the cooperation with natural persons, while medium and small enterprises appreciate supporting units in a greater extent. Particularly noteworthy are universities and institutes of the Polish Academy of Sciences. They entities (along with research institutes) are the most important partner in the process of creating, implementing and developing open innovation. On the other hand, the most common roles accepted by SMEs in cooperation with other entities include the role of a supplier and a recipient (less often a development or implementation partner). However, in comparison with institutions and research units, the nature of support for these entities is definitely more universal.

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# IS CORPORATE GOVERNANCE THE PROPER TOOL FOR ENHANCING LONG-TERM COMPANY PERFORMANCE?

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## **ABSTRACT**

*Every company has a different management style and decision-making process. These elements define the unique approach that creates the premise for the company to perform at its best by properly using resources, take advantage of the opportunities that came up and build a strong competitive advantage. For this process to be set in place, corporate governance provides based on the company characteristics the practices, the guidelines, the supervision and the support for the management team to achieve a sustainable and long-term performance of the company.*

**Keywords:** *company, corporate governance, performance, shareholders, stakeholders*

## **1. INTRODUCTION**

At the beginning of the 2000s, the corporate landscape was hit by several scandals, involving large corporations, top executives and increased attention on topics such as agency problem and corporate governance. For some companies, the corporate governance issues revealed financial problems, accounting manipulation, overpaid compensation and benefits for executives, etc. Companies that have faced such situations were, e.g.:

- ENRON was one of the first large corporations which went to bankruptcy after reporting very good financial results previous years. The scandal revealed a hidden debt (approx. 27 billion \$) and the use of an accounting method called mark to market. By using this method, top executives managed to hide losses and make the company look like it is profitable, and the stock price was very high, being one of the most valuable companies.
- WorldCom, the telecom company, went to bankruptcy at the peak of the dotcom bubble. The scandal revealed huge accounting problems, fraudulent activities with huge impact on the financial markets which in the end led to the Sarbanes-Oxley Act (July 2002).

Enron and WorldCom, are only two of many other large companies that revealed the failure of the corporate governance practices during that period. Other U.S., European and Asian companies (Computer Associates, Health South, Adelphia Communications, Dynergy, Royal Dutch Shell, Parmalat, Tyco, and Toshiba) as well were involved in accounting manipulation, agency problems, etc. in order to artificially increase their profits, the value of the company, all having in mind a solid strategy, a long-term perspective or a sustainable development. Scandals and failures from the production, IT, etc. sectors were dominating this topic of corporate governance failures. But when the financial crisis started and financial conglomerates went bankrupt or with huge debts, facing trials for their actions on the stock market with the exotic financial products like CDO's (collateralized debt obligations) and CDS's (credit default swap), and bonus packages and compensations for top executives brought into attention the major issues of corporate governance, the practices, how the pay-for-performance scheme functions, and the systemic impact over the global markets with long-term impact over the society. After the financial bubble burst, regulation came, and new guidelines were added for example in the Basel III, related to the corporate governance in financial institutions. The Bank for International Settlements (BIS) published the "Corporate governance principles for banks (2015)".

## 2. LITERATURE REVIEW

### 2.1. Corporate governance – concept evolution

In 1992, the former chairman of the UK's Committee of the FACG (Financial Aspects of Corporate Governance) Sir Adrian Cadbury (referenced by Mallin, 2011, p. 3.) expressed that corporate governance is “the whole system of controls, both financial and otherwise, by which a company is directed and controlled.” This definition, even though short and simple, points out the importance of corporate governance regarding who is in control in a corporation. Later on, in 1999, OECD – Organisation for Economic Co-operation and Development (referenced by Mallin, 2011, p. 3.), came up with a wider definition of corporate governance which stated that “is a set of relationships between a company’s board, its shareholders and other stakeholders. It also provides the structure through which the objectives of the company are set, and the means of attaining those objectives, and monitoring performance are determined.” Based on the definition provided by the OECD, the concept now includes specifically the interests of other parties involved (stakeholders), not only the shareholders, and also the link between the way a company is managed and the way it performs. Other elements were added to the definition of corporate governance, based on what happened in the business landscape. Financial Times Lexicon (2018) defines corporate governance as “how a company is managed, regarding the institutional systems and protocols meant to ensure accountability and sound ethics. The concept encompasses a variety of issues, including disclosure of information to shareholders and board members, remuneration of senior executives, potential conflicts of interest among managers and directors, supervisory structures, etc.” Shleifer and Vishny (1997) define corporate governance being the concept that “deals with how suppliers of finance to corporations assure themselves of getting a return on their investment” (Shleifer and Vishny, 1995; referenced by Page, 2005, p. 11). Page (2005) claims that the definition proposed by the authors for corporate governance, it is not enough having in mind the fact that not only shareholders or those who provide the financial resources for the company have an influence and an interest. He suggests that corporate governance should include a larger segment of parties with influence and interest, of course in different proportions, also known as stakeholders to be considered. As Hill și Jones (2010) point out, internal and external stakeholders play a very important part in the way a company performs. Because every category of stakeholders provides in one way or another the necessary resources for the company, their demands should be as important as the demands of the shareholders who provide the financial resources. Based on the fact that both stakeholders and shareholders are exposed to a certain level of risk, they should be considered in the decision-making process, because they could provide the genuine strategic advantage that will help the company reach its performance objectives. Researchers like Larcker and Tayan (2015) but also Bower and Paine (2017) draw attention to the agency problem, and also that there is a link between agency problem and corporate governance applied at the company level. Also, the classic financial theory, maximizing the value for shareholders still found in large corporations nowadays, is also stopping the managers to focus on innovation, on developing a long-term strategy and build value for the company. This objective moves the focus more on the quarterly earnings and sets the ground for the agency problem to develop, because managers will be more preoccupied for the safety of their job and meeting the expectations of the shareholders, and neglecting the needs of the stakeholders, setting them apart from the broader view. Sonnenfeld (2004) points out that both practitioners and researchers concluded that the basic guidelines of the corporate governance for best practice are not enough. The prove is that large corporations were caught by authorities 'cooking the books', defrauding, manipulating and having corrupt practices. As a result of this need for better practices regarding corporate governance, companies started to offer training programmes, but those are, as Sonnenfeld (2004) said 'cliches and myths.' Furthermore, (Financial Times; referenced by Sonnenfeld, 2004, p. 108), based on a review of

the studies with governance practices, concluded that those measures were not related to better performance. Those companies who started to offer consultancy services on governance issues also developed metrics to measure and evaluate the how well a public company is performing. Two popular governance metrics rating services are:

- Institutional Shareholder Services (ISS)
- Governance Metrics International (GMI)

The ISS and the GMI metrics systems rely more on scoring systems. Meanwhile, rating agency Moody's and The Corporate Library uses also qualitative indicators in their metrics systems. Nonetheless, Sonnenfeld (2004) points out several 'myths' when it comes to evaluating the corporate governance in a company and the link between it and performance. The first one that he brings out is that no evidence shows a link between structure (of the board) and performance, but there is a relationship between an active board (independent board) and corporate performance. Another myth refers to the need for financial experts. But the reality shows that even at those companies where academics, accounting professors, financial wizards and bankers were part of the top management, those companies failed to adapt to the international market requirements, the numbers were manipulated to hide debts and/or to fake performance reports. As the author concluded, that financial expertise is not the vulnerable point in the corporate governance and company performance relationship. We cannot forget to take into consideration the human factor when it comes to improving the corporate governance practices and procedures. There will always be questions if we can trust those executives, for eg., even in those companies with independent boards, where the majority or in some cases supermajority of the members are independent the human issue persists. This problem can or could be solved by a corporate governance model, as Donaldson (2012) points out, the existing models, have their shortcomings. In his research, Donaldson, suggests that the faults found in the corporate governance are due to the models applied, that have their lacks. For example, Williamson's theory (Williamson, 2005; referenced by Donaldson 2012, p. 261), "economics of governance" which aims to avoid transactions costs, in an epistemological way, claiming that the company has created market forces and actors and they attempt to avoid transaction costs. As a topic for both practitioners and researchers, corporate governance became a focal point after large corporations went to bankruptcy at the beginning of the 2000s and increasingly higher after the financial crisis. Subramanian (2015) points out that corporate governance has its roots quite recently, emerging as a field of study in the 1930s, starting with the work of Adolf Berle and Gardiner Means. Since then, the evolution of the concept contained several attempts based: regulations, best practices, metrics, etc. to obtain a successful or good corporate governance. Based on the fact that corporate governance applies not only to public traded companies and but also to family-owned companies and a wide variety of businesses a definition should take into consideration this fact plus the differences regarding regulations and best practices that might or might not be different from country to country. Due to the considerations above, if we add elements such as globalization, technological progress, financial market development, emerging markets, etc. the process of obtaining what is called "good or successful" corporate governance was defined and has changed over the years. Having in mind the famous example of ENRON, plus other large corporations that followed a similar path, and based on the economist's opinions there is an "incentive problem" because there are three categories of people who are not similar in a company but they are crucial pieces in the performance of the company:

- a) managers – run the company;
- b) shareholders – own the company;
- c) stakeholders – have a stake in the company.



Based on the considerations above, corporate governance should be that system that puts in balance the actions, expectations, and influence of those three categories. This system should have at least:

- a board of directors, which hires, fires and pays the management team;
- an external auditor, for financial control and transparency;
- also labor unions, media, customers suppliers, etc. – that piece that covers all the stakeholders.

In theory, the concept of corporate governance covers all the important aspects, but based on the opinion of Larcker and Tayan (2015) in practice is easier to point out examples of “bad governance” systems set in place rather than “good governance” systems that lead to the long-term performance of a company. The difference between how corporate governance is in theory and how it is applied in practice remains the main concern. In public traded companies particularly, but not only, when it comes to the understanding of “performance”, the balance tends to tilt towards the view of those who own the company, the shareholders. They are interested in short-term earnings. On the other hand, stakeholders tend to have a broader perspective, thinking for the long-term. Being the owner of the company, the law systems give much more power to shareholders. This started a debate pointed out by Andy Haldane the Bank of England's Chief Economist and Executive Director, which stated that a reform for corporate governance is required in order to “find ways to recognize the plurality of stakeholders – shareholders of course, but also customers, clients, creditors, workers and wider society” (Andy Haldane 2018, referenced by Financial Times, 2018). Moreover, the report of the Institute for Public Policy Research made a similar argument, by proposing “the amending the of the Companies Act to make it clear that directors’ primary duty was to promote a company’s long-term success, with the interests of employees, customers, and society ranking alongside those of shareholders.”

## **2.2. ESG – a viable solution for long-term performance?**

The term environmental, social and governance, or shortly ESG started to be used as a generic term, by shareholders, and on the capital markets, but also as a tool used to evaluate the companies behavior and to assess the future performance of the companies, according to Financial Times Lexicon (2018). In comparison with the financial performance indicators (quantitative measures), ESG components contain the non-financial performance indicators (qualitative measures). As a result, ESG became a topic of interest for investors, especially for those who are interested in sustainable and socially responsible businesses. According to MSCI ESG Research (2018), investors started to look at the ESG factors in their portfolio investments back in the 1960's. In a PwC Report (2017) is pointed out the importance of ESG as a vital criterion for an investment decision “[...] ESG outcomes are likely to become an integral part of investment solutions, and ESG analysis an essential investment tool.” Moreover, according to Hespeneide and Koehler (2013), to obtain long-term performance, by maximizing the classic financial indicators is not enough, a company should enhance the focus on ESG performance as well. Focus on ESG is the step in the right direction, but this is also a challenge for the company. Adopting ESG ideas will have a direct impact on the company's culture, management and will require the use of additional resources. This companies who are willing to start this challenging process aim to obtain a long-term value for their companies. Deloitte's Report also points out one major issue regarding ESG reporting, because it might vary regarding how companies approach ESG, how performance is reported, the metrics used. An ESG framework was provided by the United Nations Principles for Responsible Investment – UN PRI. The main target is ESG reporting on performance, large corporations that signed at the UN PRI provide insight to help investors to take more informed investment decisions when in

comes to factors such as sustainability, or governance practices. Asset owners, asset managers, professional service partners started to collaborate in February 2014 in their effort to set the principles of PRI (6 principles). For those companies who are focused on positive ESG, the effect is on the reputation of the corporation. Hespeneide and Koehler (2013) claim that a positive ESG provides a sort of protection for the company, they call it "ESG halo." By reporting the ESG information, it shows that companies care about how they manage ESG issues and ESG performance. A report about the ESG status for a corporation can be made by a third-party provider, which, according to Hespeneide and Koehler (2013) the ESG recognition from outside provides the same "ESG halo." A very popular third-party ESG recognition provider is S&P's Dow Jones Sustainability Indices, launched in 1999 by the Swiss investment company RobecoSAM and Dow Jones. According to Deloitte's Report, when companies were added to the Dow Jones Sustainability Indices their stock increased based on the announcement, and for those who went out from the indices, the impact was negative on their stock. This happened based on the following empirical evidence, claim Hespeneide and Koehler (2013):

- a) usually, an investor is paying attention to how ESG issues are handled by the company they are going to invest in;
- b) based on the ESG reports, negative or positive, it is possible that the investors react and increase their attention for the events that can affect the company;
- c) by providing ESG performance, information could protect shareholders stock value in case of things do go wrong.

When it comes to the link between ESG results and the company performance for short and long-term, researchers (Bauer et al. 2005; referenced by Hespeneide and Koehler, 2013) claim that we should be careful when we draw the conclusion, because on one side, the fact that ESG performance is based on evidence a driver for long-term returns, but on the other side the impact on the long-term financial performance should be more carefully because investors could use arbitrage to influence the effect of ESG results, and also because, as Margolis et al. (2009; referenced by Hespeneide and Koehler, 2013) suggest "many researchers use faulty methods or questionable data" and this puts a question mark on the impact of ESG results on the long-term financial performance, but on average the impact is considered to be minimum, opine Hespeneide and Koehler (2013).

### **3. DATA AND RESULTS**

When it comes to the performance of a company, profitability and the value of the company are very common and useful ways to describe performance. As Herciu and Ocrean (2017) stated that the company's profitability could be and it is influenced by several factors, but also it can be measured in multiple ways. The same authors also point out that for the analysis of a company's profitability, we should have to consider the results and outcomes, data that can be found into the firm's income or cash-flow statement and its balance sheet. This paper investigates if there are any correlations between the variables analyzed, return on assets (ROA) and enterprise value (EV- is a measure of a company's total value, often used as a more comprehensive alternative to stock market capitalization), of the most profitable U.S. companies in the world, considering 'Global Fortune 500'. Were selected 98 companies, the non-financial one. All the variables have been collected and were calculated using data from the income statement and the balance sheet from the website <https://finance.yahoo.com/>, fiscal year. Table 1 provides descriptive statistics of the collected variables. The main objective of this study is to analyze the impact of governance, component of the ESG indicator on company performance (profitability and company value). To measure the performance were selected indicators like enterprise value (Data derived from multiple sources or calculated by Yahoo

Finance, data for the enterprise value are for 05.10.2018) and return on assets (ROA) as performance indicators. To reveal the impact of corporate governance, it will be used the governance score from Sustainalytics' ESG Ratings found on yahoo finance, sustainability tab for each company investigated in this paper.

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Enterprise Value (mil. \$)	98	4,78	1130	150,38	188,53
Governance (score)	98	39	79	64,09	7,71
Net income (mil. \$)	98	160	67000	6209,58	9649,01
Total Assets (mil. \$)	98	8989	444097	84265,59	80382,36
Shareholder equity (mil. \$)	98	-12086	194500	27978,19	36958,32
ROA (%)	98	0,63	110,96	7,85	11,40
Valid N (listwise)	98				

ROA – return on equity.

*Table 1: Descriptive statistics*

### 3.1. ROA analysis

What will be the result if I take into consideration ROA to split companies? According to the calculations, companies can be divided into three groups: first, with an ROA between 0-5% second, with an ROA between 5-10%, and third with an ROA higher than 10%.

	0%-5%		5%-10%		>10%	
	ROA (%)	Governance	ROA (%)	Governance	ROA (%)	Governance
Mean	2,69	63,20	7,20	65,35	20,24	62,53
Variance	1,75	47,11	1,74	56,99	557,12	91,39
Observations	35	35	46	46	17	17
Pearson Correlation	-0,09		-0,08		0,22	
Hypothesized Mean Difference	0		0		0	
df	34		45		16	
t Stat	-50,36		-50,80		-7,45	
P(T<=t) one-tail	0,00		0,00		0,00	
t Critical one-tail	1,69		1,68		1,75	
P(T<=t) two-tail	0,00		0,00		0,00	
t Critical two-tail	2,03		2,01		2,12	

*Table 2: t-Test: Paired Two Sample for Means (by ROA)*

The Pearson correlation between ROA and governance for the first and second group is negative, very weak, and insignificant. For the third group, the correlation is positive and weak. A higher level of governance cannot drive to a higher level of ROA.

### 3.2. Governance analysis

To expand my findings, the analyzed companies have been divided into three groups based on the governance score. The first group includes companies with a governance score lower than 59. The second group is for those companies that have registered a governance score between 60 and 69. In the third group are companies with a governance score between 70 and 100.

		0-59		60-69		70-100
	EV (mil. \$)	Governance	EV (mil. \$)	Governance	EV (mil. \$)	Governance
Mean	231,17	54,41	103,24	64,66	146,41	72,85
Variance	81137,33	25,87	6312,98	6,79	30473,44	7,21
Observations	27	27	44	44	27	27
Pearson Correlation	-0,49		-0,20		-0,10	
Hypothesized Mean Difference	0		0		0	
df	26		43		26	
t Stat	3,20		3,20		2,19	
P(T<=t) one-tail	0,00		0,00		0,02	
t Critical one-tail	1,71		1,68		1,71	
P(T<=t) two-tail	0,00		0,00		0,04	
t Critical two-tail	2,06		2,02		2,06	

Table 3: *t-Test: Paired Two Sample for Means (by governance)*

The Pearson correlations between EV and governance of the analyzed companies are negative, for all three groups. A weak correlation for the second and third group, but a negative and significant correlation for the first one, and a lower level of governance can drive to a higher level of EV.

### 4. CONCLUSION

Based on the findings of my study, it is challenging to identify if there is an impact of corporate governance over the company's performance. Different corporate governance approaches drive to a different level of the score (measured using a scorecard by Sustanalytics) when sector/industry, governance or ROA are considered. However, it is evident that the governance affects the company value. The findings are also supported by previous studies and research conducted by McWilliams and Siegel (2000), Margolis, Elfenbein and Walsh (2009), Kitzmueller and Shimshack (2012). Corporate governance is essential for any company. This present paper attempted to answer the research question (does corporate governance influence company performance) based on literature and findings reviews. The main results of the paper reveal weak correlations between ROA and governance, positively or negatively, if different circumstances are considered, and significant relationship between EV and governance, negatively, when a low score is registered for governance. In conclusion, it is tough to identify an optimal governance score.

Every company has to determine its own corporate governance best practices by mixing the needs and requirements of the shareholders and stakeholders to increase its long-term performance.

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# **CORPORATE SUSTAINABILITY PERFORMANCE IN PORTUGAL: SME FAMILY AND NON-FAMILY BUSINESS DIFFERENCES AND DETERMINANTS**

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## **ABSTRACT**

*This work aims to examine corporate sustainability performance and family influences. In a theoretical angle, it aims to contribute by integration of resource-based view, institution-based view, agency theory, stakeholder theory and corporate sustainability, extending the discussion about family involvement on firm performance and the effect of sustainable strategy on financial performance in Portuguese SMEs. By using matched paired methodology, we focus 65 Portuguese SMEs and 32 indicators at financial, environmental and social level, comparing family Business (FB) and Non-Family Business (NFB). Under an evolutionary temporal analysis between 2012 and 2016, this study underscores consistent patterns pointing that corporate family involvement influences financial performance and has a mixed effect on environmental and social performance.*

**Keywords:** *Corporate Financial Performance, Corporate Social Performance, Family business, Family-owned business enterprises, Portuguese SMEs*

## **1. INTRODUCTION**

Small and Medium Enterprises (including micro) in European Union (EU) represents 99,8% of the companies, 57% of value added of European employment (European Commission 2016). At the same time, about 70 % - 80 % of enterprises are family firms (Mandl, 2008; Huang, 2009). SMEs and family businesses influences in employment or in wealth creation has raised questions about the role and impact of SMEs in economic, social and environmental terms (Allouche & Amann, 2002; Astrachan & Shanker, 2003; Revell et al., 2010; Blodgett et al., 2011). In recent years, insights have been added focusing environmental (Huang, 2009; Hoogendoorn et al., 2014) and social engagement in family business context (Niehm et al., 2008; Fitzgerald et al., 2010; Fassin et al., 2011; Amann et al., 2012; McGuire et al., 2012; Marques et al., 2014; van Gils et al., 2014; Hernandez-Oerlines, 2017; Nekhili et al., 2017). The range of studies focusing performance in family businesses analysed mainly owner / founder role (Anderson & Reeb, 2003; Barontini & Caprio, 2006; O'Boyle et al., 2010); Family control and governance effect (McConaughy et al., 1998; Villalonga et al., 2006; Miller & Breton-miller, 2006; El Ghoul, 2016), culture and values assumption (Poza et al., 1997; Astrachan & Shanker, 2003; Harms, 2014), resources and capabilities stock management (Habbershon & Williams, 1999; Sirmon & Hitt, 2003; Chrisman et al., 2009) or stakeholder and institutional influence (Bingham et al., 2011; Mitchell et al., 2011; Miller & Breton-miller, 2017). Another dominant angle of research is the comprehension of differences in performance between family Businesses (FB) and non-family (NFB) (Jorrissen et al., 2005; Allouche et al., 1995, 2007, 2008; Amann et al., 2011; Amann et al., 2012). Researchers have used multiple theoretical lines that support academic discussion, namely agency and stewardship theories,

resource-based view of firm, strategic management, socio-emotional wealth, institutional and stakeholder theory (Poza, 1997; Allouche et al., 1995, 2007, 2008; Chrisman et al., 2010; Paiva et al., 2015; Miller et al., 2017). Corporate sustainability performance in family SMEs is a relevant field, but under-explored by researchers comparing to large companies context (Perrini, 2006). In fact, a transversal idea claim due to lack of financial resources, knowledge and culture, small firms are considered underperforming organizations, on a social and environmental level (Hoogendoorn et al., 2015). In Portugal few works are available on family firm performance and even less on SME context (Benavides-Velasco et al., 2011). Alves (2007) perform a survey on use performance measures in 102 SME, identifying top management goals that guide performances at a firm level. Miralles-Marcelo et al. (2013) observe the performance of family firms from 1999 to 2008 in the Portuguese stock market. Vieira (2017) analysed the relationship between debt policy and performance among family business (FB), providing evidence on whether FB differ from non-family businesses (NFB). The aim of this study is to focus on sustainability performance in Portuguese Family SMEs. Understanding the use of performance management system based on integrated economic, environmental and social measures comparing to NFB, through a matched paired investigation. Our study is organized as follows: chapter 2 a brief review of literature providing our support to an innovative hypotheses development. Chapter 3 contains the description of methodology with description of sample and procedure. Chapter 4 reports and discusses the results of means and multivariate analyses. The last Chapter 5 supports our main conclusions.

## 2. LITERATURE REVIEW & HYPOTHESES

Family firm research has experienced a great interest by management researchers, which faced challenges to define a unified definition of a heterogeneous reality (Sener, 2014). Various definitions are reported in the literature with light differentiations of the term "family", including different legal framework, country-specific institutional and cultural concept of family and non-family firms (Astrachan et al., 2002; Harms, 2014). In general three types of FB management structure exist, first family owned and family managed, second family owned but not family managed and family managed but not family owned (Chua et al., 1999; Allouche & Aman, 2000; Allouche et al., (1995, 2008). In general, prior studies have used different definitions of "family business" concept, including: ownership traduced by the highest percentage of the property in the hands of a family (Déniz-Déniz & Suárez, 2005; Fitzgerald et al., 2010), Control by the participation in top management of members of the family that owns it (Allouche & Amann, 2000), influence by the direct or indirect action of family through a cultural governance and perpetual management mainstream, (Allouche et al., 1995, 2008; Harms, 2014) an succession by generational transfer effectiveness or intention (Chua et al., 1999; Mandl, 2018; Molina Parra et al., 2017) . Summarizing main criteria for defining FB's:

- Ownership: FB, if the founding family has a fractional equity ownership (Anderson & Reeb, 2003);
- Control: FB, if family have an effective strategic control with or without the majority of the capital or not, but no other group of shareholders can have a greater weight in the face of family shareholders. (Allouche & Amann, 2000);
- Influence: FB, if the family can effectively influence governance, management through ownership or culture or charisma of family (Astrachan & Shanker, 2003);
- Succession: FB, if transmission or the intention to transmit exist (Molina Parra et al., 2017).

In this study and according to European Commission definition, a FB will be a business that is more than 50% owned and managed by the natural person(s) who established the firm, or in the possession of the natural person(s) who has/have acquired the share capital of the firm, or in the possession of their spouses, parents, child or children's direct heirs, including, while all



other businesses are defined as non-family businesses (European Commission, 2009). Scholars describe several characteristics for FB “uniquess” that influence strategic and organizational performance. Scholars pointed negative characteristics and challenges for the performance and even for its survival. Family firms’ conservative behaviour, conditioning the attitude front of innovation (Llach & Nordqvist, 2006), lack of professionalism based on nepotism rather than meritocratic system (Miller et al., 2006). Exploitation and expropriation of minority shareholders wealth for benefit of family (Vieira, 2015). Absence of strategically planned succession pressing survival (Miller et al., 2006; Molina Parra et al., 2017). In another angle, a greater performance is pointed to FB, because family objectives and business strategies appears as inseparable, creating a long-term strategy and commitment (Habbershon & Williams, 1999). Logically, on a financial perspective, FB appears having the capacity to invest in long-run return opportunities with less debt (Allouche & Amann, 2000, Paiva et al., 2016). Family owners provide a monitoring of management with greater knowledge and with lower costs of agency. FBs are significantly more customers oriented with particular concern for the quality of their products and services (Vallejo Martos & Grande Torraleja, 2017). A greater ethical standards and responsibility, justified by the ideal of transmission and succession, allow to a family-oriented workplace which inspires employee with greater human resources performance and generate motivation and loyalties (Allouche & Amann, 2000; Habbershon & Williams, 1999). Also, on an external point of view, Family SME have a more close and consistent link with its surrounding community (Dyer, 2006). These different characteristics contribute to the uniqueness of FB summarized in the “familiness concept” (Habbershon & Williams; 1999). “familiness” is defined as the unique group of resources of firms supported by a system of interactions between family and firm in management, economic and sociological dimensions. Research on FB’s performance have evolves with debates on comparison with NFB (Anderson & Reeb, 2003; Allouche et al. 1995, 2007, 2008, Chrisman et al., 2009; Blodgett et al., 2011; Amann et al., 2012; Lunardi et al., 2017) social responsibility integration (Déniz & Suarez, 2005; Niehm, 2008; Fassin et al., 2010; Bingham et al., 2011; Fitzgerald et al., 2012; McGuire et al., 2012), environmental integration (Huang et al., 2009; Hoogendoorn et al., 2014) family and owner involvement effect (Allouche & Amman, 2002; Barontoni & Caprio, 2005; Dyer, 2006; O’Boyle et al., 2012 ; Ducassy & Montandrou, 2014; el Goul et al., 2016). Taking family SMEs (FB) sustainability performance we aim to integrated and linked main questions on the FB performance scope, in Portugal. FB sustainable performance compared to NFB on a financial, environmental and social. A majority of studies focus financial performance (Anderson & Reeb, 2003; Allouche et al., 1995, 2007, 2008). On FBs environmental performance, very few studies are available. Existing ones focus mainly environmental engagement and innovative capacity for green production (Huang et al., 2009). On a social performance lens, studies focuses namely comparison studies, between financial performance and social performance (Déniz & Suarez, 2005; Niehm, 2008), comparison of social performance between FB and NFB (Amann et al., 2012). Our approach of sustainability performance analysis in Portuguese’s Family SMEs, lead us to formulate and test the following hypothesis:

Hypothesis 1: In Portugal, FB’s enjoy better sustainable performance than NFB

Corporate sustainability performance is highly influenced by the Triple Bottom Line (TBL) concept (Elkington, 1997; Engert, et al., 2016), translating the integration and balance of sustainability dimensions as economic, environmental and social (Hubbard, 2009). The TBL concept shows the complexity of tensions and trade-offs among the three elements raising the academic debates (Rogers & Hudson, 2011). Theoretical analyses are based mainly on the SME sustainability approach and theories as RBV and agency frameworks.

On a RBV theoretical angle, FB's possess resources or "familiness" capitals which generates capabilities non imitable (Dyer, 2006). Thus, FBs performance is affected positively by competitive advantages generate by these unique resources (Sirmon & Hitt, 2003). Also based on agency theory by a more direct management, FBs are more efficient and less spenders, predicting a stronger financial performance of FBs (Allouche et al., 1995, 2008). Thus, the following hypothesis is derived:

Hypothesis 1a: In Portugal, FB's have stronger financial performance than NFB's

Uhlaner et al. (2012) states that larger business-owning families have a better effect on in environmental management practices. In this context, as for social performance, local integration, reputation and visibility lead FBs to be environmentally focus (McGuire et al., 2012; Hoogendoorn et al., 2014). The limited risk culture, conduct FB's managers to listen and anticipate environmental pressures, mainly from regulatory stakeholders, (government, regulatory institutions or society), but also internal stakeholders (Shareholders, employees), and market stakeholders (Customers and providers) (Huang et al., 2009). Thus Family SMEs by their direct capacity of decision are available to be outperformers on time and solution on an environmental dimension. Management and ownership lead to decision without intermediaries sharing, directly with key stakeholders, environmental engagement actions, allowing the FBs to gain support and extend the firm's reputation (McGuire et al., 2012). FBs are more prone to give close and preventive answer due to impacts on survival and successions value of the family (Déniz & Suarez, 2005). Thus, the following hypothesis is derived:

Hypothesis 1b: In Portugal, FB's have stronger Environmental performance than NFB's

Researchers have recently put a focus on a particular attention to understand CSR in FB. However, the topic of social performance among FBs has been investigated only in a few studies (Campapiano et al., 2012). FBs may have several points to take action to improve their social performance. Niehm et al. (2008) state that FBs often act on local society as a resource for their operations. Thus, to enhance the firm's and the family's reputation, FB's engage more in social activities (Amann et al., 2012; el Ghoul et al., 2016). Stewardship framework provides the support for FBs greater focus on social performance, which include socioemotional wealth for family shareholders and stakeholders on a long-term reference (Cruz et al., 2014). SME management is intrinsically linked to performance, stakeholder and institutional pressures taking in account the action of firms to be highly competitive. Due to their space proximity and time responsiveness, specific local resources availability and competences, SME may have more opportunities to exploit engagement of community, capitalizing stocks of reputation, trust, legitimacy, norms and networks to support the long-term performance (Spence et al., 2003; Perrini, 2006; Marques, et al., 2014). Finally, governance and leadership of owner-managers influence directly social orientations and choices through own vision and values (Jenkins, 2006; Fassin, 2010). Direct management and monitoring from family members allow to apply more efficiency resources available on social strategic purposes (McGuire et al., 2012). Thus, the following hypothesis is derived:

Hypothesis 1c: In Portugal, FB's have stronger social performance than NFB's

### 3. METHODOLOGY

Our study focus Portuguese's SME performance in 2012 and 2016, based on financial, environmental and social indicators. A total of 65 Portuguese SMEs have been included in our work representing 18 two – digit SIC, as showed in table 1, which include a broad spectrum of

economic activity in Portugal in this essay. By Size, 5 micro–enterprises (7,69%), 42 small enterprises (64,62%) and 18 medium enterprises (27,69%) have been considered in our methodology.

*Table 1: Firms sample (n = 65)*

Number of Enterprises (FB / NFB)		Matched paired Methodology (Pair number 2012 & 2016)		
FB	NFB	Financial	Social	Environmental
34	31	30	21	20

The matched pairs approach objectives are to compare systematically family and non-family businesses with the same profiles, in the same industry, and of nearly the same size. Matching methods have been widely used in comparative studies of FB and NFB (e.g. Allouche et al. 1995, 2007, 2008; Llach and Nordqvist, 2010). In our case, we formed two samples of Portuguese's SMEs, one consisting of FB and the other of NFBs. The matching methodology was based on a two-fold criterion (annual turnover and average annual workforce) and sectorial membership (first two digits of the Standard Industrial Codes). For the size, we consider that two companies are paired, if the overall turn-over per employees are within 60% of each other. Consequently, we obtained for 2012 and 2016:

- 30 matching pairs ( $n= 60$  firms) for financial dimension, and
- 21 matching pairs ( $n= 42$  firms) for social, and
- 20 matching pairs ( $n= 42$  firms) for environmental dimension.

We used Student t tests on paired samples to retrieve the statistical significance of the mean difference between SME FBs and SME NFBs.

#### 4. RESULTS

Our first analysis focuses the SME financial performance and the influence of family control. Financial performance has been structured on two dimensions translating profitability and financial structure. In table 2, we find that the two groups exhibit very similar financial performance: ROA and ROIC translate no significant difference in results between FBs and NFBs. Despite no statistically significance, we observed through means analysis a higher performance for the FBs in 2016 in ROE indicators results (+38,09% than NFB). On earnings perspective, no statistically significant differences between SME FBs and NFBs have been verified. However, we can highlight the recover of earnings observed in FB in contrast with an apparent stability for NFBs. In accordance with Amann and Jaussaud (2011) observations, FBs seems to recover better than NFBs and it may be linked to greater investments (see Gearing Ratio 2012 & 2016) and ability to mobilize their resources which generates capabilities non imitable (Dyer, 2006), confirming RBV theory. In indebtedness perspective no statistically significance was found in total debt/ total capital, long-term debt/ total capital and total debt / common equity. However, comparing means, we can observe that FBs are less indebted than NFBs in both years. A significant difference in gearing ratios is observed (p-value 10% in 2012 and p-value 5% in 2016) between the two groups. Gearing ratio is lower in FBs than NFBs for the two years, translating a lower level of debt comparing to common equity dependence (shareholder perspective). This result is consistent with previous findings that FBs are more efficient, less spenders and less dependent of financial sector (Allouche et al., 1995, 2008; Amann & Jaussaud, 2011). In terms of liquidity, the differences are significant in 2016 at 5% threshold, matching with academic findings that pointed for a greater ability of FBs to meet short-term financial commitments and resist in adverse economics scenarios (Allouche et al., 1995, 2008; Amann & Jaussaud, 2011).

Observing means, we can conclude FBs have higher current ratios and quick ratios in 2012 and 2016 compared to NFB. The stronger financial structures of FBs compared to NFBs support the long-term strategy and commitment, thus the capacity to invest stated by various authors (Habbershon & Williams, 1999; Paiva et al., 2016). Despite profitability perspective no significant difference between FBs and NFBs, in 2016 we observe a great capacity of earnings recover by FBs. These observations are consistent with agency theory related to more efficient organizational processes, greater flexibility and seem to prove the RBV perspective of resources mobilization capacity in FBs (McConaughy et al., 1995). On a financial structure perspective, we gain a new understanding that FBs have a significant and stronger financial structure. In accordance on previous findings the FBs achieve their success because of their long-term orientation (Miller et al. 2006) and sustained 'familiness' management (Habbershon and Williams 1999; Dyer, 2006) translated on a strong and long-term financial structure. These two financial dimensions observations, allow us to conclude that hypotheses 1a is accepted. In another angle, table 3 shows us the comparative environmental performance between FBs and NFBs. Taking the internal and external commitment perspective we draw five environmental indicators. No statistic significant differences exist between FBs and NFBs in both years (2012 & 2016) when we compare environmental performance. However, the means analysis highlight in 2012 & 2016 trends. First trend is the greater investment from NFBs in environmental practices. Second trend is that NFBs have greater external actions since we can observe a larger number of reporting and certification practices than in FBs. Third trend, FBs are less water and energy consumer than NFBs. The two first trends may imply that NFBs are more externally aware about environmental publicity challenges and anticipate environmental pressures (Huang et al., 2009, Albertini, 2013). In line with cost control supported by agency theory, FBs have lower consumption of water and energy with lower environmental impacts (Déniz & Suarez, 2005). As previously analyzed we can conclude that hypotheses 1b is rejected, there's no supported evidence that in Portugal, FB's have stronger environmental performance than NFBs. The third dimension of matched pair methodology focus social performance dimension translated in fifteen indicators. Table 4 presents the results of comparative social performance between FB and NFB. In 2012, no significant difference exists for the different dimensions analysed. However, in 2016 some significant differences on working cost and labour relations management appear. The year 2016 reveals significant difference at 5% threshold in working cost with lowers average of cost per hour and average of work cost for FB. In this case, NFB have more working cost contradicting that family-oriented workplace may have greater human resources performance and generate motivation (Habbershon & Williams, 1999). However, this results support agency theory, which state that a more direct management allow FBs to be more efficient, and less spenders (Allouche & Amann, 1995). On a labour relations management dimensions, a significant difference at 10% threshold in 2016 on average of leaves by demission. Worker's leaves by own initiative is higher in FBs than NFB. Additionally in this dimension, we can observed in 2012 and 2016 by means analysis that FBs have a higher turn-over than NFBs, contradicting as previously the higher motivational workplace. On training and competence investment, table 4 reveals that the average of number of training hours per worker is higher in NFBs than FBs in both years. However, the training cost per revenue is higher for FBs in 2012 and 2016. For health and safety performance, data's did not reveal consistent standardized differences and consistence between years. Accident frequency rate is higher in FBs compared to NFBs, but accident gravity rate is higher in NFBs than in FBs. In human resource structure, for 2012 and 2016 FBs have a higher proportion of female employees with nearest parity in 2016. At societal contribution level, FBs have a higher contribution through tax payment in both years. Empirically, the findings show that there is no significant difference between FBs and NFB in terms of social performance.

We can conclude that hypotheses 1c is rejected, there's no supported evidence that in Portugal, FBs have stronger social performance than NFBs.

*Table 2: Comparative financial performance between FB and NFB*

2012							2016						
	n	Means		Difference	t-statistics	Sig.	n	Means		Difference	t-statistics	Sig.	
		FB	NFB					FB	NFB				
Return on Assets	30	2,62%	2,96%	-0,34%	-0,126	0,901	30	5,45%	5,47%	-0,03%	-0,011	0,992	
Return on Equity— Total (%)	30	11,08%	20,32%	-9,24%	-0,844	0,405	30	30,73%	-7,36%	38,09%	1,375	0,180	
Return on Invested Capital	30	7,20%	8,98%	-1,77%	-0,129	0,898	30	5,57%	4,85%	0,73%	0,484	0,632	
Earnings Before Interest and Taxes (EBIT)	30	-1,07%	6,12%	-7,19%	-0,932	0,359	30	7,40%	7,17%	0,24%	0,096	0,924	
Net Income (%)	30	-3,64%	3,44%	-7,08%	-0,955	0,348	30	5,17%	4,75%	0,42%	0,207	0,838	
Pretax Margin	30	-1,99%	5,09%	-7,08%	-0,908	0,372	30	6,56%	6,46%	0,11%	0,043	0,966	
Total Debt % Total Capital	30	107,55%	149,96%	-42,41%	-0,546	0,589	30	198,96%	270,60%	-71,64%	-0,282	0,780	
Long Term Debt % Total Capital	30	23,42%	44,51%	-21,10%	-1,175	0,249	30	40,54%	64,83%	-24,29%	-0,478	0,636	
Total Debt % Common Equity	30	62,51%	75,22%	-12,71%	-1,075	0,291	30	65,82%	74,02%	-8,19%	-0,660	0,514	
Gearing ratio	30	49,85%	62,31%	-12,46%	-1,815	0,080*	30	49,31%	64,73%	-15,42%	-2,373	0,024**	
Current Ratio	30	1,79	1,37	0,42	1,451	0,157	30	1,81	1,35	0,46	2,122	0,042**	
Quick Ratio	30	2,22	1,76	0,46	1,319	0,198	30	2,67	1,93	0,74	2,126	0,042**	

\*\* Significant at 5% level; \* Significant at 10% level; (n=pairs)

Table following on the next page

*Table 3: Comparative environmental performance between FB and NFB*

	2012						2016					
	n	Means		Difference	t-statistics	Sig.	n	Means		Difference	t-statistics	Sig.
		FB	NFB					FB	NFB			
Amount spend in environmental Practices (%)	15	0,67%	3,01%	-2,34%	-0,809	0,432	14	0,36%	4,79%	-4,44%	-0,969	0,350
Cost of water consumption (%)	17	0,33%	0,43%	-0,10%	-0,319	0,754	19	0,14%	0,26%	-0,12%	-0,983	0,338
Direct electric energy consumption (%)	16	1,03%	2,36%	-1,33%	1,435	0,172	19	1,11%	2,52%	-1,41%	-1,478	0,157
Environmental/sustainability reports	20	0,05	0,14	-0,09	-0,439	0,666	21	0,14	0,19	-0,05	-0,370	0,715
EMS (14001, EMS)	20	0,05	0,10	-0,05	-0,567	0,577	21	0,10	0,24	-0,14	-1,142	0,267

*(n=pairs)*

*Table following on the next page*

*Table 4 – Comparative Social performance between FB and NFB*  
 2012 2016

	2012					2016						
	n	Means		Difference	t-statistics	Sig.	n	Means		Difference	t-statistics	Sig.
		FB	NFB					FB	NFB			
Training costs per workers (euros)	16	103,58 €	62,21 €	41,37 €	0,588	0,565	18	74,01 €	113,08 €	-39,07 €	-0,771	0,451
Training costs per revenue (%)	16	0,20%	0,08%	0,12%	1,116	0,282	18	0,17%	0,16%	0,00%	0,039	0,969
Average number of training hours per worker	13	13,72	17,93	-4,20	-0,512	0,618	15	12,31	16,55	-4,24	-0,835	0,418
Health and Safety costs per revenue (%)	16	0,95%	0,11%	0,85%	1,071	0,301	19	0,18%	0,25%	-0,07%	-0,554	0,586
Average of working hours per worker	12	1795,99	1786,70	9,29	0,092	0,928	14	1747,25	1834,91	-87,66	-0,863	0,404
Average of cost per hour	11	7,87 €	13,12 €	-5,25 €	-1,555	0,151	14	8,52 €	11,90 €	-3,38 €	-2,292	0,039**
Accident Frequency rate	17	14,32	6,84	7,48	0,944	0,359	17	16,15	11,73	4,42	0,452	0,657
Accident Gravity rate	16	376,27	426,60	-50,32	-0,225	0,825	10	469,89	485,92	-16,02	-0,060	0,953
Turnover of workers (%)	16	11,63%	8,67%	2,96%	0,454	0,657	16	15,32%	4,75%	10,57%	1,568	0,138
Average of leaves by retreat	16	0,0031	0,0009	0,0022	0,929	0,368	16	0,0015	0,0020	-0,0006	-0,274	0,788
Average of leaves by demission	19	0,04	0,03	0,01	0,373	0,714	20	0,08	0,03	0,05	1,891	0,074*
Average of leaves by dismissal	18	0,07	0,06	0,02	0,317	0,755	19	0,06	0,03	0,04	0,928	0,365
Proportion of female employees	22	44%	38%	6,44%	0,589	0,562	21	47%	40%	7%	0,671	0,510
Average of work cost	21	19 075,45 €	21 524,56 €	-2 449,12 €	-0,561	0,581	21	15 522,41 €	20 553,48 €	-5 031,07 €	-2,422	0,025**
Average of tax paid/ Turn-over	22	1,46%	1,05%	0,41%	1,018	0,320	21	1,51%	1,24%	0,27%	0,575	0,572

\*\* Significant at 5% level  
 \* Significant at 10% level  
 (n=pairs)

## 5. CONCLUSION

This study has theoretical and empirical contributions to better understanding of use, and valorization of sustainable performance measures in small & medium firms in Portugal and the role of family governance. This works aims to examine the determinants and relationship between sustainability performance, family governance and leadership. Theoretically, this works extends arguments on corporate sustainability performance in SMEs and the benefits or cost of family involvements discussed by agency, stewardship, RBV and stakeholder theories. In this sense, our results contribute with new findings updating the theoretical field of corporate sustainability, extending the discussion about family involvement on firm performance and the effect of sustainable strategy in Portuguese SMEs. Empirically, findings show that globally there is no significant difference between FBs and NFBs in mixed results on the family involvement. These results are in line with previous findings in Portugal, which confirmed no significant differences on performance exist between SME FB and NFB (Paiva et al., 2016; Vieira, 2015, 2017). We highlighted in our study that in an average perspective, SMEs have very consistent results in the three dimensions. At financial level corresponding to our hypothesis 1a, we can conclude that FBs have a significant better financial structure including

liquidity and low external dependence. These results highlights that FBs have a greater saving perspective confirming long-term orientation and capacity to investment through greater liquidity (Miller et al. 2006). Strong financial structure sustaining the independence linked to FBs leadership approach, which may includes the application of strong authority by family members (Gomez-Mejia et al., 2007). This conscious restriction, to access to external financing source in FBs, is in accordance also with agency theory control of costs (Sener, 2014). It was noted also a greater capacity to recover earnings from FBs in contrast with an apparent stability in earnings for NFB. These results may be linked to greater investments and ability to mobilize their resources, which generates capabilities non-imitable (Dyer, 2006), confirming RBV theory. At environmental performance level, no significant difference exist between FBs and NFBs. Hypothesis 1b, which predict that in Portugal, FB's have stronger environmental performance than NFB is not confirmed. However, by means analysis NFBs seems to be more focus on external actions and performance through great visible environmental investment, reporting and certifications than FBs in accordance with a stakeholder engagement. Internal savings and environmental actions are the main subject of attention by FBs managers. At social performance level, no significant differences exist between FBs and NFBs in 2012. However, in 2016 three indicators demonstrate significant differences on working cost and labour relations management. Working costs are lowers in FBs than in NFBs translating low salaries and a saving logic in 2016. In another hand, we find that more demission's in FBs. Hypothesis 1c, which predict that in Portugal, FB's have stronger social performance than NFB is not confirmed. These findings did not confirm that FB's engage more in CSR activities (Niehm et al., 2008, Amann et al., 2012; el Ghoual et al., 2016) or greater focus on social performance, justify in wealth creation for family shareholders and stakeholders on a long-term reference (Cruz et al., 2014). Aggregating findings retrieved from matched paired analysis, our study confirm of superior financial performance of FBs compared to NFBs, as released by previous studies (Anderson & Reeb, 2003; Allouche et al., 1995, 2007, 2008; Amann et al., 2011). However, on an environmental and social performance lens we did not find differences, which can determines a greater performance from FBs, neither from NFBs. This mixed findings confirms mitigate results from other studies (Déniz & Suarez, 2005; Niehm, 2008; Amann et al., 2012).

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## MODEL OF POLISH SMALL COMPANIES TECHNOLOGY MANAGEMENT

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### **ABSTRACT**

*The technology management process just seems to be easy and simple to do. However, it requires performing many tasks that make it more complicated. This problem is not limited to determining the amount, correct valuation, technology and its commercialization readiness (TRL), but above all to verify the possibility of its absorption by the small company in Poland. In this process both technology itself and the company's resources assessment of the entity in terms of its ability to implement new technology and the ability of the company to use the acquired technology in the process of creating and selling innovation are important. In the process of technology management significant role plays changing company's environment. Good example is rising of new paradigms like Circular Economy or Sustainable Development. Which are expected to have a significant impact on business competitiveness in not only a domestic but also international scope. Such paradigms, on a one hand, will force the intensification of companies needs in the fields of acquisition of new technologies or advanced raw materials and increase the scope of innovation in business models. the aim of the paper is to present selected research results in the field of enterprise innovation*

**Keywords:** *innovation, technology transfer and management*

### **1. INTRODUCTION**

Technology understood as the application of science into industry, where science is understood as the results of all R&D activities dealing with academic research has always been considered as one of the key factors responsible for building the companies market position. Assuming that management is a set of tasks that comprise; planning, decision-making, organization and leadership, the direct goal of which is the optimal disposal of the organization's resources. According to that, in the authors opinion, it is possible to define technology management itself as a conscious decision-making process in the field of development, acquisition and implementation by the company of any R&D&I activities and its solutions, aimed at raising the level of innovativeness of the organization, including the implementation of new products or improving the qualifications of the staff. As well as optimization of other company functions to minimize the broadly understood risk occurring in the process of implementing new technologies and commercialization of the effects of its implementation, for example new, innovative, products. However, to make this possible, the company should first conduct a technology audit. By conducting a technology audit, the company should be able to get answers to the following questions (Blazlak R., Owczarek K, 2013, p.49):

- how to increase the company's competitiveness in the market,
- how to improve the offered products or services,
- how to improve your technological line,
- what new organizational solutions to introduce to improve work,
- how to raise funds for development?

However, his goal is (www.parp.gov.pl 05/01/2010):

- assessment of the technological potential and technological needs of the enterprise,
- getting acquainted with expectations as to obtaining or transferring new technologies,
- defining the possibility of cooperation with business-related units or other companies,
- indication of the possibilities and sources of obtaining financing for related activities,
- with the development and implementation of new solutions,
- determination of possible and most favourable development directions for the company.

The next step should be an analysis of all possibilities for cooperation with others institution like universities or independent research and development units in the field of conducting new research which should lead to new technology rising and transfer to the company. According to the new European Union innovation policy such a technology development and implementation process should be interpreted as (own work):

- direct application of scientific knowledge, occurring in the form of a patent, license or know-how, in order to introduce process, product or organizational innovations into the industry,
- direct application of scientific knowledge, occurring in the form of a patent, license or know-how and production techniques and technologies to introduce process and product innovations, while scientific knowledge does not have to have the same origin as machines and devices, but it should have a supporting function in relation to the transfer of technology and production technology.

Moreover, according to R.G.Cooper the term "technology development" refers to the specific set of activities in which are consist of such components as; new knowledge, new technologies and technical capabilities of the company in the area of technology development and absorption. Moreover, the collections of these factors also include technology platforms used in the technology transfer process (R.G.Cooper, S.J. Edgett, 2007, p. 181a). When undertaking such a technology development and transfer process, the enterprise should assume the implementation of appropriate measures and predict the amount of financial outlays that it will be willing to incur to implement them (R.G.Cooper, S.J. Edgett, 2007, p. 181b). This is especially important if the new technology turns out to be a breakthrough. It relates to the following risk areas. First, existing technology can still be modernized. Secondly, products manufactured using it would have been and should be expected to continue to be accepted by buyers. The third new technology requires enterprises to develop new tools and indicators to measure its effectiveness. What is important is that in some cases, using traditional measurement methods, it may turn out that the new technology is just as effective as older technologies. This would mean that the achievements and effects based on the new technology will be below the level of acceptability. Therefore, it is important that in the case of the development of new technologies, both the enterprise and the scientific and research and development unit focus their attention on (C.Lütolf-Carroll, 2009, pp. 4-14):

- market analysis and trends,
- opportunities to establish cooperation with other entities,
- protection of intellectual property,
- analysis of the value of the created technology,
- the impact of new technology on the current and future business model of the company.

The third step in the company's technology management process should be verification the resources available to improve the internal innovation management system, and, on the other hand, to develop your own innovation ecosystem.

Innovation ecosystem is about the correct relationship between the company and the environment in the process of developing and acquiring new technologies. Such an approach to the technology management process, according to Castillo F., Gilless JK, Heiman A., Zilberman D. should have a huge influence on understanding that; the rate of introduction of new technologies allows better planning of the supply of inputs, the processes of technological adoption are not only affecting economic and the speed of adoption and diffusion is affecting the development process but its speed is subject to company's strategy choice (Castillo F., Gilless JK, Heiman A., Zilberman D., 2016, p. 3). The innovation management system consists of two groups of factors (Kollerup F, <http://finnkollerup.com> , access from 03.2018 ). The first group include organizational factors related to the creation of an environment conducive to the development of innovation in the enterprise, the accepted form of innovation management as well as the leadership in the development of innovation. The second group of factors are processes related to the development of innovation, i.e. the process of generating ideas for innovation, the process of innovation together with the evaluation and analysis of individual sub processes as well as an indication of possibilities for its improvement. Implementing into companies' strategy a principles of innovation management system gives companies a definite range of benefits including (National Standards Authority of Ireland , 2015, A):

- increase in profits from innovation,
- change the approach to problem solving and the new / different set of values,
- help identify and mitigate risk areas,
- combining creativity with the intelligence of the organization,
- increasing value from cooperation with business partners in innovation development,
- increases employee engagement, fosters collaboration and teamwork.

Therefore it can be stated that the innovation management system consists of all the activities that are necessary in the process of innovation including (National Standards Authority of Ireland, 2015, B):

- organizational conditions,
- leadership in strategy and innovation,
- planning activities to increase the market success of innovation,
- development of drivers and drivers for innovation,
- innovation management process,
- tools for assessing the efficiency of the innovation management system,
- actions to improve the innovation management system,
- innovation management techniques.

Accordance to all above concept the technology management specially in the fields of management of radical innovatios is based on 12 principles (Narayanan, Colarelli,2010, p. 141 – 142):

- a border definition of innovation with a larger scope is required to be competitive in globally interconnected economy and to effectively guide organisations that include industrial corporations, governments, foundations, and universities,
- innovation management that create new sustainable value depends on lifecycle management, value is created then a new competitive capability is externally delivered to customers or users,
- competitive capabilities are built from layered "capability stacks" that include; people with knowledge, tools, technology and processes, business models with partners, industry / market/ structure,

- capability and architecture are the core building blocks of economic value and competitiveness,
- markets have a new architecture with dual distributions channels - one for sales transaction for delivering product or services, second for knowledge,
- new business process is required which drives innovation as a business process based of stakeholder's needs analysis. The process guides the creation of scenarios for solution to be tested and developed in "innovation and application labs" with technology partners like universities,
- strategic planning needs to manage several related dimensions of technology as part of capability planning including product/service development, tools/processes lifecycles, innovation roadmaps, technology portfolio, internal R&D and external acquisition (open innovation) and the discovery of unmet needs for radical innovation in existing and emerging markets,
- new value proposition needs to be defined to target solution for problems as opportunities with the value of the solution defined for multiple stakeholders,
- new types of "T-shaped" innovation leaders are needed,
- new types of R&D labs as "innovation labs" and "application labs" need to be created to further accelerate the rate of innovation and supplement incubators and accelerators,
- new organization of innovation process is needed with a chief innovation officer who is a process manager and a chief technology officer at operational level,
- innovation operates in an organizational ecology with groups of partners who compete with different capabilities and architectures.

This shows that the technology management model in an enterprise should not only refer to the enterprise itself, but to go beyond it. It should consider all possibilities of possessing technology or access to the technology in the entire micro environment - the external innovation ecosystem. Therefore, the aim of the paper is to try to create a technology management model in small companies in Poland based on the results of proven own research.

## **2. METHODOLOGY OF THE RESEARCH**

The study used the CAWI / CATI method based on the electronic version of the questionnaire, which consisted of 32 questions divided into 5 thematic modules and was built based on closed questions and the possibility of multiple and in some cases multiple choice of responses. The structure of the research tool is presented in Table 1.

*Table following on the next page*

*Table 1: Structure of the research tool (source) [Based on own study]*

<b>Thematic module</b>	<b>Number of questions</b>	<b>The objective of the thematic module</b>
<b>Module A:</b> Basic data about the enterprise	<b>6</b>	The purpose of this module was to define: <ul style="list-style-type: none"> <li>• the scale of the company's largeness,</li> <li>• the legal form of the company,</li> <li>• cooperation within the cluster including the key cluster</li> <li>• the industry in which the company operates</li> <li>• value of generated revenues</li> <li>• the geographical area of the company's activity.</li> </ul>
<b>Module B:</b> Analysis of technology management in an enterprise	<b>11</b>	The purpose of this module was to define: <ul style="list-style-type: none"> <li>• the age of technologies used by the enterprise,</li> <li>• portfolio of owned intellectual and legal property,</li> <li>• does the enterprise have its own R &amp; D department and the scope of research conducted in it,</li> <li>• cooperation with other entities in the field of research,</li> <li>• reasons for not conducting research in the framework of your own R &amp; D department,</li> <li>• the current method of obtaining technology,</li> <li>• sources of financing for the purchase of technology and the value of recent purchases in this area</li> </ul>
<b>Module C:</b> Analysis of barriers and benefits resulting from the purchase of technologies to date	<b>2</b>	The purpose of this module was to define: <ul style="list-style-type: none"> <li>• barriers related to the purchase of new technologies</li> <li>• benefits resulting from the acquisition of new technologies</li> </ul>
<b>Module D:</b> Analysis of technology management strategies in the company	<b>5</b>	The purpose of this module was to define: <ul style="list-style-type: none"> <li>• scope of monitoring the development of technologies by enterprises,</li> <li>• scope of technology implementation and development of new products,</li> <li>• aspects of knowledge management in the enterprise,</li> <li>• policy in the field of intellectual property protection in the enterprise,</li> </ul>
<b>Module E:</b> Analysis of the company's innovation	<b>8</b>	The purpose of this module was to define: <ul style="list-style-type: none"> <li>• places of innovation in planning business activities,</li> <li>• sources of innovation used by the enterprise,</li> <li>• average period of creation of innovative products in the enterprise,</li> <li>• scope of cooperation between the company and other organizations in the area of new product development,</li> <li>• accepting failure in the development of a new product,</li> <li>• the area of further investments in innovations, including new technologies.</li> </ul>

*Source: Own study*

The sampling frame included 400 enterprises operating in Poland, which raised funds for development through innovation from the European Union budget. As a result, 400 enterprises took part in the survey, including 93 micro, 157 small, 127 medium and 23 large business entities.

### **3. RESULTS OF THE RESEARCH**

As results from the research conducted in the group of 157 small enterprises, only 17 small companies are members of the cluster, 14 belong to the Key Cluster in accordance with the EU nomenclature and 29 of them belong to the area of national smart specializations.



The latest technological solutions in key technological processes are used by only 37 companies, these are technologies not older than one year. 53 companies use technologies that are on the market for 2 to 3 years and 45 of them use technologies from 5 to 10 years old. The rest of the surveyed companies used technologies older than 10 years. It is also interesting that only 50 companies have rights to utility pattern, 37 have product licensing rights, and 45 hold patents in their technological resources. It is worth noting the fact that 72 enterprises have their own research and development facilities in which applied, and implementation research are usually carried out. It is also interesting that out of companies with their own R & D facilities, only 31 of them outsource research work to other entities. Unfortunately, only 47 of the surveyed companies actively cooperate on the development of a new product with R & D units, while another 27 declare such cooperation in general. 88 of the surveyed companies acquire new technologies only through the purchase of machinery and equipment, another 31 acquired new technologies through the purchase of machines along with additional intellectual property rights. Interestingly, only 10 of the surveyed companies implemented new technologies resulting from cooperation with another company in the cluster. However, 12 of the companies surveyed admitted to the development of new technologies based on renting research facilities from another institution. This situation is extremely interesting, because in the process of obtaining financing for the development of the company through innovation from the European Union budget, the company by renting the laboratory doubled its chance to obtain subsidies in Poland. It is interesting that as part of recent investments related to acquiring new technologies, only 12 companies acquired know-how, 13 patents and licenses, while 113 of them only machines and equipment. For 65 companies surveyed, the reason for purchasing new technologies was a direct reduction of production costs, for 116 the possibility of introducing products to foreign markets. 83 of the surveyed companies also indicated an increase in productivity as a factor conditioning the last purchase of technology. In the process of technology management, a very important step is to analyse industry leaders in terms of the technologies they use. Only 58 of the surveyed companies admitted to such activity. Interesting is also the fact that 50 enterprises make use of such sources of knowledge about them as universities or other R & D units when making decisions about the development of new technology. From the point of view of the size of the analysed companies, it is not surprising that in 125 cases they financed the purchase of new technologies, mainly because of own funds. In 92 cases, they used Regional Operational Programs and 22 cases from National Operational Programs. What is very interesting 4 companies have used support funds from Venture Capital. From the point of view of the article, it is important that in 33 cases companies declare the development of new technologies using their own research and development facilities. In the case of 41 companies, this will be the result of cooperation with national research and development units, and in 72 cases the acquisition of new technology will take place through cooperation with domestic machinery and equipment manufacturers and 34 cases will take place through cooperation with foreign manufacturers of such devices.

#### **4. CONCLUSION**

Summing up the results of the conducted research, it should be stated that small enterprises in Poland are just at the beginning of the road, the end of which is the creation of own systems of technology management. It is encouraging that the construction of such a system or technology management model in a wider scope concerns the cooperation of small companies with research units in Poland. Until recently, the model of such cooperation did not actually exist. It was a domain reserved for large and medium-sized enterprises. What is important, small companies have started activities aimed at increasing the protection of intellectual property of developed and acquired technologies. From the point of view of the analysis of the technology management model, it is important that for more than half of the surveyed enterprises further

activity in the field of own technology development is important and that these plans will be implemented again based on national R & D facilities and domestic producers of machinery and equipment. As research has shown in the model of technology management characteristic for Polish small enterprises, two factors play a very important role in the investment financing process. Firstly, equity and secondly EU funds. Summing up from the research experience of the author of the article, it appears that small enterprises in Poland, creating their technology management model so far based only on their own resources and purchasing only machinery and equipment to reduce production costs, start to see the benefits of cooperation with national R & D units and other organizations, including concentrated around clusters. Where the important role in the process of technology management, and thus its creation and absorption into the business processes of the company, is played by cooperation and synergy of resources of all entities involved in the creation of new technologies.

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## **LIFE CYCLE ASSESSMENT OF PIG PRODUCTION - A CASE STUDY IN MEXICAN FARM**

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### **ABSTRACT**

*The porcine mexican sector has an important participation worldwide, dynamics of growth has positioned it inside the principal producing countries, in such a way that, not only competes in satisfying the needs of the market, also in the creation of social value. The answer to environmental problems is for companies an indicator of competitiveness. The aim of this study was to evaluate the environmental burdens associated with pig production in a full-cycle farm, using life cycle assessment methodology. All activities carried out in the pig farm were evaluated (breeding, lactating, weaning, rearing-start, growth, development and finishing pig). The inventory integrates data on livestock feed, water and electricity consumption, as well as manure emission factors. The inventories were processed in the OpenLCA software version 1.7. The characterization factors of the ReCiPe Midpoint method were used. The results present impacts in the categories Agricultural land occupation, Climate change, Freshwater*

*eutrophication, Marine eutrophication, Particulate matter formation, Photochemical oxidant formation, Terrestrial acidification and Water depletion.*

**Keywords:** *environmental burdens, pig, sustainability*

## **1. INTRODUCTION**

The market dynamics of pork production has presented a trend of productive growth and consumption during the last decade, Mexico is positioned in the tenth place among the main producers worldwide (USDA, 2018). Associated with productive growth, pig farming is considered as direct and indirect cause of environmental impacts, generated in the different stages that make up the productive system, from cultivation of fodder grains, production of food for livestock, animal production, to slaughter. (González et al., 2015). One of the main challenges for this sector is to achieve the reduction of the emissions generated to the environment and at the same time to be able to satisfy the market demand (MacLeod et al., 2013). The competitiveness of swine companies depends on their efficiency in the economic, environmental and social fields. Buxel et al. (2015) explains the need for the use of tools that provide elements for understanding the environmental aspects involved in production and that allow the identification of critical points that require strategies to improve processes and products. Life Cycle Analysis (LCA), is considered a tool that allows identifying and prioritizing areas of intervention to reduce emissions generated in a productive activity (McAuliffe et al., 2016). The aim of this study is to identify and evaluate the environmental burdens associated with the production of 110 kg of live weight pig, from a Life Cycle Analysis approach.

## **2. METHODOLOGY**

For the environmental evaluation of the present study, it was used in the Life Cycle Analysis approach, in accordance with the phases established by ISO 14040 and 14044 (ISO, 2006a, 2006b).

### **2.1. Goal and scope definition**

The goal of this study is to identify and evaluate the environmental burdens associated with pig production in a full-cycle farm located in Temascaltepec, State of Mexico (Central Mexico). Was performed through a gate-to-farm gate perspective, only stages of pork production are considered. The functional unit was defined as 110 kg live weight of pig at farm gate, which is the weight that the pig must reach before being sent to slaughterhouse.

#### *2.1.1. Description of the system*

The LCA in this study is limited to the productive cycle of 110kg of live weight pig. The flow diagram (figure 1) shows the processes carried out in the full-cycle pig farm (production of piglets that are raised and fattened until obtaining 110 kg of weight required for slaughter).

*Figure following on the next page*

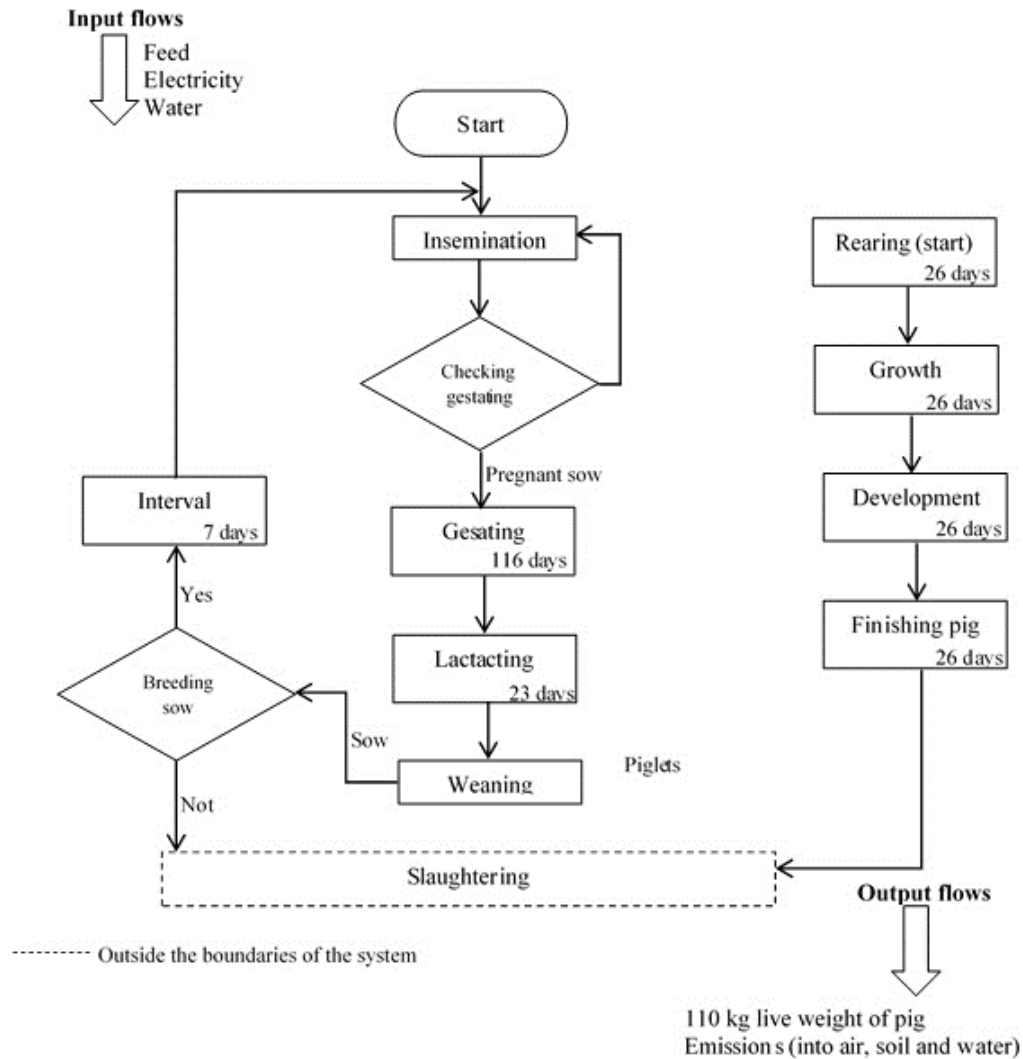


Figure 1: System boundaries of the pig production. Shaded box corresponds to processes excluded from the assessment

The pigs are housed in a total confinement system, are separated according to their productive stage. In the breeding phase the sows are inseminated, once the fertilization is certified, they are taken to the gestation area where remain for 116 days, one week before delivery are transferred to the maternity ward where will remain for 23 days, which is the period of lactation; for each litter an average of 12.5 piglets are born, there is a mortality of 16%, that is, at the end of the phase 10.5 piglets are weaned, the piglets must have an average weight of 7.37kg at weaning. The sows return to the service area and wait 7 days before being inseminated to start a new cycle. The weaned piglets are moved to the breeding sheds where they are fed with pre-initiators for 26 days to reach a weight of 19.28 kg and be taken to the start area whose period is 26 days until achieving a weight of 35.45 kg. Finally, are transferred to the fattening area for a period of 78 days, 26 days are fed a diet of growth to have a pig of 55.78 kg, 26 days with a diet of development to achieve a weight of 80.27 kg and 26 days with a finishing diet until reaching 110 kg. The water supply for the pigs is carried out by means of pacifier drinking troughs, installed in production facilities. In the service, gestation and lactation sections, daily cleaning is carried out with drag chain and in the weaning and fattening sections cleaning is done weekly with system based on high pressure water. The consumption of electricity is required in all areas of the production system, in the lactation and weaning area is used mechanical ventilation and infrared lamps as a heating system.

## **2.2. Inventory analysis**

The data for the inventory analysis of the porcine system under study were obtained from primary information through a survey applied to the owner and visits to the production facilities. The farm has an extension of 0.51 ha, divided into: breeding area (insemination and gestation), lactating area, rearing area (weaning and start) and fattening area (growth, development and finishing). The inputs for livestock feeding are acquired in a food factory located 40 km from the farm. The water consumption calculations were made according to the physiological state of the pig (Boulanger, 2011). The electricity consumption was provided in the survey. The inventory data corresponding to the functional unit are described in table 1.

*Figure following on the next page*

*Table 1: Inventory data by functional unit (Production 110 kg live weight of pig)*

	Breeding	Lactating	Weaning	Rearing (Start)	Growth	Development	Finishing pig	Unit
<b>Inputs</b>								
Breeding feed	27.65	-	-	-	-	-	-	kg
Lactating feed	-	9.86	-	-	-	-	-	kg
Pre-initiator	-	-	12.29	-	-	-	-	kg
Starter feed	-	-	-	32.5	-	-	-	kg
Growth feed	-	-	-	-	49.92	-	-	kg
Development feed	-	-	-	-	-	65	-	kg
Fattening feed	-	-	-	-	-	-	78	kg
Water	221.53	90.27	86.78	116.68	146.58	183.95	290.10	L
Transport of feed	27.65*40	9.86*40	12.29*40	32.50*40	49.92*40	65.00*40	78.0*40	Kg* km
Electricity	2.71	0.89	1.16	1.16	1.16	1.16	1.16	kWh
<b>Outputs</b>								
Pig live weight	1.50	7.37	19.28	35.45	55.78	80.27	110	Kg
Manure								
Mass	16.59	6.75	7.37	19.50	29.95	39.00	46.80	Kg
Nitrogen	0.25	0.18	0.11	0.29	0.45	0.59	0.70	Kg
Phosphorus	0.12	0.01	0.05	0.14	0.21	0.27	0.33	Kg
Potassium	0.28	0.03	0.13	0.33	0.51	0.66	0.80	Kg
Air emissions								
CH <sub>4</sub>								
Enteric fermentation	16.59	6.75	7.37	19.50	29.95	39.00	46.80	Kg
Manure management	11.52	4.69	5.12	13.53	20.79	27.07	32.48	Kg
N <sub>2</sub> O (nitrus oxide)	0.08	0.03	0.04	0.10	0.15	0.20	0.23	Kg
NH <sub>3</sub> (ammonia)	0.17	0.07	0.07	0.20	0.30	0.39	0.47	Kg
NO <sub>x</sub> (nitrogen oxides)	0.17	0.07	0.07	0.20	0.30	0.39	0.47	Kg
Water emissions								
NO <sub>3</sub> <sup>-</sup> (nitrate leaching)	0.12	0.05	0.06	0.15	0.22	0.29	0.35	Kg
PO <sub>4</sub> <sup>-</sup> (phosphate leaching)	0.17	0.07	0.07	0.20	0.30	0.39	0.47	Kg

The emissions of this system: methane (CH<sub>4</sub>), nitrus oxide (N<sub>2</sub>O), ammonia (NH<sub>3</sub>) y nitrogen oxides (NO<sub>x</sub>), come mainly from enteric fermentation and manure management, were calculated considering the emission factors with the methodology of the Intergovernmental Panel on Climate Change (IPCC), calculated for the livestock sector in Mexico (FAO-SAGARPA, 2012).

### 2.3. Impact assessment

The modeling of the inventory data was performed in OpenLCA Software Version 1.7 (OpenLCA, 2018), to obtain the relative contribution of the inventory data to the different impact categories, the characterization procedure established by ISO 14040 was used (Rosembaum et al., 2018), with the method ReCiPe Midpoint E (Goedkoop et al., 2009) which deals with 18 categories described in table 2.

Table 2: Impact categories evaluated by the method Recipe Midpoint E (Acero et al., 2017).

Category	Description	Unit
Agricultural land occupation (ALO)	Loss of land as a resource. Amount of land not available for another activity.	m <sup>2</sup> *a
Climate Change (CC)	Emissions of greenhouse gases generated by anthropogenic activities.	kg CO <sub>2</sub> eq
Fossil depletion (FD)	Extraction of reserves of natural gas, oil and coal at a rate greater than nature replaces it.	kg oil eq
Freshwater ecotoxicity (FEC)	Impact of heavy metals on freshwater ecosystems. Your reference unit is kg 1,4-dichlorobenzene equivalent.	kg 1,4-DB eq
Freshwater eutrophication (FEU)	It refers to the excessive growth of aquatic plants or algae blooms, due to the high levels of nutrients in freshwater ecosystems such as lakes, reservoirs and rivers.	kg P eq
Human toxicity (HT)	Impacts on health due to heavy metal emissions. Its reference unit is kg 1,4-dichlorobenzene equivalent.	kg 1,4-DB eq
Ionising radiation (IR)	Related to the damage to human health and ecosystems that are linked to radionuclide emissions throughout a product or life cycle.	kg U235 eq
Marine ecotoxicity (MEC)	Impacts of heavy metals on the ecosystem.	kg 1,4-DB eq
Marine eutrophication (MEU)	It refers to the excessive growth of aquatic plants or algal blooms, which causes severe reductions in water quality and animal populations.	kg N eq
Metal depletion (MD)	Depletion of abiotic resources.	kg Fe eq
Natural land transformation (NLT)	Impact on land due to agriculture, anthropogenic settlement and resource extractions.	m <sup>2</sup>
Ozone depletion (OD)	Decrease in the stratospheric ozone layer due to anthropogenic emissions of substances that deplete the ozone layer.	kg CFC-11 eq
Particulate matter formation (PMF)	Extremely small suspended particles originated by anthropogenic processes such as combustion, extraction of resources, etc..	kg PM10 eq
Photochemical oxidant formation (POF)	Type of smog created from the effect of sunlight, heat, volatile organic compounds other than methane (NMVOC).	kg NMVOC
Terrestrial acidification (TA)	Reduction of pH due to the acidifying effects of anthropogenic emissions. Increase soil acidity.	kg SO <sub>2</sub> eq
Terrestrial ecotoxicity (TE)	Toxic effects of chemical products in an ecosystem.	kg 1,4-DB eq
Urban land occupation (ULO)	Activities carried out in a specific place and its level of spatial accumulation.	m <sup>2</sup> *a
Water depletion (WD)	Decrease in water availability.	m <sup>3</sup>



### 3. RESULTS (INTERPRETATION OF LIFE CYCLE IMPACT)

The evaluation allowed identifying the main impacts in the categories ALO, CC, FEU, MEU, PMT, POF, TA y WD. Table 3 shows the results of characterization in each phase of the productive cycle of 110 kg of live weight pig. The phases of growth, development and completion present the greatest environmental burdens in the impact categories.

Table 3: Results of the impact evaluation by functional unit (Production 110 kg live weight of pig).

Impact category	Breeding	Lactating	Weaning	Start	Growth	Development	Finishing pig	Total	Avg	sd
ALO (m <sup>2</sup> *a)	12.23	8.75	0.45	0.45	0.83	0.83	0.83	24.37	3.48	4.53
CC (kg CO <sub>2</sub> eq)	180.68	73.54	80.31	212.34	326.16	424.69	509.62	1807.34	258.19	155.57
FEU (kg P eq)	0.59	0.24	0.26	0.69	1.06	1.38	1.65	5.86	0.84	0.50
MEU (kg N eq)	0.15	0.06	0.06	0.17	0.26	0.34	0.41	1.46	0.21	0.13
PMT (kg PM10 eq)	0.09	0.04	0.04	0.11	0.16	0.21	0.25	0.90	0.13	0.08
POF (kg NMVOC)	0.45	0.18	0.20	0.53	0.81	1.06	1.27	4.50	0.64	0.39
TA (kg SO <sub>2</sub> eq)	0.60	0.24	0.27	0.70	1.08	1.40	1.68	5.97	0.85	0.51
WD (m <sup>3</sup> )	0.22	0.09	0.09	0.12	0.15	0.18	0.29	1.14	0.16	0.07

*Avg=average*

*sd= standard deviation.*

The occupation of soil of the ALO category, in this case is associated with the facilities of the farm, the production of 110 kg of live weight pig requires a space of 24.37 m<sup>2</sup> per year. The ReCiPe method considers the loss of biodiversity as an effect of the occupation of land use (Goedkoop, et al., 2009). For the farm, the facilities represent an asset of main importance in the development of its activities, in such a way that, the optimal use of this resource will reflect its productive, environmental and economic efficiency. The emissions generated in the farm have a significant impact in the CC category, generate 1807.32 kg de CO<sub>2</sub> eq greater extent in the growth phase (18%), development phase (23%) and Finishing pig phase (28%). The gases that contribute most to this category are CH<sub>4</sub> and N<sub>2</sub>O related to enteric fermentation and manure management. During the fattening period (growth, development and finishing), the consumption of feed and the amount of manure generated is greater, which may explain the greater impacts in these phases. Impacts were identified in the categories related to eutrophication, associated with the amount of manure generated during the confinement of pigs with emissions of 5.86 kg P eq in the FEU category, and 1.46 kg N eq in the MEU category. Increases in phosphorus and nitrogen concentrations have effect on water resources, affecting the quality of water and species, so that the results indicate the importance of evaluating the storage, transport and application of manure. Manure management has an impact on PMT category, the functional unit evaluated generates 0.90 kg PM10 eq by NH<sub>3</sub> and N<sub>2</sub>H emissions to the atmosphere. Emissions to the atmosphere are also generated in the POF category by 4.50 kg NMVOC coming from diesel combustion. The TA category presents environmental loads of 5.97 kg SO<sub>2</sub> eq by the generation of NH<sub>3</sub> and N<sub>2</sub>O gases coming from the storage and management of manure. Finally, the WD category expresses the amount of water used in the system. The results of this evaluation indicate that the production of 110 kg of live weight pig requires 1.14 m<sup>3</sup> of water for feeding livestock and cleaning the productive facilities.

#### 4. CONCLUSION

The results of the environmental evaluation in the productive cycle of 110 kg of live weight pork allowed to identify that the environmental burdens are associated with enteric fermentation, storage and management of manure during the confinement of the pig in the farm. The greatest environmental burdens are produced in the phases of growth, development and finishing, are related to the amount of food consumed and manure generated. The study allows to identify that one of the main processes to be evaluated in the farm is the storage, transport and application of manure, although the environmental burdens can't be avoided, if can contribute to the reduction of these. In this case study, the results are considered an important element for the creation of value in the swine company, by integrating environmental sustainability using the life cycle assessment.

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## INDUSTRY 4.0.: THE EXPLOITATION OF BIG DATA AND FORTHCOMING PERSPECTIVES

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### ABSTRACT

*The first industrial revolution consisted in the mechanization that exploited the power of water and steam; the second came in the nineteenth century with mass production (Fordism); the third with the development of computers and their automation. Currently, we live in the era of so-called Industry 4.0, as has been named after the German scientists Kagermann, Lukas and Whalster. The development of Industry 4.0 is ascribable to the exploitation of information technology - through interconnection, collaboration and data analysis. These are all factors that depend on a fundamental element: information, which derives from the Latin noun "informatio (-nis)". The ability to analyse and identify (and interpret) information interconnections, through the progressive introduction of new technologies, will change (and in part is already changing) the production's methods: with the increase in integration between the various phases of production and client assistance, there will also be greater direct collaboration between the relevant actors. Big Data, in particular, allow us to investigate the smallest details and at the same time to identify large-scale correlations, so far unknown, with an infinite potential: most of the industrial companies, aware of the potential inherent in these processes, have already started to digitalise their production, their logistic and commercial procedures. Spontaneous questions then arise: where information is actually found, who owns it (which is not indifferent from the point of view of privacy matters), what potential economic exploitation are available. Two themes will be fundamental. The first concerns the so-called "end of work": increasingly sophisticated machines and robots that work, human workers who lose their jobs and income. The second concerns new legislative rules necessary to regulate robots' work and consequent algorithms that guide them: what happens if an intelligent robot causes damages? Whose responsibility is it? What can we say about security and privacy? The subject is so warm and sensitive that recently the European Parliament has proposed rules on civil law on robotics to the European Commission and further analysis is needed.*

**Keywords:** *Big Data, industry 4.0, Internet of things, responsibility*

### 1. INTRODUCTION: HOW MANY INDUSTRIAL REVOLUTIONS?

The first industrial revolution consisted in the mechanization that exploited the power of water and steam – however, at that time people were not used to calling it "Industry 1.0"; the second industrial revolution came in the nineteenth century with mass production (Fordism); the third with the development of computers and their automation. Currently, after the era "Industry 3.0." has expired, we live in the era of so-called "Industry 4.0", as has been named after the German scientists Kagermann, Lukas and Whalster, waiting for "Industry 5.0" to be born. Often used to stereotypes and acronyms, which give us pre-formulated ideas of low-intensity content, we should firstly focus on the steps that led to "Industry 4.0" to understand its true meaning and its potential.

If we google the term “Industry 4.0” and look for its connotation and implications, we discover that – according to the Boston Consulting Group analysis – it is based on nine so-called enabling technologies, which technicians are very familiar with, and namely: advanced manufacturing solution, additive manufacturing, augmented reality, simulation, horizontal and vertical integration, industrial internet, cloud, cyber-security and, last but not least, big data analytics. A skilled and careful reader would not miss to notice that all these terms refer to methods and physical systems employed in industrial processes, some of them already existing since long time, but all evolving and improving in their performances thanks to interconnection, collaboration, data analysis and the exploitation of information technology. Ultimately, these factors depend on a single fundamental element: information.

## **2. FROM DATA TO INFORMATION: BIG DATA AS TOOLS FOR INDUSTRIAL PROCESSES**

Often, in the common language, we indifferently speak of information and data, considering these terms as synonyms. It is necessary, however, to correctly distinguish between data and information. On one side, a datum (from the Latin datum which literally means “fact”) consists of an elementary description, often codified, of an entity, of a phenomenon as well as of a physical transaction: it is, therefore, a known element, usually expressed by symbols that must be processed in order to reveal their meaning. The data therefore, although having their own value, can assume different meanings depending on the context in which they are used. On the other side, the term information derives from the Latin noun *informatio* (-nis) – from the verb to inform, in the meaning of “to give shape to the mind” or “to teach”- and indicates that information is an element that derives from the elaboration of a series of data. A very simple example could spread light on this relevant difference. the number “2000” can raise memories if we talk about the corresponding year, but can also represent a precise dimension if we talk about kilometres, etc.: only giving a precise context to the number “2000” it is possible to understand its meaning. Therefore, we can say that information processes the data in its context, giving it meaning. And in fact, IT systems allow modelling, structuring and storage of data, which must be framed in a precise context so as to be able to take on a meaning that is not relative. This way the stored data can then produce useful information, able to offer advantages in the improvement of industrial processes (cfr. infra). Information, as a result, by structuring and processing data, allows us to know a phenomenon, to represent it, but also to reproduce it in industrial physical processes: computer data processing can lead to knowledge. With the words of Longo, computers are indeed “very special machines, which are not intended to transform energy, like traditional machines, but to process information ...”: while land was the raw material of the agriculture era and iron that of the first industrial age, data is the raw material of the “information” age. Information then becomes the determining factor for what we now call Industry 4.0, but also the industry of the future –5.0, 6.0...who knows how they will be called -, which will undoubtedly be focused on technologies enabled by information: robotics, advanced biosciences, cybersecurity, Big Data. It can be said that true innovation derives from the ability to process Big Data, which represent huge amounts of information (the so-called Big Data analytics) in real time to exploit the results. As a microscope, Big Data indeed allows us to investigate the smallest details and at the same time to identify large-scale correlations, hitherto unknown, with an infinite potential. Digitalisation has greatly increased the possibilities for processing information: it is sufficient to consider that every minute of the day 204 million e-mails and 2.4 million Facebook messages are sent as well as 72 hours of video on YouTube and 216,000 new photos on Instagram are uploaded; overall, in 2015, 5.7 zettabytes of information were created (one zettabyte corresponds to one trillion Gigabytes, 10<sup>21</sup> bytes). The ability to analyse these data and interpret their interconnections, thanks to the progressive exploitation of new IT technologies, will change the production methods: with the

increase in integration between the various industrial phases from the production to the client assistance, there will also be greater and direct collaboration between the relevant actors (namely, producers and consumers). Indeed, IT systems can interact one with the others by producing large amounts of information that can be used to optimise the overall process: suppliers and customers are thus continuously connected and thanks to information analysis their interactions could be speed up. For example, from the side of the suppliers, real time use of information about the products' use by the clients could make the producers improve the products' characteristics, e.g. identifying how to avoid breakdowns, improving their quality, etc... Thus, generally speaking, information collected and analysed in the overall process (from the production to the utilization) makes it possible to maximize the use and efficiency of the resources, from the purchases to the management of materials, intercepting costumers' needs and satisfaction. Most of the industrial companies, aware of the potential inherent in these processes, have already started to digitalise information regarding their production, logistic and commercial processes, e.g. through the inclusion of sensors in the production of machines and products. For example, brand-new refrigerators belonging to the era of "Industry 4.0" contain special detection devices that identify their content and could signal the need to buy new products – when the consumer is finishing them – as well as collect data about favourite products to identify the users' behaviour to be used by producers for advertising matters.

### **3. CONCLUSIVE REMARKS: RISKS AND ACTIONS**

The forthcoming scenario appears to be characterized by a deep interconnection among people, processes, objects and information, which will reach higher and higher levels. A proper reasoning on the evolution of Industry 4.0 cannot therefore transcend from an observation: information makes everything work better, faster, almost instantly, optimising resources, but at the same time this exploitation could be held responsible for generating probable risks in terms of privacy of the subjects involved. For example: I used the smartphone to search for a hotel in a certain location, in the following days I've been targeted by travel advertising; potentially, the producer can have information about my travels, in order to offer me the most appropriate product, at the right time, at the place where I need it. But this information could be used not only for the improvement of the customer satisfaction. Spontaneous questions then arise: where information is actually found, who owns it (which is not indifferent from the point of view of privacy matters), what potential economic exploitation are available. Two themes will be fundamental. The first concerns the so-called "end of work": increasingly sophisticated machines and robots that work, human workers who lose their jobs and income. Interesting in this sense is the title of an article in the Financial Times: "my boss is an algorithm", referred to Uber. The second concerns new legislative rules necessary to regulate robots' work and consequent algorithms that guide them: what happens if an intelligent robot causes damages? Whose responsibility is it? What can we say about security and privacy? The topic is so warm and sensitive that recently the European Parliament has proposed to introduce specific rules of civil law on robotics to the European Commission. For example, in the resolution of 16.2.2017 the European Parliament has placed a particular emphasis on the fact that developments in the field of robotics and artificial intelligence can and should be designed in such a way as to preserve the dignity, autonomy and self-determination of individuals. In this context, the European Commission, aware of the fact that IT technologies and artificial intelligence in particular will lead to new ethical and legal questions, will present ethical guidelines on the development of these technologies, based on the Charter of Fundamental Rights of the European Union, bearing in mind principles such as data protection and transparency. The underlying reasoning considers that IT technologies should be designed and regulated in order to serve individuals and improve their conditions.

However, current studies and focuses on this topic have high lightened the shortcomings of the existing legal framework: worldwide, laws currently in force don't seem to provide adequate responses to the urgent questions bound to the use and exploitation of IT technologies and a rapid but reasoned response by the European Institution is needed.

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# QUO VADIS, THE POLICY CONCERNING DEFENCE FORCES LECTURERS' CAREER AT SESKOAL/NCSC: A HUMAN CAPITAL APPROACH TO BUILD WORLD - CLASS NAVY

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## ABSTRACT

*Naval Command and Staff College/NCSC (Sekolah Staf dan Komando TNI-AL/SESKOAL) is the only highest military educational institution in Indonesian National Defence Forces/INDF (TNI) issuing a postgraduate certificate for Applied Master Program of Maritime Operation Strategy. The purpose of this study is the policy concerning Defence Forces Lecturers' career at SCNC with a human capital approach to build competitive advantage. This study uses soft systems methodology-based action research. The results of this study indicate the need for the establishment of the Regulation on the Career of Defence Forces Lecturers containing the Instruments of Human Capital Policy of Career Development for Defence Forces Lecturers is based on Law No 14 of 2005 on Teachers and Lecturers Article 45, 46, 47 paragraphs 1, 48, 52, 53, 54, 55 and Article 56. Therefore, INDF can carry out the function of human resource development in INDF, particularly officers appointed as Defence Forces Lecturers as proof of recognition of the professionalism of the officers of INDF appointed as Defence Forces Lecturers in educational institutions in INDF based on the principles of: (1) Fairness; (2) Objectivity; (3) Accountability; (4) Transparency and Education; (5) Autonomy and Quality Assurance, in regulating matters relating to Defence Forces Lecturer professionalism in order to improve the quality of higher education within the INDF.*

**Keywords:** *competitive advantage, human capital, indonesian national defence forces, naval command and staff college, soft systems methodology-based action research*

## 1. INTRODUCTION

The Indonesian National Defence Forces/INDF (Indonesian:Tentara Nasional Indonesia, literally "Indonesian National Military"; abbreviated as TNI) are the military forces of the Republic of Indonesia. It consists of the Indonesian Army (TNI-AD), Navy (TNI-AL), and Air Force (TNI-AU). Since 2013, Indonesian Navy has aimed for world-class objectives in the field of human resources, organization, facilities, and infrastructure, as well as operation and training. Having a world-class navy is the goal, expectation, and pride of every country (Marsetio, 2014, 2018). Therefore, NCSC as the highest military education institution in Navy shall be the Candradimuka crater (or a place to master the ways of learning) for naval officers as a part of INDF. NCSC is the only highest military educational institution in INDF issuing a postgraduate certificate for Applied Master Program of Maritime Operation Strategy. Meanwhile, other Command Colleges, namely Army Command and Staff College/ACSC

(SESKOAD), Air Force Command and Staff College/AFSC (SESKOAU) and The Indonesian National Defence Forces Command and Staff College/DFSC (SESKO TNI) have not been able to issue certificate for Applied Master Program. Perceived from human capital approach, there is an opportunity for making policy of Defence Forces Lecturers' career. At the same time, it poses a challenge to NCSC to serves as Candradimuka crater for prospective leaders of Navy and a world-class military college. It is a challenge as well as obstacle for INDF. The military main career is actually in operational field rather than an Educational Institution. In addition to having the required talents and passion, Military Lecturers, hereinafter referred to as Defence Forces Lecturers, shall also have academic skills (bachelor, master and even doctoral degree) as well as practical experience (a combination of theory and practice in the field). The purpose of this study is the policy concerning Defence Forces Lecturers' career at NCSC with a human capital approach to build competitive advantage.. The human capital approach is a notion that considers humans as a form of capital or capital goods as well as other capital goods and or as company assets (Armstrong, 2006 and 2014). The definition of human capital emphasizes the notion that humans are one of the main capitals in a company with infinite value and amount, manageable in a process, and in turn producing more values for the company. In human resources, humans are considered as a resource. With this understanding, organizations assume that humans can be depleted if overexploited. Human capital, however, does not position humans as capital as if they are similar to machines. Human capital can actually help decision makers to focus on human development in order to improve the quality of organizations (Tippe, 2012). Organizations shall be able to improve the quality of human resources in the face of challenges as well as achieve the vision and mission of the company. Schultz (1961), an early supporter of the theory of Human Capital, emphasizes that even though an individual has clearly acquired useful skills and knowledge, it is still unclear that such skills and knowledge are forms of capital substantially produced by deliberate investment. In the opinion of Becker (1964), the basic principle of human capital is that humans are not merely resources, but also capital producing returns. Any expenditure spent to develop the quality and quantity of such capital is an investment. Human capital is determined by education, training, medical care, and is effectively a means of production. An increase in human capital explains differences in income. Human capital is also essential to influence the level of economic growth. According to Davenport (1999), human capital is the entire efforts the workers have to invest in their work, including ability, behavior, enthusiasm and time. Hatch & Dyer (2004) defines human capital as everything about human (labor), their intellectual, knowledge, and experience. Furthermore, Fitz-Enz (2000) states that the notion of human capital can be explained as a combination of three factors, namely: (1) The traits brought by an individual from birth to work, intelligence, energy, generally positive attitude, reliability, commitment; (2) The ability of an individual to learn, to have talent, imagination, creativity, and what is frequently referred to as street smart; (3) Motivation of an individual to share information and knowledge, team spirit, and goal orientation. Meanwhile, according to Mayo (2000), human capital has five components, namely individual capability, individual motivation, leadership, organizational climate, and work group effectiveness. Each component has a different role in creating human capital, ultimately determining the value of a company. Lengnick-Hall & Lengnick-Hall (2003) state that human capital is: "... the knowhow, skill, and capabilities of individual in organization. Human capital reflect the competencies people bring to their work". Based on such understanding, it appears that human capital is an important factor in an organization since it can contribute greatly to the progress and development of the organization. Lengnick-Hall & Lengnick-Hall (2003) emphasizes three notions of human capital. First, human capital is the knowledge, skills and capabilities of individual that have economic value to an organization (Bohlander, Snell & Sherman, 2001). Second, human capital is the collective value of an organization's know-how.



Human capital refers to the value, usually not reflected in accounting system, which results from the investment an organization must make to recreate the knowledge in its employee (Cortada & Woods, 1999). Third, human capital is all individual capabilities, the knowledge, skill, and experience of the company's employee and managers (Edvinsson & Malone, 1997). Of these three notions, it is obvious that there is a similarity in essence showing that human capital is something inherent in an individual. To observe the key principles in human capital, Edvinsson & Malone (1997) divide them into two approaches. First, humans are assets whose value can be increased through investment, the purpose of which is to maximize value through risk management. When the value increases, organizational capacity and values shall increase and benefit stakeholders. Second, human capital policy in an organization shall be adjusted to support the mission of the organization, namely missions, vision, objectives and strategies defined as designed directives to be implemented and assessed by a standard, regarding how the concept of human capital can help the organization achieve its mission. In INDF, there has been no regulations regarding career paths for the officers appointed or placed as Defence Forces Lecturers at NCSC as well as other military education institutions in INDF/Navy. It has an impact on the career uncertainty of Defence Forces Lecturers at NCSC, hence greatly influencing the psychological condition and performance of the Defence Forces Lecturers. In this context, this study focus on how to develop human capital policy for Defence Forces Lecturers at NCSC.

## **2. THE METHOD OF THE STUDY**

This study uses a soft system methodology-based action research approach SSM-based AR. (Checkland 1981, 1999; Checkland and Scholes, 1990; Checkland and Holwell, 1998; Checkland and Poulter, 2006; Uchiyama, 2009). SSM-based AR is selected as the approach for the policy concerning Defence Forces Lecturers' career at NCSC, i.e. a human capital approach to build competitive advantage. In this regard, the authors perceives the real world as human activity systems utilizing a human capital approach between perceived real world and feeling about real world (Checkland and Scholes 1990; Uchiyama, 2009; Hardjosoekarto, 2012; Fitriati, 2014 and 2015,) to perceive the dynamics of regulation on the career path of officers appointed as Defence Forces Lecturers at NCSC as well as other military educational institutions in INDF/Navy as human activity systems. Based on the selection of problem solving interest (McKay & Marshall 2001) or empirical research practice (Cronholm & Goldkuhl 2003), the authors connects one theme to others to generate conceptual models of the systems (holons); and compares the models to real world. Then, the researcher determines systemically desirable and culturally feasible changes to discover novelty of the research through the transformation of policy concerning Defence Forces Lecturers' career at NCSC, i.e. a human capital approach to build competitive advantage.

## **3. RESULT AND DISCUSSION**

The problem of the study is related to the issuance of policy concerning Defence Forces Lecturers' career at NCSC, a human capital approach to build competitive advantage. The major influence of human capital on the main competencies of an organization is that the benefits of the organization shall develop and be sustainable when the organization is capable to produce goods and services in accordance with customer needs, better than what is offered by its competitors. In order to build this competitive advantage, Armstrong (2006) divides capital into three aspects. First, intellectual capital, defined as the available supply and flow of knowledge to the organization. This capital is an intangible resource related to the employees that, together with tangible resources (money and physical assets), provide business value for the organization. According to Bontis (1998), intangible resources are another factor in addition to money and physical assets contributing to the organization.

Second, social capital, defined as the knowledge from the relationships within and outside the organization. Putnam (1996) defines social capital in the form of networks, norms and trusts allowing an individual to effectively achieve organizational goals. Third, organizational capital, defined as the knowledge already owned by the organization, implemented in a database, manual, etc. The third stage in soft systems methodology based on action research, namely root definition in this study is: "The system owned by INDF in regulating the career path of Defence Forces Lecturers in educational institutions of INDF, having the right to issue certificate for Bachelor and Master program (P: do) through formal law and informal conventions in the formulation of career policy of Defence Forces Lecturer that shall be owned by INDF (Q: by) to ensure the achievement of Human Capital Policy in INDF (R: in order to achieve)."

Table 1: CATWOE on Root Definition/RD "Defence Lecturers' career at NCSC"

Customers	Educational Institutions in Indonesian Army (TNI AD), Indonesian Navy (TNI AL) and Indonesian Army Force (TNI AU)
Actors	Commander of INDF; Army, Navy and Air Force Chiefs of Staff ; Personnel Assistant to Commander of INDF; Personnel Assistants, the Heads/Aide Officers of Education Offices, and the Heads of Personnel Administration Services of Army, Navy, and Air Force
Transformation	From non-existent to existent Regulation of the Commander of INDF on the Career of Defence Lecturers in Education Institutions in INDF
<i>Weltanschauung</i> (World View)	Situation and condition allowing the transformation of the Regulation of the Commander of INDF on the Career of Defence Lecturers in Education Institutions in INDF
Owner (s)	Commander of INDF, Army, Navy and Air Force Chiefs of Staff
Environment	Parties who do not want formal law and informal convention in the preparation of the formulation of the Regulation on the Career of Defence Lecturers

On Root Definition "Defence Forces Lecturers' career at NCSC", there is a transformation from non-existent to existent Human Capital Policy of Defence Forces Lecturers' Career. The transformation shall consider (*weltanschauung/world view*) formal law and informal convention of the formulation of regulation concerning the career of Defence Forces Lecturers, carried out in accordance with the Law No 14 of 2005 on Teachers and Lecturers and the Regulation of the Minister of Empowerment of State Apparatus and Bureaucratic Reform No 17 of 2013. It is carried out by actors such as the Commander of INDF, Army, Navy and Air Force Chiefs of Staff, Personnel Assistant to Commander of INDF, Personnel Assistants, the Heads/Aide Officers of Education Offices, and the Heads of Personnel Administration Service of Army, Navy, and Air Force as the main policy makers. The transformation has an impact on the customers such as Defence Forces Lecturers in Educational Institutions in Army, Navy, and Air Force. However, the owners such as the Commander of INDF as well as Army, Navy and Air Force Chiefs of Staff have power over the system and have the authority to stop or change the process of transformation. It is influenced by the environment where there are pros and cons, and parties who do not want the transformation by reason of maintaining their status quo. Considering that NCSC is the only Command School in INDF with an authority to administer Applied Master Program in Maritime Operation Strategy, INDF Headquarters needs to make special regulations related to the function of human resource development, particularly officers appointed as Defence Forces Lecturers. The activities mentioned in Figure 1 and Figure 2 have dependency on and relationship with one another. Monitor and control are required to be carried out on these activities. The description of conceptual model (CM) by connecting each activity and the changes in the criteria of monitoring and control can be observed in Figure 1. The success or failure of CM Defence Forces Lecturers' career at NCSC" can be measured through three criteria: Efficacy, namely the existence of formal law; Efficiency, namely using minimal resources; Effective, meaning that this model is successful if the Regulation on the Career of

Defence Forces Lecturers is established containing the Instrument of Human Capital Policy for the Career Development of Defence Forces Lecturers (Table 2).

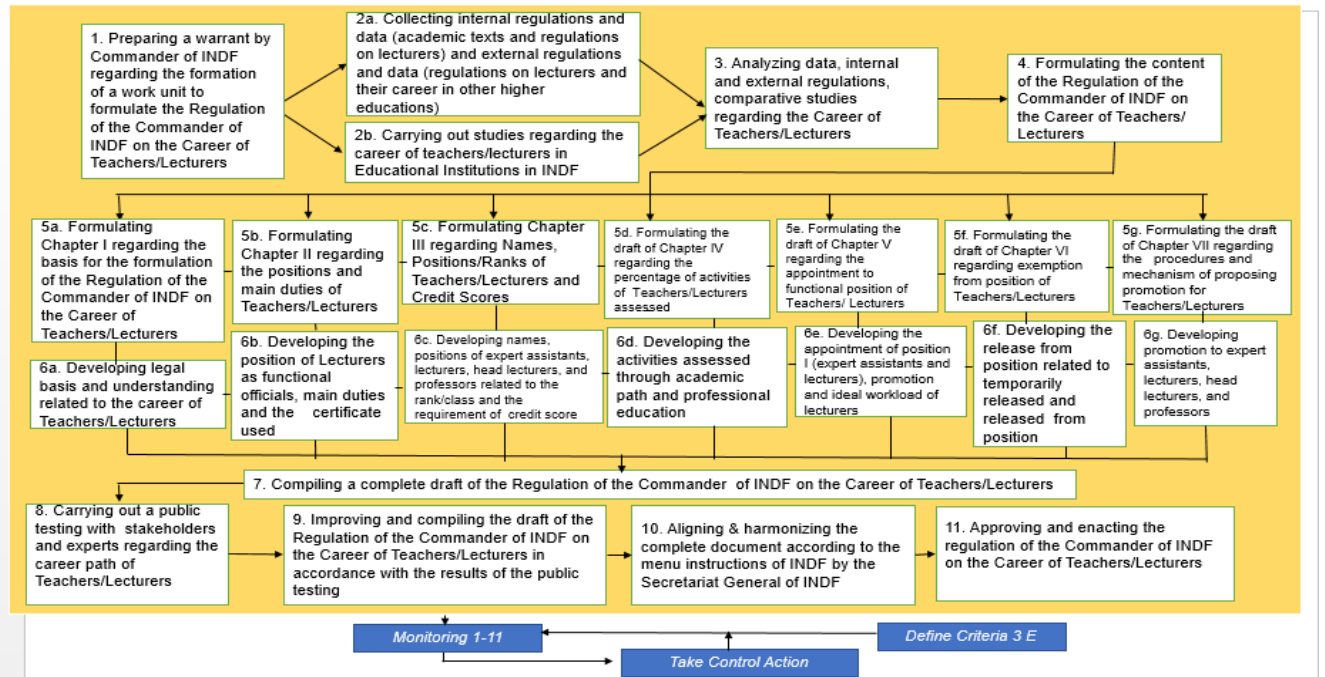


Figure 1: Conceptual model of the regulation of the commander of INDF

Table following on the next page

Figure 2: Comparison of conceptual model of the regulation of the commander of INDF with the real world (adopted from Checkland and Scholes, 1990; Hardjosoekarto, 2012; Fitriati, 2014 and 2015)

No.	Activities in the Model	The existence?	How?	Who?	Good / Bad?	Alternative?
1	Preparing a warrant by Commander of INDF regarding the formation of a work unit to formulate the Regulation of the Commander of INDF on the Career of Defence Lecturers in order to establish the Instrument of Career Development Management for Defence Lecturers by INDF as a Political Will from Leadership Champion, Human Capital	Non-existent	Internal Meeting of TNI	Commander of INDF for the appointment of Personnel Assistant to Commander of INDF	Good	Collaboration with the Personnel Assistants and the Heads/Aide Officers of Education Offices of Army, Navy, and Air Force
2	Collecting data, regulations, literary studies (internal and external) and comparative studies to the Ministry of Research, Technology, and Higher Educations	Non-existent	Collecting data and regulations	Work unit	Good	Collaboration with the representatives of Defence Lecturers from each Educational Institutions in Army, Navy, and Air Force
3	Analyzing: 1) Law No 14 of 2005 on Teachers and Lecturers Article 45, 46, 47 paragraphs 1, 48, 52, 53, 54, 55 and Article 56 along with explanatory rules; 2) The Regulation of the Minister of Empowerment of State Apparatus and Bureaucratic Reform No 17 of 2013 on the Functional Position of Lecturers and Credit Score	Non-existent	Meeting, FGD,	Work unit, the representatives of Defence Lecturers, the Heads/Aide Officers of Education Offices of Army, Navy, and Air Force	Good	Collaboration with the Heads of Education Offices of Army, Navy, and Air Force, A-Accredited Public Universities, Indonesian Defense University/IDU (UNHAN), and the Ministry of Research, Technology, and Higher Educations
4	Formulating the content of the Regulation of the Commander of INDF on the Career of Defence Lecturers through seven chapters. Chapter I concerning general provisions regarding the basis for the formulation of the Regulation of the Commander of INDF on the Career of Defence Lecturers, developing the understanding of Defence Lecturers, position and basic duties as well as the requirements to be Defence Lecturers Chapter II concerning the positions and ranks of Defence Lecturers, developing unparalleled ranks and positions, jumping positions, credit scores and excess of credit scores Chapter III concerning summary of main tasks, authorities and responsibilities, and developing them 1) in office, 2) in thesis and dissertation guidance Chapter IV concerning the first appointment in the functional position of Defence Lecturers, developing the first appointment and adjusting the appointment of Lecturers as State Civil Apparatus Chapter V concerning the requirements for promotion of Defence Lecturers, developing List of Employee Implementation Assessments (DP3), consideration/approval by Senate & the number of cumulative credit scores Chapter VI concerning the ideal workload of Defence Lecturers in collecting credit scores, developing examples of workload of expert assistants, lecturers, head lecturers, and professors Chapter VII concerning temporary release from duties and positions, developing temporary release from duties and positions	Non-existent	Internal Meeting	Work unit	Good	Collaboration with the representatives of Defence Lecturers from each Educational Institution in Army, Navy, and Air Force and the representatives of the Heads/Aide Officers of Education Offices of Army, Navy, and Air Force
5	Compiling a complete draft of the Regulation of the Commander of INDF on the Career of Defence Lecturers	Non-existent	Meeting	Work unit	Good	Collaboration with the representatives of the Heads/Aide Officers of Education Offices of Army, Navy, and Air Force
6	Carrying out a public testing of the draft of the Regulation of the Commander of INDF on the Career of Defence Lecturers with stakeholders, in this regard the representatives of Defence Lecturers as well as the Heads/Aide Officers of Education Offices of Army, Navy, and Air Force, and experts from the Directorate General of Institutional and Student Affairs at the Ministry of Research, Technology, and Higher Educations	Non-existent	Meeting and FGD	Work unit, Defence Lecturers as well as the Heads/Aide Officers of Education Offices of INDF, Army, Navy, and Air Force, the Ministry of Research, Technology, and Higher Educations	Good	Collaboration with the Heads/Aide Officers of Education Offices of Army, Navy, and Air Force
7	Improving and compiling a draft of the Regulation of the Commander of INDF on the Career of Defence Lecturers in accordance with the results of public testing by considering input and suggestions from the FGD	Non-existent	Meeting	Work unit	Good	Consultation with the Heads/Aide Officers of Education Offices of Army, Navy, and Air Force
8	Aligning & harmonizing the draft according to the menu instructions of INDF by the Secretariat General of INDF	Non-existent	Meeting	Work unit and the Secretariat General of INDF	Good	Consultation with the Secretariat General of INDF
9	Approving and enacting the Regulation of the Commander of INDF on the Career of Defence Lecturers	Non-existent	Meeting	Work unit and the Commander of INDF	Good	Consultation with Chief of General Staff of INDF and the Personnel Assistant to Commander of INDF

*Table 2: The criteria of the success or failure of Conceptual Model/CM “Defence Forces Lecturers’ career at NCSC”*

E-Efficacy	The existence of formal law and informal convention in the establishment of the Regulation on the Career of Defence Lecturers containing the Instrument of Human Capital Policy for Career Development for Defence Lecturers as mandated by Law No 14 of 2005 on Teachers and Lecturers and the Regulation of the Minister of Empowerment of State Apparatus and Bureaucratic Reform No 17 of 2013 on the Functional Position of Lecturers.
E-Efficiency	Using minimal resources (finance and time)
E-Effective	The establishment of the Regulation on the Career of Defence Lecturers containing the Instrument of Human Capital Policy for Career Development for Defence Lecturers as mandated by Law No 14 of 2005 on Teachers and Lecturers and the Regulation of the Minister of Empowerment of State Apparatus and Bureaucratic Reform No 17 of 2013 on the Functional Position of Lecturers.

This CM is a series of activities in the process of establishing the Regulation on the Career of Defence Forces Lecturers containing the Instrument of Human Capital Policy for Career Development for Defence Forces Lecturers as mandated by Law No 14 of 2005 on Teachers and Lecturers and the Regulation of the Minister of Empowerment of State Apparatus and Bureaucratic Reform No 17 of 2013 on the Functional Position of Lecturers in educational institutions in INDF. The process is a normative rule. Thus, it shall be carried out as described on CM “Defence Forces Lecturers’ career at NCSC”. The process is started with preparing a warrant by the Commander of INDF regarding the formation of a work unit listing the names of the members prepared by the Personnel Assistant of INDF as a Political Will from Leadership Champion, Collaborative Governance. The work unit shall later collect data and regulations through literature studies and comparative studies to the Ministry of Research, Technology, and Higher Educations. Furthermore, the work unit shall analyze the data and regulations for 1) Law No 14 of 2005 on Teachers and Lecturers Article 45, 46, 47 paragraphs 1, 48, 52, 53, 54, 55 and Article 56 along with explanatory rules; 2) The Regulation of the Minister of Empowerment of State Apparatus and Bureaucratic Reform No 17 of 2013 on the Functional Position of Lecturers and Credit Score. The work unit shall further compile the content of the Regulation on the Career of Defence Forces Lecturers containing Career Development for Defence Forces Lecturers. Furthermore, the draft shall be jointly discussed by the work unit while analyzing data and regulations as well as the input of the Heads/Aide Officers of Education Offices of INDF, Army, Navy, and Air Force in the context of collaborative governance. It is required to expand collaboration in the process of establishing the Regulation on Career Development for Defence Forces Lecturers. Therefore, each stakeholder can feel the intention, purpose, and benefit that shall be gained from the process of transformation. The draft of the Regulation of the Commander of INDF on the Career of Defence Forces Lecturers shall later be harmonized, strengthened, improved, ratified, and established by the Commander of INDF. The work unit is assisted by Defence Forces Lecturers in educational institutions in INDF playing an important role in initiating the efforts to establish the Regulation on the Career of Defence Forces Lecturers containing the Instrument of Human Capital Policy for Career Development for Defence Forces Lecturers. In an effort to establish the Regulation on the Career of Defence Forces Lecturers, the work unit requires aspirations from Defence Forces Lecturers in educational institutions in INDF and the Education Offices of INDF, Army, Navy, and Air Force. The work unit shall carry out consultation with the Ministry of Research, Technology, and Higher Educations, expected to provide input on harmonization, stabilization, and improvement regarding the Career of Defence Forces Lecturer

containing the Instrument of Human Capital Policy for Career Development for Defence Forces Lecturers.

*Table 3: Changes in human capital policy (adopted from Checkland and Scholes, 1990; Hardjosoekarto, 2012; Fitriati, 2014 and 2015)*

RD	Systematically Desirable?	Culturally Feasible?	Possible Action
Formulating the instruments of Human Capital Policy of the Regulation on the Career of Defence Lecturers in educational institutions in INDF in accordance with the mandate of: 1. Law No 14 of 2005 on Teachers and Lecturers Article 45, 46, 47 paragraphs 1, 48, 52, 53, 54, 55 and Article 56 along with explanatory rules; 2. The Regulation of the Minister of Empowerment of State Apparatus and Bureaucratic Reform No 17 of 2013 on the Functional Position of Lecturers and Credit Score	Yes, through the formulation of the instruments of Human Capital Policy of the Career of Defence Lecturers to supplement the procedures for career development for Defence Lecturers in educational institutions in INDF as a guideline for educational institutions in Army, Navy, and Air Force obtaining an authority from the Ministry of Research, Technology, and Higher Educations to administer undergraduate and postgraduate study programs and officers of INDF wishing to have a career as Defence Lecturers	Yes, by representing an accommodation of different interests of the stakeholders regarding the instruments of Human Capital Policy of the Career of Defence Lecturers as mandated by Law No 14 of 2005 on Teachers and Lecturers Article 45, 46, 47 paragraphs 1, 48, 52, 53, 54, 55 and Article 56	Yes, by accommodating the different interests of the stakeholders regarding the instruments of Human Capital Policy of the Career of Defence Lecturers as proof of recognition of the professionalism of Defence Lecturers in educational institutions in INDF based on the principles of: a) Fairness; b) Objectivity; c) Accountability; d) Transparency and Education; e) Autonomy and Quality Assurance, in regulating matters related to the professionalism of Defence Lecturers to improve the quality of higher education in INDF

Based on the results of the comparison between CM and the real world, changes or actions need to be formulated in an effort to resolve the problem. In system one, the activities to be carried out are changes by INDF by establishing the Regulation on the Career of Defence Forces Lecturers containing the Instruments of Human Capital Policy of Career Development for Defence Forces Lecturers in assisting the accreditation of undergraduate and postgraduate study programs in educational institutions in INDF as a function of human resource development in INDF, particularly officers appointed as Defence Forces Lecturers. A study by Edvinsson and Malone (1997) has become a foothold in this study of NCSC, in which humans are observed as assets, and human capital policy shall be adjusted to support the mission of the organization. The basic issues of human capital in NCSC are related to the placement of Lecturers that have not been based on the competence of personnel with the qualifications of an educator and the assignment experience in educational institutions. It is exacerbated by the assumption that the position of Lecturers is not a prestigious position. In addition, within the internal environment of Navy, the future career of lecturers is considered unclear since the main military career is in operational field rather than educational one. In addition to having the required talents and passion, Defence Forces Lecturers shall also have academic skills (bachelor, master and even doctoral degree) as well as practical experience (a combination of theory and practice in the field). In fact, it is Defence Forces Lecturers who are most knowledgeable concerning the skills and abilities of students or student-officers to carry out the Tridharma Perguruan Tinggi (Three Pillars of Higher Education comprising Education, Research and Community Service).

#### 4. CONCLUSION

In INDF, there has been no regulations regarding career paths for the officers appointed or placed as Defence Forces Lecturers at NCSC as well as other military education institutions in INDF/Navy.

It has an impact on the career uncertainty of Defence Forces Lecturers at NCSC, hence greatly influencing the psychological condition and performance of the Defence Forces Lecturers. NCSC is the only Command School in INDF with an authority to administer Applied Master Program in Maritime Operation Strategy, INDF Headquarters needs to make special regulations related to the function of human resource development, particularly officers appointed as Defence Forces Lecturers. The transformation shall consider (weltanschauung) formal law and informal convention of the formulation of regulation concerning the career of Defence Forces Lecturers. It is carried out by actors such as the Commander of INDF, Army, Navy and Air Force Chiefs of Staff, Personnel Assistant to Commander of INDF, Personnel Assistants, the Heads/Aide Officers of Education Offices, and the Heads of Personnel Administration Service of Army, Navy, and Air Force as the main policy makers. This study shows, the need to formulate Regulations concerning the Career of Defence Forces Lecturers containing the Instruments of Human Capital Policy of Career Development for Defence Forces Lecturers based on Law No 14 of 2005 on Teachers and Lecturers. Therefore, INDF can carry out the function of human resource development in INDF, particularly officers appointed as Defence Forces Lecturers as proof of recognition of the professionalism of the officers of INDF appointed as Defence Forces Lecturers in educational institutions in INDF based on the principles of: (1) Fairness; (2) Objectivity; (3) Accountability; (4) Transparency and Education; (5) Autonomy and Quality Assurance, in regulating matters relating to Defence Forces Lecturer professionalism in order to improve the quality of higher education within the INDF.

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## QUALITY OF LIFE AND THE TRADE-OFF BETWEEN ENVIRONMENTAL EXTERNALITIES AND TOURISM RATE

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### **ABSTRACT**

*This paper is motivated by the trade-offs that occur in the relationship between residents and tourists. We analyse the environmental externalities that impact a destination's sustainability with respect to the effect that crowding has on the relationship between residents and visitors across European countries. This study investigates the role that tourism plays in the spillover of some of these environmental externalities (greenhouse gas emissions, crime, pollution and noise) and its effect on various aspects of quality of life degradation and the effect that the rate of tourism sector development has on the resulting negative externalities. The paper estimates an economic model of tourism growth and environmental externalities-quality of life trade-offs, exploiting instrumental variable techniques for panel data with external instruments and GMM instruments.*

**Keywords:** *environmental externalities, tourism growth, quality of life, panel data, Europe*

### **1. INTRODUCTION**

Intense tourism growth in recent years has resulted in tourism externalities, e.g., wellbeing declines of various kinds among residents within tourism cites such as Venice, Dubrovnik or Barcelona, and thus has become a major threat to the quality of life of residents in these micro-destinations. As vacationers threaten to turn the majority of Europe into a large theme park, aided by low-cost airlines, the cruise industry, and improved automobile technology, they are pouring into other less well-known destinations across Europe. As they do so, local communities see not only benefits but also a wide variety and intensity of negative externalities, making their daily lives more stressful. With tourism in 2018 expected to surpass previous records, frustration among residents is growing. Anti-tourism demonstrations have even occurred in many cities throughout Europe (Abend, 2018). These events strongly motivated the conception and writing of our paper. In general, to date, tourism activity as the nexus of global–local communities has consisted of platforms for the promotion of economic development, peace building, poverty alleviation, and carbon reduction in response to the call for sustainable development (Tribe & Xiao 2011). Tourism, despite the ongoing debates over the past decades, is commonly recognised as a human activity involving demand for and supply of a product and the utilisation of resources that may result in either positive or negative socioeconomic consequences at both the national and international levels (Song et al., 2012). Recently, however, increasing attention has been paid to exploring the negative side effects of tourism. Before developing a hypothetical tourism destination, the local community has complete access to all resources, but residents may not enjoy the economic gains stemming from tourism (Candela, Figini, p.580) or these gains may not be distributed equally among residents. During hyper-development, residents must share the resources with tourists; sometimes negative trade-offs in some aspects of quality of life arise due to negative externalities, and the use of some resources for monetary gain, generated by tourism, may also occur. Comparing the benefits received and the costs incurred by host communities and tourists is necessary to determine the

sustainable level of tourist development. This balance is notoriously difficult to achieve because of difficult-to-quantify positive and negative externalities, non-market values, and opportunity costs (Concu & Atzeni, 2012). Lack of property rights, reduced public goods, and externalities are common reasons for market failure associated with the environmental impacts of tourism (Dwyer et al., 2010). The term “negative (tourism) externality” is positioned in a multiverse domain, and in the recent tourism economics literature, this concept is frequently explored in the context of multi-destination trips (Parroco & Vaccina & De Cantis & Ferrante, 2012), tourism seasonality (Cellini & Rizzo, 2012), the effect of tourism on crime (Biagi & Brandano & Detotto, 2012), investment policies in tourism destinations (Candela, Castellani & Mussoni, 2012), climatic variations and air pollution (Dwyer, Forsyth, Spurr, & Hoque, 2010; Dwyer, Forsyth, Spurr, & Hoque, 2011; Saenz-de-Miera & Rossello, 2014). Due to space limitations, many important articles cannot be mentioned. However, when assessing the effects of tourism externalities on residents that live in different countries but have the same problems as residents of Mediterranean tourism cities, two factors have not been taken into account: the environmental impacts of tourism at the micro-level and the interaction among tourism, environmental externalities and negative impacts from a broader, macro-level quality of life perspective. The objective of this empirical research is to estimate the environmental externalities and quality of life trade-offs created by tourism growth. We utilise panel data estimations with fixed effects based on the 2SLS external instrument and GMM instruments.

## **2. METHODOLOGICAL FRAMEWORK**

### **2.1. Environmental externalities and tourism**

Tourism can cause the same forms of pollution as any other industry: air emissions; noise; solid waste and litter; release of sewage, oil and chemicals; and even visual pollution (due to ugly architecture, billboards, etc.) (Kremsa, 2004). Residents of the host country exposed to pollution, grime or other environmental problems may experience declines in quality of life despite the high economic standard in the cities in which they live. CO<sub>2</sub> emissions produced by human economic (production and leisure) activities are currently more than 130 times greater than the quantity emitted by volcanoes, amounting to approximately 27 billion tonnes per year. Nordhaus (1992) anticipates an increase in the average temperature in the period 1990-2050 by 3 degrees Celsius due to an accelerated increase in greenhouse gas emissions. Noisiness refers to particular characteristics of sound that may induce unpleasant feelings such as annoyance (Kim and Fesenmaier). Noise pollution from airplanes, cars, buses, recreational vehicles (motorboats), discotheques, all-night events with loud music, etc., is an ever-growing problem of modern tourism, and residents who live in locations where this noise can be heard may experience sensory discomfort. Sutherland and Cressey (1978, p.82) state that statistical studies show that crime is a seasonal activity. Minor incidents, such as the naked wandering of drunken tourists in the city of Hvar (Croatia), to positive violations of the law are caused by tourism. We assume that crime generates a number of negative externalities for residents of a tourism country. Crime, in Backer’s (1976) analysis, includes all violations—not just felonies such as murder, robbery, and assault but also tax evasion and drug trafficking, prostitution and other violations.

### **2.2. Model specification**

In this section, we rely on a model that features Carmignani and Moyle’s estimation strategy, but our topic and specific variables differ. The following general regression model is estimated:

$$Y_{it} = \beta X_{it} + \alpha Z_{it} + f_i + e_{it} \quad (1)$$

where  $i$  denotes a generic country and  $t$  a generic year,  $Y$  is a measure of the assumed form of negative externality (we subsequently extend  $Y$  with subscripts to denote particular forms of externality),  $X$  is the tourism rate,  $Z$  is a generic control variable,  $f$  is a country fixed effect,  $e$  is a random disturbance, and  $\beta$  and  $\alpha$  are the coefficients to be estimated. Equation (1) is estimated using annual data over the period 2007–2016.

Among the many potential negative externalities ( $y$ ) in the tourism economics literature, we included in our analysis only data related to greenhouse gas emissions, crime, pollution and noise. The cross-sectional time series of each country covers the entire period for which negative externality data are available (for most European countries; source: Eurostat). The log ratio between tourist overnight stays in tourist accommodations and the resident population is used as a measure of tourism. As an alternative to overnight stays, this computed index could also be called the tourist rate and represents the level of crowding in a tourism destination. For this type of panel analysis, overnight stays per capita have the following advantages: (1) they are instantly comparable across countries, without the need for transformations that could further exaggerate measurement error, and (2) the index is consistent with our theory that spatial overcrowding adversely affects tourism destination residents. Given the large cross-country differences in total tourist overnight stays per capita, the log transformation generates a smoother distribution. A similar strategy is applied by Carmignani and Moyle (2018) but using the log of total international arrivals instead of tourism receipts. The choice of controls to be included in equation (1) is driven by several considerations. The task of this paper is not to provide a comprehensive account of all the explanatory linkages for the negative externalities but to establish the effect of tourism overcrowding on particular types of externalities (hence, in this paper, various regressions will be run with different dependent variables). A parsimonious specification that controls for unobservable heterogeneity and is estimated with external instruments that isolate the exogenous component of tourism is sufficient to satisfactorily address the research hypothesis. However, to ensure that the quantitative estimate of the elasticity (i.e., coefficient  $\beta$  in equation (1)) is not significantly altered when accounting for residents' other possible subjective feelings of well-being that covary with the negative externalities, further work is required. Our approach is, therefore, to merge a specification that includes only tourism and country fixed effects with an extended set of variables on the right side of the regression specification. Estimates from that specification will establish stylized facts concerning the effect of tourism on the particular externalities. We assess whether the results are affected by the inclusion in the regression model of variables that capture a number of characteristics of quality of life in the host country, linked in some way to the proposed negative externality. As control variable subjective well-being (SWB) indicators, the proposed variables are life satisfaction, GDP per capita, healthy life expectancy, and freedom to make life choices. We also included  $f_i$  year effects.

## **2.3. Estimation**

### *2.3.1. Nonstationarity dilemma*

The estimation of the equation presents two challenges. If modelled variables are not necessarily stationary, biased estimation results derived from the spurious regression can be disseminated. However, the dependent variable (the negative externality term) is likely stationary because our cross-sectional time units are short in terms of time span (the duration of most of the time series is only 10 years, and some time series are even shorter for particular countries). This is probably also the case for tourism rate and GDP\_pc, since the previous variables are ratios of three and two indicators, respectively. Other proposed regressors have an even lower likelihood of being nonstationary.

Hence, in this section, we justify once more the omission of sensitive unit root diagnostics, which for a panel unit root test with 10 years of observations or less may not be required because the time series dimension is not large.

### *2.3.2. The endogeneity issue*

Panel least squares estimation for various dependent variables of equation (1) (with log transformation) does not produce consistent estimates when the externality terms and tourism overcrowding (and/or GDP per capita on the right-hand side as external variables) are endogenous. We use instrumental variables to address this problem. Our approach to identification is twofold.

#### *2.3.2.1. 2SLS external instrument*

Returning to our basic model, we admit that the more developed countries in the tourism supply have more resources to offer decent accommodation. When equation (1) is estimated using the log of tourism rate (i.e., overnight stays per capita in all tourist accommodations), we implement a 2SLS approach with one external instrument. Thus, the external variable, which is the central focus of this paper, is instrumented by the (log) density of accommodation establishment. In the extended specification of the model, per capita GDP is also at risk of endogeneity (and may correlate in the inverse direction with proposed negative tourism spillovers) and needs to be instrumented. Specifically, per capita GDP is included as such in a set of control variables ( $Z_{it}$ ) that act as a deterrent of negative tourism externality proliferation. A more highly developed country is institutionally better equipped to deal with a negative externality, imposing a higher tourism tax, quotas for the number of visits allowed to attractive tourism sites, etc. In this case, our preferred instrument is a measure of institutional quality that controls for corruption level and social support.

#### *2.3.2.2. GMM instruments*

GMM is applied to equation (1) to generate internal instruments from the lagged values of the endogenous variables (including the lagged dependent variable) to correct the endogeneity problem. Arellano and Bond (1991), who pioneered the applied GMM estimation for panel data, have shown that the GMM first-difference estimators initially explored and subsequently extended by Arellano and Bover (1995) suffer from a major problem: the instruments used with the standard first-difference GMM estimator become less informative in models where the variance of the fixed effects is particularly high relative to the variance of the transitory shocks. To avoid this bias, Blundell and Bond (1998) proposed a system-GMM (henceforth SGMM) estimator that combines in a system the first-differenced equation with the same equation expressed in levels. In this case, lagged first differences are used as instruments in the level equation and lagged levels as instruments in the differenced equation. To strengthen identification, it is possible to estimate equation (3) in first differences and in levels jointly as a system. A precondition for using this kind of instrument is that equation (1) exhibits no second-order autocorrelation (the first-order autocorrelation is present by design). To assess the validity of the assumptions underlying our twofold identification strategy in setting up the instruments, described above, we run a number of diagnostic tests.

## **3. DATA**

Because there are gaps in some time of the series for selected countries, the missing data are imputed using R software applications with added Amelia packages to insert multiple missing data (James Honaker, 2018). The dataset consists of unbalanced panel data spanning the years 2007 to 2016. Member states of the European Union (EU) predominate in our sample, and several other non-member and even non-European countries are included.

The panel data comprise the following countries: AT, BE, BG, CH, CY, CZ, DE, DK, EE, EL, ES, FI, FR, HR, HU, IE, IL, IS, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, and UK; the assigned two-letter country code is used as an abbreviation for the country label.

Variables	Mean	SD	Definition	Expected Sign	Data Source
EGG	8545350	3154958	Emissions of greenhouse gases and air pollutants broken down by national industries plus households (Eurostat).		Eurostat
EGI	502.01	324.86	intensity-ratios relating air emissions accounts to economic parameters production output for national economy(Ibidem).		Eurostat
CRIME	16.76	6.72	Crime, violence or vandalism in the area (Ibidem)		Eurostat
POLLUT	23.81	6.99	Pollution, grime or other environmental problems (Ibidem)		Eurostat
NOISE	19.34	7.76	Noise from neighbours or from the street		Eurostat
Tourist_rate	5753.01	4414.69	Ratio between tourist nights of stay in total tourist establishment and resident population	Positive	Eurostat
GDP_pc	32495		Ratio between GDP, PPP (constant US\$) and populations	Indecisive assumption	WHR 2018 Chapter 2
Life	6.39	0.86	The response to the question of respondents' assessment of their current life based on an imaginary 11-point scale where by 0 designates one's worst possible life and 10 denotes the best possible life respondents can imagine for themselves. (2018 Gurudev Ilangovan)	Negative	WHR 2018 Chapter 2
Health	69.24	2.90	Healthy life expectancy at birth	Negative	WHR 2018 Chapter 2
Freed	0.78	0.14	Freedom to make life choices is the national average of responses to the question "Are you satisfied or dissatisfied with your freedom to choose what you do with your life?" (Helliwell & Wang, 2013)	Negative	WHR 2018 Chapter 2
Social	0.91	0.04	Social support (or having someone to count on in times of trouble) is the national average of the binary responses (either 0 or 1) to the question "If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?" (Ibidem)		WHR 2018 Chapter 2
Corrupt	0.72	0.25	Perceptions of corruption are the average of answers to two questions: "Is corruption widespread throughout the government or not" and "Is corruption widespread within businesses or not?"(Ibidem)		WHR 2018 Chapter 2
Density_accomm	0.05	0.11	Ratio between tourism accomodation cappacity (in total number of beds) and country surface		Eurostat

*Table 1: Input data in calculating dependent, explanatory, control and instrumental variables in the equations, and summary statistics; source: constructed by the author*

#### 4. RESULTS AND DISCUSSION

In the remainder of this paper, two sets of results are presented. Table 2 reports estimates for equation (1) with tourism rate and GDP per capita, plus other control variables, all expressed in logs and instrumented by the density of accommodation establishments or the combination of corruption level and social support. The continuation of Table 2 reports the first-step estimates from the IV regression. The results of diff-GMM and sys-GMM estimates of specified equation (3) are reported in Tables 3 and 4.

##### 4.1. Estimates from the IV regression

For the panel estimates with country fixed effects that include pollution and noise as negative externalities (Table 2), we find that the log tourism rate is statistically significant and has a positive impact on those externalities. The point estimates suggest that a 10% increase in the tourism rate causes an approximately 0.8% increase in environmental pollution. The log noise in the neighbourhood is positively linked in terms of causality and becomes more intense by 0.86% if the tourism rate increases by 10%. The positive sign of greenhouse gas emission intensity, although not significant, means that a higher log ratio of overnight stays to residents is associated with stronger externality of this kind. Overall, on the basis of our 2SLS results,

we assert that these estimates definitely point to a basic stylized fact: a larger tourism inflow rate can cause environmental problems with pollution and increased noise pollution in tourism host countries.

	Log(EGG)	Log(EGI)	Log(CRIME)	Log(POLLUT)	Log(NOISE)
log(night_pc)	<b>-0.315**</b> (0.098)	0.170 (0.209)	-0.040 (0.057)	<b>0.080*</b> (0.039)	<b>0.086 (0.043)*</b>
GDP_pc	<b>0.618 *</b> (0.305)*	0.155 (0.651)	<b>0.707*</b> (0.351)	<b>-0.788** (0.240)</b>	<b>-1.399***</b> (0.327)
log(Life)	0.068 (0.225)	-0.414 (0.481)	0.329 (0.662)	<b>1.944***</b> (0.452)	<b>2.402*** (0.617)</b>
log(Healt)	<b>-1.294*</b> (0.637)	<b>-4.433**</b> (1.360)	1.696 (0.996)	<b>3.101*** (0.680)</b>	0.048 (0.927)
log(Freed)	-0.026 (0.098)	0.037 (0.209)	<b>-0.831*** (0.188)</b>	<b>-0.421** (0.129)</b>	0.235 (0.175)
Observations	321	321	349	349	349
Underidentification (p value)	0.534 (0.593)	0.367 (0.712)	0.428 (0.668)	0.924 (0.355)	0.824 (0.285)
Weak identification (critical value)	30 (0.976)	30 (0.987)	30 (0.986)	30 (0.967)	30 (0.962)
Overidentification (p value)	1.345 (0.345)	1.045 (0.165)	2.367 (0.458)	6.256 (0.067)	0.876 (0.651)

*Table 2: Panel Estimates with external instruments – negative externality; source: ibidem. Note: The test of underidentification is form on the Kleibergen-Paap rk statistic. The true hypothesis is that the model is underidentified. The test of weak identification is form on the Kleibergen-Paap Wald F statistic; the critical value given in brackets is the 10% maximal IV size value computed by Stock and Yogo (2005). The test of overidentification is form on the Hansen J statistic. The true hypothesis is that the instrument(s) is valid (i.e., uncorrelated with the error term) and that the exclusions constraints are valid (i.e., the instruments are correctly excluded from the second-step equation). Standard errors are in parentheses; \*, \*\* and \*\*\* and bolded denote significance at the 10, 5 and 1 percent levels, respectively.*

	Log(EGG)		Log(EGI)		Log(CRIME)	
	log(night_pc)	Log(GDP_pc)	log(night_pc)	Log(GDP_pc)	log(night_pc)	Log(GDP_pc)
log(Density_accomm)	-0.012 (0.024)		<b>-0.008</b> (0.019)		0.079*** (0.022)	
Log(Social)		0.423 (0.276)		<b>0.401</b> (0.223)		-0.269 (0.318)
Log(Corrupt)		-0.087*** (0.028)		<b>-0.092***</b> (0.024)		-0.158*** (0.028)
	Log(POLLUT)		Log(NOISE)			
	log(night_pc)	Log(GDP_pc)	log(night_pc)		Log(GDP_pc)	
log(Density_accomm)	0.064*** (0.018)		0.086*** (0.028)			
Log(Social)		-0.229 (0.218)			-0.432 (0.418)	
Log(Corrupt)		-0.131*** (0.018)			-0.618*** (0.026)	

*Adjoin part (of Table 2): First Step Estimates from IV Regressions.*

*Note: Second-step results for the regressions reported in Table 1. The instrumental variables are log of overnight stay in total tourist accomodation and resident population in semi-left columns and log of GDP\_pc in semi-right. Standard errors are in parentheses; \*, \*\* and \*\*\* and bolded denote significance at the 10, 5 and 1 percent levels, respectively.*

The subsequent rows of Table 2 present the rest of the model specifications derived from equation (1) and include a variety of control variables that have attributes of quality of life indicators that can mask or distort the importance of negative externalities that, if harmful or costly to residents, cause relative unhappiness. Considering the first control variable, it appears that tourism host countries that are higher on the ladder of economic growth may see residents' healthy life span shorten due to increases in greenhouse gas emissions. The negative coefficient of the log Freed variable shows that impairing freedom to make life choices in many countries

may enhance criminal activity and environmental pollution when (or if) the GDP\_pc separately classifies the country as having a better and/or worse standard of living. While the log GDP\_pc is in the first 3 regressions, considering Table 2, positive additional evidence shows that economic growth and environmental and noise pollution have an inverse relationship. It appears that a decreased standard of living stimulates more pollution and noise, which decreases residents' perceptions of life quality and/or their healthy life expectancy duration. Altogether, these factors are covariates with the increasing tourism rate. The test statistics reported in the last several rows of Table 2 and the first-step evidence reported in the continuation of Table 2 confirm that sites' accommodation density and corruption indices are relevant for night\_pc and GDP\_pc, respectively (i.e., the equation is neither under-identified nor weakly identified), and are therefore excluded from the second-step equation and are uncorrelated with the error term (and thus independent).

#### 4.2. GMM regression estimates

In this section, the core results of the difference GMM and SGMM dynamic panel estimations for equation (1) are presented in Table 3 and Table 4.

	Log(EGG)		Log(EGI)			
	diff-GMM	sys-GMM	diff-GMM	sys-GMM		
lag(log(Yit), 1)	0.185 (0.107)	0.980*** (0.042)	0.004 (0.027)	0.354*** (0.105)		
log(night_pc)	<b>0.195** (0.072)</b>	0.047 (0.033)	0.226 (0.152)	0.077 (0.045)		
lag(log(night_pc), 1)	-0.024 (0.041)	-0.048 (0.036)	0.018 (0.132)	-0.091 (0.061)		
GDP_pc	<b>0.095* (0.045)</b>	<b>0.076** (0.028)</b>	<b>-0.603** (0.202)</b>	<b>-0.674*** (0.193)</b>		
lag(GDP_pc, 1)	0.037 (0.047)	-0.057 (0.032)	0.048 (0.094)	0.156 (0.124)		
log(Life)	-0.006 (0.052)	0.042 (0.064)	-0.044 (0.108)	0.040 (0.167)		
log(Healt)	-0.162 (0.122)	-0.558 (0.323)	-0.756 (0.503)	<b>-4.168*** (1.076)</b>		
log(Freed)	0.007 (0.023)	0.001 (0.029)	0.082 (0.119)	<b>0.223* (0.094)</b>		
Observations	321	321	321	321		
AR(2) (p value)	0.534 (0.593)	0.367(0.712)	0.428(0.668)	0.924(0.355)		
Hansen Overidentification (p value)	30(0.976)	30(0.987)	30(0.986)	30(0.967)		
Difference-in-Hansen (p value)	3.5(0.278)	5.23(0.321)	7.21(0.197)	1.65(0.086)		
	Log(CRIME)		Log(POLLUT)		Log(NOISE)	
	diff-GMM	sys-GMM	diff-GMM	sys-GMM	diff-GMM	sys-GMM
lag(log(Yit), 1)	0.234 (0.136)	<b>0.868*** (0.075)</b>	<b>0.413*** (0.062)</b>	<b>0.885*** (0.039)</b>	-0.099 (0.089)	0.199** (0.063)
log(night_pc)	-0.220 (0.160)	<b>-0.309* (0.140)</b>	<b>-0.243* (0.106)</b>	-0.166 (0.099)	-0.246 (0.286)	<b>0.427* (0.200)<sup>†</sup></b>
lag(log(night_pc), 1)	0.301 (0.174)	<b>0.292* (0.129)</b>	<b>0.349*** (0.075)</b>	<b>0.184* (0.094)</b>	-0.401 (0.311)	-0.401 (0.206)
GDP_pc	0.011 (0.063)	-0.008 (0.049)	-0.006 (0.023)	-0.041 (0.028)	-0.320* (0.126)	<b>-0.468*** (0.129)</b>
lag(GDP_pc, 1)	0.009 (0.051)	0.028 (0.048)	-0.029 (0.020)	-0.014 (0.020)	0.091 (0.085)	0.071 (0.081)
log(Life)	0.017 (0.222)	0.184 (0.197)	-0.078 (0.104)	<b>0.166* (0.077)</b>	0.540 (0.365)	<b>0.795* (0.365)</b>
log(Health)	0.502 (0.491)	<b>1.086* (0.433)</b>	0.204 (0.243)	0.338 (0.224)	-0.418 (0.725)	-1.202 (0.634)
log(Freed)	-0.056 (0.098)	-0.133 (0.084)	0.042 (0.059)	-0.053 (0.046)	0.090 (0.137)	0.170 (0.124)
Observations	349	321	349	349	349	349
AR(2) (p value)	1.887 (0.059)	1.748 (0.080)	0.134 (0.893)	0.218 (0.827)	0.167 (0.868)	0.678 (0.497)
Hansen Overidentification (p value)	30 (0.976)	30 (0.987)	30 (0.986)	30 (0.967)	30 (0.967)	30 (0.967)
Difference-in-Hansen (p value)	4.89 (0.231)	6.23 (0.234)	3.98 (0.434)	2.45 (0.287)	5.42 (0.168)	5.67 (0.341)

Table 3: Dynamic Panel Estimates

Note: Standard errors are in parentheses. \*, \*\* and \*\*\* denote significance at the 10, 5 and 1 percent levels, respectively. Estimates for constant terms are not shown. AR(2) is the test for auto-correlation of order 2 in first-differenced errors. Difference in Hansen is the test of validity of GMM

The results are generally consistent with those obtained from equation (1). Above all, the effect of tourism rate generally continues to be positive and significant at usual confidence levels across most countries' modelled negative externality frequencies; however, this tracing of that causal effect is somewhat asymmetric with GMM regressions. This effect is also contemporaneous and unambiguous in the context of a positive and unmixed lagged effect if greenhouse gas emissions and/or noise are on the left side of equation (1). However, in the case of crime and pollution, only isolated lagged effects of tourism rate are positive. Another interesting result is that the contemporaneous effect of GDP\_pc on greenhouse gas emission intensity and/or noise is negative, suggesting that developed countries are more efficient at controlling that set of negative externalities, at least at the macro-level. However, the last environmental impact assessment, in the case of greenhouse gas emissions, is not fully consistent with the analysis: the positive sign before  $\log(\text{GDP\_pc})$  shows that more developed countries release more polluting gases into the atmosphere. The findings for the other control variables, healthy life expectancy, and greenhouse gas emission co-dependency, which are not in line with our hypothesis, are that indices of quality of life negatively impact adverse externalities. Surprisingly, we find evidence that a healthy life expectancy in the population (meaning, ironically, more retired persons) increases crime and that greater satisfaction with life quality co-occurs with more pollution and noise.

## 5. CONCLUSIONS

This research contributes to the existing literature on tourism externalities by using available panel data for 33 countries for the period 2007–2016 to directly estimate the effect of tourism rate on the trends of negative externalities in a host country, thereby revealing the extent to which tourism affects a host economy in terms of quality of life degradation. The overall results from both types of regressions (external and GMM instruments) show that an increase in the tourism rate impacts all aspects of the proposed adverse effects in host countries, whereas quality of life is not always worse than predicted in all fields, because assumed negative trade-offs between negative externalities and quality of life indicators are absent in life satisfaction indicators in all regressions. The applied macro-data in this paper may not be entirely consistent with conjectures about local community interactions with tourists as underlined at the beginning of this paper, as critics may note. However, overall, our evidence offers insight into and correctly postulates and tests theories about quality of life and the trade-off between environmental externalities and tourism, though within limitations typical of research of this kind.

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## RELATIONSHIP BETWEEN INDIVIDUALISM AND SOCIO-POLITICAL ATTITUDES - A COMPARATIVE ANALYSIS OF EUROPEAN COUNTRIES

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### ABSTRACT

*According to Blekesaune and Quadagno (2003), attitudes toward welfare state policies are dependent on situational, such as unemployment, and ideological factors, such as egalitarian ideology, at both the individual and national level. The present study examines whether cultural factors can have an influence on attitudes related to the state's responsibility for social issues, such as unemployment, family services, and care for the elderly. An important starting point is Hofstede's analysis of cultural values and, in particular, the concept of individualism. In this study, data from the European Social Survey (N=37,743 in 20 countries) are analyzed using a two-level regression analysis. The findings indicate that the individualist culture is a significant factor in terms of the socio-political attitudes of individuals. The dependence between individualism and attitudes can be observed in both the country-level analysis and the two-level regression analysis. According to the final regression model, other country-level factors, i.e. GDP, unemployment rate, distribution of income (GINI index), social and health expenditure, and other cultural dimensions of Hofstede's model, do not significantly explain the socio-political attitudes of individuals. On the other hand, many individual-level factors correlate with attitudes and their effect is greater than the effect of individualism.*

**Keywords:** *cultural values, individualism, social policy, social and political attitudes*

### 1. INTRODUCTION

From the perspective of socially sustainable development, the attitudes of citizens towards social issues and their perceptions of governmental responsibility play a central role. Socio-political attitudes reflect the experiences and views of people regarding recent social and economic policies and their attitudes also influence political decisions. Responsibility for social issues has been understood in different ways in different countries within Europe. On this basis, Esping-Andersen (1990) defines three types of welfare state, in which the responsibility for social issues has been solved in different ways. The Nordic welfare states (i.e. Sweden) emphasize the role of the State, the Southern Welfare States (Spain) underline the responsibility of families, and the responsibility of an individual is central in the Liberal Welfare State (the United Kingdom). This definition is based on the situation in the 1980s, but in the post-1980s period the differences have been harmonized. However, the question of the responsibility for social issues such as unemployment, family services, and care for the elderly is still topical. In the present study, we approach this issue from the perspective of attitudes. Scholars have broadly studied the factors, which influence socio-political attitudes. However, to our knowledge, the relationship between cultural factors and socio-political attitudes has been less studied, although it can be assumed that culture plays an important role in the emergence of a welfare state. This study asks the question of whether the country-level factors influence socio-political attitudes regarding the responsibility of the State for social issues such as unemployment, family services, and care for the elderly.

Furthermore, how do cultural factors have an influence on these attitudes, and what is the relationship between an individualist culture and attitudes?

## **2. KEY CONCEPTS**

### **2.1. Socio-political attitudes**

Socio-political attitudes are widely studied (e.g. Kreidl, 2000; Larsen, 2006; Van Oorschot, 2000; Valdimarsdóttir, 2010), but over the range of different studies, the object of the attitude and the nature of the appreciation are understood from different perspectives. Some scholars have focused on, for example, the responsibility of the State (Valdimarsdóttir, 2010; Pfeifer, 2009), attributions for poverty (e.g. Bullock, 2004; Blomberg et al., 2010), attitudes toward welfare policy (Bullock, 2004), and opinions towards social welfare services and social security benefits (Muuri, 2010). Also, beliefs regarding recipients of social welfare (Bullock, 2004) have been studied, and Roosma, van Oorschot, and Gelissen (2014) analyze welfare attitudes from a multidimensional perspective that separates perceptions of welfare state performance (i.e. the "is" dimension) and preferences (i.e. the "should" dimension). In previous studies many individual level factors have been found, that have an influence on socio-political attitudes. First, the political ideology is significant in terms of attitudes (e.g. Skitka et al., 2002; Blekesaune and Quadagno, 2003; Valdimarsdóttir, 2010). The income level also correlates with socio-political attitudes but, according to Valdimarsdóttir (2010), the relationship between income and attitudes is moderated by political ideology. The field of study (Guimond and Palmer, 1990), the level of education (Valdimarsdóttir, 2010) and age (Blekesaune and Quadagno, 2003; Valdimarsdóttir, 2010) are also significant factors in socio-political attitudes. Furthermore, some studies have shown that women support the welfare state more than men (Blekesaune and Quadagno, 2003; Valdimarsdóttir, 2010). Comparative studies have found significant national differences in the public opinions regarding the responsibility of the State for minimum income protection (Pfeifer, 2009) and attribution of poverty (Blomberg et al., 2010). Rehm (2011) argues that the socio-political situation matters, because it modifies the degree of social risks. In this sense, gross domestic product (GDP), the Gini index, and social expenditures are seen as country-level situational factors, which have an influence on attitudes. According to Blekesaune and Quadagno (2003), public attitudes towards welfare state policy depend on both individual and country level factors. Further, both levels can distinguish between situational (e.g. unemployment) and ideological (e.g. egalitarian ideology) factors. Consistent with Blekesaune and Quadagno (2003), this study examines whether the individual and country levels, as well as situational and ideological factors, have an influence on socio-political attitudes.

### **2.2. Individualism as a cultural factor**

In particular, this research focuses on the dependence between individualism and socio-political attitudes. The concept of individualism can be defined in different ways. Hofstede's (1980) classical analysis assumes that individualism and collectivism are opposites, and that individualism is one of the key cultural dimensions. The latest version of Hofstede's cultural values model includes a total of six dimensions: power distance, individualism versus collectivism, masculinity versus femininity, uncertainty avoidance, long-term orientation versus short-term normative orientation, and indulgence versus restraint (cf. Table 2.). The social impact of individualist culture has been widely studied. For example, it has been shown that individualism is connected to innovation and long-term growth (Gorodnichenko and Roland, 2012), as well as to social trust in the society (Allik and Raelo, 2004). Individualism has also been considered to be important for new business and innovation, although collective values can also promote entrepreneurship (Dana and Light, 2011). The previous studies also suggest that social problems are constructed in different ways in different countries.

For example, Sague, Gruys, and Gong (2010) have shown that social-structural explanations and political solutions are not emphasized in the United States, which is a highly individualistic culture, as much as they are in France, which is less individualized. However, there is a lack of systematic research data on the relationship between individualism and socio-political attitudes at the country level. Triandis and Gelfand (1998) has distinguished two forms of individualism. Horizontal individualism combines the concept of an autonomous individual with an emphasis on equality, while vertical individualism accepts inequality and competition between individuals. Nordic countries are typical examples of horizontal individualism and the United States is an example of vertical individualism. According to the Finnish study of Rantanen, McLaughlin, and Toikko (2015), horizontal and vertical individualism affect social welfare attitudes in different ways. Horizontal individualism is linked to the responsibility of the State regarding social issues, while vertical individualistic values increase the emphasis on the responsibility the individual. Schimmack et al. (2005) discuss the two main approaches in studies of individualism. The tradition of applying Hofstede is based on Hofstede's original concepts and aims to analyze the cultural differences between nations, by using the individualism-collectivism index. In contrast, the measuring individualism approach examines whether the within-nation variability in individualism and collectivism is related to dependent variables (cf. Triandis & Gelfand, 1998). The present study follows the tradition in applying the Hofstede's cultural dimensions, where individualism is understood as a country-level and a one-dimensional variable.

### **3. METHOD**

#### **3.1. Hypotheses**

This comparative study examines socio-political attitudes in 20 European countries and the factors that influence them. Consistent with Blekesaune and Quadagno (2003), this study examines whether the individual-level and the country-level, as well as situational and ideological factors, have an influence on socio-political attitudes. In particular, the relationship between individualist culture and socio-political attitudes is analyzed. The study is focused on two hypotheses.

- H1: The differences in attitudes towards the responsibility of the State regarding social issues between countries depend on the degree of individualism in the national culture.
- H2: The attitudes of citizens towards the responsibility of the State regarding social issues depend on the degree of individualism within countries.

#### **3.2. Data and Variables**

The data are based on the 8<sup>th</sup> Wave of the European Social Survey (ESS, 2016). The data cover 23 countries, and for reasons of data availability, we include only 20 countries (37,743 respondents) in the analysis. The countries are: Austria, Belgium, Czech Republic, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Lithuania, the Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, and the United Kingdom. The dependent variable is the sum variable of socio-political attitudes, which was constructed from three items. The respondents were asked for their opinions towards the responsibility of the States in ensuring: 1) the standard of living of the aged, and 2) the standard of living of the unemployed, and (3) to ensure sufficient childcare facilities for the working parents. The variable was measured on a score of 0-10, where 0 indicates that it should not be the responsibility of the government at all, and 10 indicates that it should be entirely the responsibility of the government. The reliability (using Cronbach's Alpha) of the dependent variable is 0.683. The normality of the dependent variable was assessed graphically. Individual level independent variables are presented in Table 1. Individual level variables consist of sex (1=male, 2=female), age, and the situational factors of: number of completed years in fulltime education, a

household's total net income decile in each country, the feeling about a household's income nowadays (1=living comfortably on present income,...4=very difficult to live on present income), and placement on a left-right scale (0=left,...10=right). Individual level ideological factors are based on the cultural value indicator of Schwartz (1992), which consists of 21 items. The respondents were described as different kinds of persons, and then they were asked how much the person is or is not like the respondent on the scale 1 to 6 (1=very much like me, ..., 6=not like me at all). Descriptions were, for example, as follows: It is important to him to be rich, he wants to have a lot of money and expensive things. Four sum variables were constructed as follows: Self-transcendence ( $\alpha =0.744$ ; 5 items), Self-enhancement ( $\alpha=0.733$ ; 4 items), Conservation: ( $\alpha=0.712$ ; 6 items), and Change ( $\alpha=0.750$ ; 6 items). The situational country-level variables consisted of GDP, GINI, unemployment rate, health expenditure, and social expenditure. Country-level ideological factors were based on Hofstede's dimensions of culture. Each of the factors has been expressed on a scale that runs from 0 to 100. The country level situational and ideological factors are presented in Table 2.

*Table 1: Independent individual-level variables*

Variable	N	Minimum	Maximum	Mean	Std. Dev.
<b>Situational factors</b>					
Sex	37,743	1	2	1.53	0.50
Age	37,743	15	100	49.50	18.56
Education	37,468	0	54	12.08	3.94
Income deciles	31,396	1	10	5.26	2.74
Feeling about income	37,504	1	4	1.91	0.80
<b>Ideological factors</b>					
Political placement	33,193	0	10	5.12	2.19
Self-transcendence	37,743	1	6	2.11	0.68
Conservation	37,743	1	6	2.69	0.84
Change	37,743	1	6	2.95	0.87
Self-enhancement	37,743	1	6	3.55	1.01

*Table following on the next page*

Table 2: Country-level situational and ideological factors in 20 countries

Variable	Content of variable	Min.	Max.
<b>Situational Factors</b>			
GDP	GDP per capita in PPS, Index EU28=100	67	183
GINI	Gini coefficient of equivalized disposable income	24.1	37
Social Expenditure	Social expenditure on social protection, % of GDP	15.5	33.9
Unemployment	Total unemployment rate, % of active population	4.0	19.6
Health Expenditure	Health care expenditure, % per GDP	6.34	11.15
<b>Ideological Factors (by Hofstede)</b>			
Femininity vs. Masculinity	A higher degree indicates that masculinity (such as achievements) is preferred in society, and a lower degree signifies that femininity (such as care) is valued.	5	79
Power Distance	A higher degree indicates that hierarchy is clearly established and executed in society. A lower degree signifies that people attempt to distribute power.	11	71
Uncertainty Avoidance	A higher degree indicates that regulated behavior is valued. A lower degree in this index shows more acceptance of differing thoughts or ideas.	23	94
Long-Term vs Short-Term Orientation	A lower degree (short-term orientation) indicates that traditions are honored. Societies with a high degree (long-term) views pragmatic problem-solving as a necessity.	24	82
Indulgence vs. Restraint	A lower degree indicates that there is more regulation of people's conduct and behavior. Societies with a high score allow free gratification of people's own drives and emotions.	16	78
Individualism vs. Collectivism	A lower degree indicates that people are supposed to be loyal to the group to which they belong (collectivism). A high score indicates a weak interpersonal connection among those who are not part of a core family (individualism).	27	89

Sources: GDP, GINI, Social Expenditure, Unemployment and Health Expenditure were retrieved from the Eurostat (year 2016). Cultural values were retrieved from Hofstede Insights (2018)

### 3.3. Data Analysis

The analysis was carried out as follows. The normality of the distributions was verified graphically. The main analysis was performed by following the procedure of multilevel modeling. In the first phase, the null model was estimated, and the intraclass correlation (ICC) coefficient was also calculated. After that, the individual-level situational variables were added into the model at once, and then the weakest (statistically non-significant) variables were removed one at a time. Then, the next variables were added into the groups in the following order: the individual-level ideological variables, the country-level situational factors, and the country-level ideological factors. The Maximum Likelihood (ML) method was used as a way of estimating the parameters of the models. In the analysis, intercepts were allowed to vary. Also, a random slope model was tested, but it did not produce statistically significant results. The data were weighted following the recommendations of the ESS.

## 4. RESULTS

At first, we conducted a descriptive analysis by examining the means of individualism and the responsibility of the State at the country level. The analysis shows that the greater the placement of individualistic national culture, the less the citizens emphasize the responsibility of the State regarding social issues. In Figure 1, it can be seen that the United Kingdom and the Netherlands are the countries with high individualism, in which the responsibility of the State is not

emphasized. On the other hand, Portugal and Slovenia are the countries where collective culture is appreciated, and the citizens emphasize the responsibility of the State.

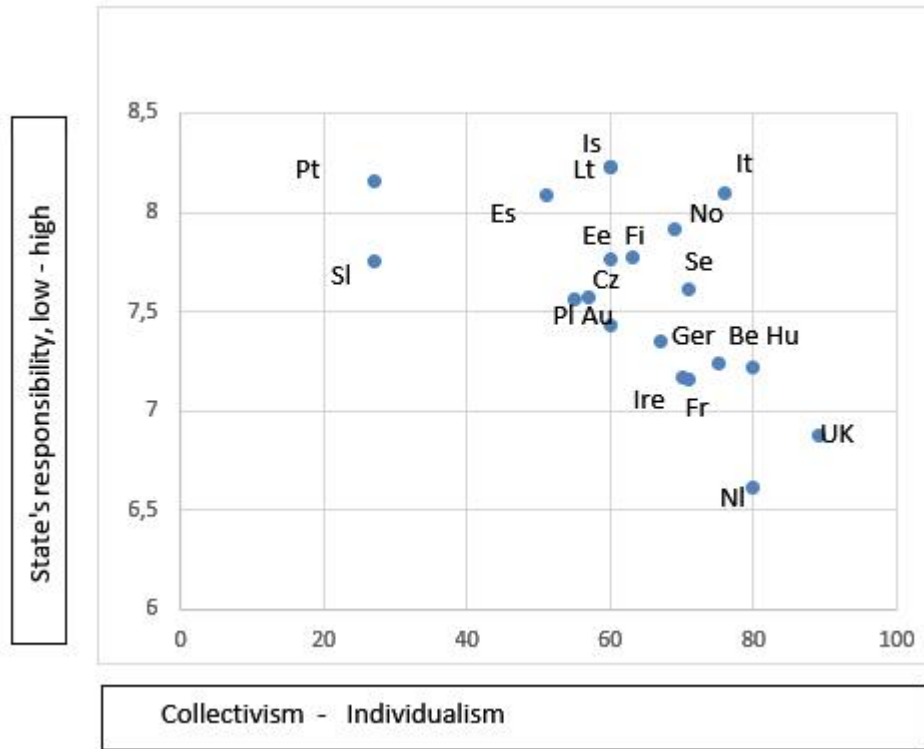


Figure 1: Country-level dependence between individualism and attitudes

In the second phase, we conducted a two-level regression analysis for examining the factors, which are associated with socio-political attitudes (Table 3). According to the Null Model (M0), the proportion of variance in welfare attitudes that lies between countries is 0.083. The intraclass correlation is 8.3 %, but intercepts vary significantly across countries (Wald  $Z = 2.625$ ,  $p = .005$ , one tailed), which suggests that socio-political attitudes vary across countries. Then, we built a model with which to examine variability in intercepts across countries. We added individual-level factors in two waves, the first wave was situational variables (Model 1) and the second wave was ideological variables (Model 2). Model 1 explains 8.1 % of individual-level variance and 26 % of country-level variance. Model 2 explains 11.0 % of individual-level variance and 29.9 % of country-level variance.

Table following on the next page



*Table 3: Two-level regression analysis: The effect of the individual-level and country-level situational and ideological factors on socio-political attitudes*

	M0	M1	M2	M3	M4
Intercept	-.014 (.07)	.003 (.064)	.003 (.06)	.003 (.06)	.742** (.20)
Sex		.061*** (.01)	.029** (.01)	.029** (.01)	.029** (.01)
Age		o			
Education		-.009*** (.01)	-.011*** (.01)	-.011*** (.01)	-.011*** (.01)
Income		-.010*** (.01)	-.009*** (.01)	-.009*** (.01)	-.009*** (.01)
Feelings on income		.103*** (.01)	.101*** (.01)	.101*** (.01)	.101*** (.01)
Political placement		-.053*** (.01)	-.048*** (.01)	-.048*** (.01)	-.048*** (.01)
Self-Transcendence			-.229*** (.01)	-.229*** (.01)	-.229*** (.01)
Conservation			-.032*** (.01)	-.032*** (.01)	-.032*** (.01)
Openness to change			o		
Self-Enhancement			o		
GDP				o	
GINI				o	
Social expenditure				o	
Unemployment				o	
Health expenditure				o	
Masculinity					o
Power Distance					o
Uncertainty					o
Long-Term Orient.					o
Indulgence					o
Individualism					-.011** (.01)
Individual-level variance	.852***(.01)	.783*** (.01)	.758*** (.01)	.758*** (.01)	.758*** (.01)
Between-country variance	.077**(.03)	.057* (.02)	.054* (.02)	.054* (.02)	.026** (.01)
-2LL (ML)	95969	66752	65699	65699	65689

*Notes:*

*N=37,743 in 20 countries, source: European Social Survey, Round 8.*

*O = a variable was excluded from the model because it was not statistically significant.*

*Levels of significance: \*<.050, \*\*<.01, \*\*\*<.001*

In the last phase, we added the country-level variables to explain the variability in intercepts across countries (Models 3 and 4). In this phase, our thesis is that the country-level situational factors (i.e., GDP) and the ideological factors will impact on the remaining variability in socio-political attitudes between countries. Regarding the country-level predictors, controlling for the other predictors in the model, we first note that country-level situational factors (GDP, GINI, Social expenditure, Employment rate, Health expenditure) do not affect socio-political attitudes. Instead, individualism as an ideological value is the only statistically significant factor and explains as much as 51.9 % of country level variance. Its effect on individuals' attitudes within countries is significant but minimal. In this sense, both individual-level factors and individualism as a country-level factor influence socio-political attitudes. The final model explains about 11.1 % of individual level variance, and about 66.2 % of country-level variance. However, as the Wald Z test suggests, there is still significant variability to be explained both within countries and between countries (not included).

## 5. DISCUSSION

This study shows that the degree of individualism as a feature of national culture has a significant role in explaining the attitudes of citizens towards social issues between countries as Hypothesis 1 (H1) suggests. The countries with a high degree of individualism have lower support for the responsibility of the State regarding social issues than the countries with a low degree of individualism. The United Kingdom and the Netherlands are examples of individualistic countries, where citizens do not emphasize the role of the State in social issues as much as in less-individualistic countries such as Portugal and Slovenia. Further, the degree of individualism is significantly associated with citizens' attitudes towards social issues within countries. The result supports Hypothesis 2 (H2) but, on the other hand, the effect of individualism is minimal. In this sense, differences in socio-political attitudes towards the responsibility of the State regarding social issues depend on the degree of individualism in national culture. However, the variation is higher within countries than between countries. That is, although socio-political attitudes in individualistic and collectivist countries differ, in all European countries there are different views on the responsibility of the State in social issues. The differences in social thinking are, above all, within countries but not so much between countries. The European welfare states have been constructed since the second World War. The countries have had similar reasons, such as industrialization, for developing social policy but their concrete socio-political solutions are based on their unique national situation. In this sense, it is obvious that citizens' attitudes toward social policy vary between the countries. On the other hand, the development of the European Union has harmonized national socio-political solutions between the countries, although social policy itself has not been on the agenda of the European Union. Further, the recent development of multiculturalism challenges the original premise of the welfare state. In this sense, the differences between the countries have been diminished. These developments emphasize the validity of studies on the cultural basis of social policy. The results of this study have some limitations. First, Roosma et al. (2014) examine the welfare attitudes of citizens from a multidimensional perspective and they distinguish between the preferred role of the welfare state and its perceived performance. The present research is limited to the preferred role of the welfare state, i.e. the "should" dimension. Reviewing perceived performance would probably have produced different results because the relationship between these two socio-political dimensions is quite complex (Toikko & Rantanen, 2017). Second, in this study individualism is considered as a one-dimensional concept. This premise, that is based on the concept of Hofstede, does not take into account the distinction between horizontal and vertical individualism as expressed by Triandis and Gelfand (1998), although it is quite significant in the socio-political sense. Nordic welfare states are typical examples of horizontal individualism, while the United States is an example of vertical individualism. Horizontal and vertical individualism also affects the socio-political attitudes of people differently (Rantanen, McLaughlin, & Toikko, 2015). Of course, the examination of several of Hofstede's cultural dimensions at the same time partly helps to overcome this gap.

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## LIVING CONDITIONS IN POLAND AND THE EUROPEAN UNION – SELECTED ISSUES

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### **ABSTRACT**

*The factors determining satisfaction of human needs create living conditions of the population. They are the broadest category in the sphere of consumption that describes relationships between human needs and consumption. Basic research categories in the sphere of broadly perceived living conditions include such notions as the standard of living, well-being, quality of life and lifestyle. The structure, or in other words composition of determinants and their impact on the level of satisfaction of people's needs is most often analysed while studying the living conditions of the population. Income is extremely important in these studies as it often has a primary character in comparison with other factors. It is measurable, therefore it allows to determine correlations in the sphere of real phenomena and economic processes; indirectly it also expresses changes occurring within other factors. The purpose of the paper is to recognise changes in selected components of living conditions of the population with special focus on material conditions. On the basis of conducted analysis an opinion can be expressed that material living conditions of European Union population are characterised by significant spatial diversity. In 2016 the most comfortable income situation was achieved by the population of Luxembourg followed by residents of Germany and Austria, whereas the least favourable, by the population of Bulgaria, Romania, Latvia and Greece. The largest income disparities were observed in Lithuania, whereas the smallest in Slovakia, Slovenia, the Czech Republic and Finland. Considering the indicator of risk of poverty or social exclusion in individual EU countries, it can be stated that in the years 2006-2016, the distance between the wealthiest and the poorest countries declined, however the disparities observed among them are still considerable. The risk of poverty is the greatest in Bulgaria, Romania and Greece whereas the smallest in the Czech Republic. The lowest rate of people living in severe material deprivation in 2016 was observed in Sweden and Luxembourg, whereas the highest in Bulgaria.*

**Keywords:** *living conditions, standard of living, income, Poland, European Union*

### **1. INTRODUCTION**

Generally speaking, the living conditions of the population include the group of all circumstances determining human existence in economic and non-economic dimension on macro and micro-social scale. The need to study and evaluate them results from transformations occurring in close and distant environment of consumer entities. They cause changes in structures of needs and encourage consumers to make new decisions and adaptation efforts that in turn translate into changes in the level of satisfaction of needs, i.e. the standard of living in other words. Justifying the need to study living conditions in the context of changing environment, extreme significance of the so-called "new" targets in society development (sustainable development, social coherence and others), globalisation processes and internationalisation, popularity of benchmarking on various levels, new management models, trends towards fact-based policy, climate changes and others must be indicated. These elements shape personal and public living conditions of consumers, including economic and social conditions. Data presented in this paper allow to view the trends of changes in the living conditions in Poland and EU in several selected subject areas such as income, its disparity, poverty, social exclusion and material deprivation.

The purpose of the deliberations is to recognise changes in selected components of living conditions of the population in Poland and European Union with special focus on material situation. The spatial scope of the research includes the EU area. The time scope covers the years 2006-2016. Information from Eurostat database is applied to achieve the assumed goal.

## **2. THE NOTION AND COMPONENTS OF LIVING CONDITIONS**

In the literature of the subject there is a broad interpretational freedom concerning the notion "of living conditions" of the population. However, it must be remembered that life, that in simple terms is identified with such notions as living, existence and being, is the main element of this notion. It is associated with satisfaction of basic human needs and represents a group of changes determining functioning of an organism (Dunaj, 2000, p. 903, Trevors, Saier, 2010, pp. 57-58). Basic features of life, essential from the point of view of living conditions, result from major functions of human organism and the fact of living in a society. Thus, they are related to such processes as nutrition, growth, development, education, health culture, security and others (Ochocki, 2009, p. 75). In general terms, living conditions represent all factors that determine satisfaction of human needs. A. Hodoly identified four basic components of living conditions i.e. personal and social living conditions, ecological living conditions and working conditions. Personal living conditions mainly include organisation of consumption, consumption from personal income and natural consumption, consumption provided to population for free or partially free of charge within social consumption funds. Ecological living conditions are determined by broadly perceived social and partly economic infrastructure as well as availability of areas and land such as parks and green areas, recreation and sport grounds, urban complexes of cities and others. Social living conditions mainly comprise society structure, civil liberties, internal and external security, institutions guaranteeing the rule of law and justice, as well as public administration. Working conditions include such elements as material equipment of the workplace, occupational safety and health, commuting, working time, and interpersonal relationships at work (Hodoly, 1973, p. 9). Among other classifications of living conditions, the division into general, natural, economic and spiritual conditions is mentioned. General living conditions include political and social system, security, rule of law, administrative efficiency of the state, operation of political and social organisations as well as civil liberties. Natural living conditions of the population comprise conditions resulting from the natural environment in which people live. Income, prices, supply, working conditions, social benefits and others are identified among economic living conditions of the population. Spiritual conditions are formed of cultural and educational institutions (Ostasiewicz, 2002, p. 14). Considering the above, it can be stated that living conditions include a group of many diverse circumstances defining human existence. At the same time, they constitute the broadest category of consumption sphere, i.e. the sphere describing quantitative and qualitative relationships, observed between needs and consumption. The level of living, prosperity, the standard of living, quality of life or lifestyle are notions closely related to consumption while being at the same time basic research categories in the sphere of broadly perceived conditions of existence (Bywalec, 1991, p. 22). Standard of living is to some extent included in the notion of living conditions and is their result. It is defined through living conditions that determine possibilities and ways in which needs are satisfied (Pałaszewska-Reindl, 1999, p. 23). Standard of living is perceived as the extent to which human needs are satisfied. It results from consumption of material goods and services and from the use of the values of natural and social environment (Bywalec, Rudnicki, 1999, p. 26). The main determinants shaping the standard of living on macro scale include (Grzega, 2012, p. 35):

- economic determinants (level and pace of economic growth, system of organisation and functioning of economic life, political system and state policy as well as situation on labour market),

- demographic and social determinants (demographic and social structures, population and dynamics of population development, social standards and values as well as interpersonal relationships),
- natural and spatial determinants (climate, geographic location, quality of natural environment and place of residence).

The following determinants are distinguished on the micro-scale (Grzega, 2012, p. 46):

- economic determinants (income, possessions, prices, supply of consumer products and services as well as leisure time),
- social and professional determinants (education, profession, occupational activity, social standing and social groups),
- demographic determinants (size of household, age and sex of household members and stage of family life cycle).

The classification presented above, has a simplified character and obviously does not present all possible determinants constituting the so-called living conditions of the population. It presents selected, including only probable determinants of the standard of living (because their impact has never been confirmed by empirical research). However, on the basis of the type of relationships between macro determinants and determinants operating on a micro scale it must be stated that the so-called macro determinants have the nature independent of consumers and their influence both on other determinants of satisfaction of needs and the standard of living of a given entity is described as indirect. On the other hand, the impact of determinants operating on a micro scale can be described as dependent on (income) or independent of (supply) consumers. At the same time it has a more measurable nature and is defined in time. It must be emphasised that income is one of the most important determinants of standard of living. While shaping the living conditions of the population, it proportionally affects the standard of living, which means that improvement of population's standard of living occurs with its growth and vice versa. The standard of living under the impact of income growth only improves to some point because the standard of living cannot grow infinitely. Furthermore, income growth does not always represent the improvement in the level of satisfaction of needs because it can be designated for growth of savings, non-consumable expenses or needs of other entities (Grzega, 2012, pp. 47-49).

### **3. GDP AND GROSS DISPOSABLE INCOME AS DETERMINANTS OF THE LIVING CONDITIONS OF POPULATION**

GDP as the measure of living conditions of the population in a given country best expresses this development per capita. Analysis of GDP per capita by the parity of purchasing power presented in relation to the average value in EU shows progress in economic development of Poland that occurred in 2006-2016 (table 1). Since 2006 the ratio of GDP per capita in Poland to average value in EU grew by 17 percentage points and achieved the level of 68 in 2016. Unfortunately, this value is still below the average level in the EU. In the year finishing the period of conducted analysis a lower value of the rate was reported only in 5 countries including Bulgaria, Romania, Croatia, Latvia and Hungary. The most favourable situation was observed in Luxembourg followed by Ireland, Holland and Austria.

*Table following on the next page*

*Table 1: GDP per capita in PPS in the years 2006, 2010, 2016 ( UE-28 = 100) (Eurostat, 2018)*

<b>Specification</b>	<b>2006</b>	<b>2010</b>	<b>2016</b>	<b>Specification</b>	<b>2006</b>	<b>2010</b>	<b>2016</b>
Austria	126	126	127	Ireland	148	130	183
Belgium	119	120	118	Italy	108	104	97
Bulgaria	37	44	49	Latvia	53	53	65
Croatia	58	59	60	Lithuania	55	60	75
Cyprus	101	100	83	Luxemburg	261	257	257
Czech Republic	79	83	88	Malta	78	84	94
Denmark	125	129	124	Netherlands	136	134	128
Estonia	64	65	75	Poland	51	62	68
Finland	115	116	109	Portugal	83	82	77
France	109	108	104	Romania	39	51	58
Germany	116	120	124	Slovakia	63	74	77
Great Britain	116	108	108	Slovenia	86	83	83
Greece	96	85	68	Spain	103	96	92
Hungary	91	65	67	Sweden	125	125	123

Growth of GDP per capita value in relation to EU average in the case of such countries as Ireland, Lithuania, Romania, Malta, Poland, Slovakia, Bulgaria, Latvia, Estonia, Germany, the Czech Republic and Croatia show improvement in the sphere of material living conditions of the population in 2006-2016. On the other hand, the largest decline in this period was observed in Greece (by 28 percentage points). Considerable decline was also observed in the case of such countries as Hungary, Cyprus, Finland, Spain, Italy, Great Britain, Holland and Portugal. The rate of gross disposable income in household sector is a measure that allows to evaluate economic situation and material living conditions of the population of individual countries in relatively objective way. Gross disposable income in the household sector is intended for consumption and savings. In Eurostat database, data concerning them are presented as calculated per 1 inhabitant according to Purchasing Power Standard (PPS). Data in table 2 shows that the period of the last decade brought improvement in income situation of Polish households in relation to total EU households. Since 2006 the relation of disposable income per capita in Poland to the average value in EU grew by 19 percentage points and reached the level of 70 in 2016. This represents the reduction of the distance between average income of households per capita in Poland and EU mean and improvement of material living conditions of Poles. Unfortunately, this value is still considerably below the average level in the EU. In the last year of conducted analysis, a lower value of the discussed rate was reported only in 4 countries including Bulgaria, Romania, Latvia and Greece. Among EU countries, the greatest progress in growth of relative level of real gross disposable income was observed in Romania and then in Poland, Slovakia, Estonia, Bulgaria and in Lithuania. The largest decline of mean household income per capita in relation to the average value in the EU between 2006 and 2016 was reported in Greece, followed by Luxembourg, Ireland, Cyprus, Italy, Holland and Spain. Generally, in 2006 among member states, the highest level of real gross disposable income could be observed in Luxembourg, followed by Austria and Germany. In comparison to EU average, their incomes were higher by at least 22%. Incomes above the average were also achieved by Holland, France, Belgium, Sweden, Italy and Ireland. In 2016, the group of countries reaching the highest gross disposable income in relation to EU mean was the same. Apart from Luxembourg, Germany and Austria, income above the EU average was also achieved by France, Belgium, Sweden, Finland, Great Britain, Denmark and Holland, whereas



the lowest was observed in Bulgaria (its income constituted only 50% of the EU average), Romania, Latvia and Greece.

*Table 2: Adjusted gross disposable income of households sector per capita in PPS in %; EU=100) (Eurostat, 2018)*

Specification	2006	2016	Change (pp)	Specification	2006	2016	Change (pp)
Austria	127	122	-5	Ireland	109	91	-18
Belgium	114	112	-2	Italy	112	99	-13
Bulgaria	33	50	17	Latvia	52	61	9
Croatia	53	-	-	Lithuania	60	77	17
Cyprus	99	82	-17	Luxemburg	162	143	-19
Czech Republic	70	78	8	Malta	-	-	-
Denmark	100	108	8	Netherlands	120	108	-12
Estonia	53	71	18	Poland	51	70	19
Finland	100	110	10	Portugal	87	79	-8
France	116	114	-2	Romania	35	56	21
Germany	122	128	8	Slovakia	57	75	18
Great Britain	117	109	-8	Slovenia	82	78	-4
Greece	99	66	-33	Spain	99	88	-11
Hungary	60	-	-	Sweden	106	111	5

Analysing the income situation of households in Poland and EU, differences between incomes with respect to change in their distribution should also be determined. Gini's coefficient is one of the main measures of disparities in income distribution<sup>1</sup> (table 3). With respect to the value of Gini's coefficient, in 2006 Poland was found by 3 percentage points above the EU average among such states as Great Britain, Greece, Hungary and Estonia. The slightest income diversity in 2006 was reported in Slovenia, Denmark and Sweden, whereas the biggest in Latvia and Portugal. In 2016 the largest income disparities were observed in Bulgaria and Lithuania. Furthermore, large income diversity was reported in the countries of southern Europe, including Spain, Greece, Portugal, Italy and Cyprus as well as in Baltic countries i.e. Latvia and Estonia, and also in one of the least wealthy EU countries – Romania. The smallest income disparities were observed in Slovakia, Slovenia, the Czech Republic and Finland. Poland was found in this structure by 1 percentage point below the EU average, among such countries as Germany, France, Croatia and Ireland. It must be added that if on average in EU income disparities were since 2006 on a very similar level, in Poland they were gradually declining since 2006. The difference in values of the indicator in Poland in 2006 and 2016 was 3.5 percentage points. Similar conclusions can also be formulated on the basis of the analysis of income disparities measured by the rate of share in income quintiles<sup>2</sup>.

<sup>1</sup> The indicator measures the extent to which the distribution of income among individuals or households within a society deviates from a perfectly equal distribution. It ranges from 0 to 100, where 0 represents perfect equality (everyone has the same income) and 100 represents maximum inequality (all income is accrued by a single household).

<sup>2</sup>The "income quintile share ratio" (also called the "S80/S20 ratio") is calculated as the ratio of the total income received by the 20% of the population with the highest income to that income received by the 20% of the population with the lowest income.

Table 3: Gini coefficient of equivalised disposable income in the years 2006, 2010, 2016  
 (Eurostat, 2018)

Specification	2006	2010	2016	Specification	2006	2010	2016
EU-28	30.3*	30.5	30.8	Ireland	31.9	30.7	29.5
Austria	25.3	28.3	27.2	Italy	32.1	31.7	33.1
Belgium	27.8	26.6	26.3	Latvia	38.9	35.9	34.5
Bulgaria	31.2	33.2	37.7	Lithuania	35.0	37.0	37.0
Croatia	-	31.6	29.8	Luxemburg	27.8	27.9	31.0
Cyprus	28.8	30.1	32.1	Malta	27.1	28.6	28.5
Czech Republic	25.3	24.9	25.1	Netherlands	26.4	25.5	26.9
Denmark	23.7	26.9	27.7	Poland	33.3	31.1	29.8
Estonia	33.1	31.3	32.7	Portugal	37.7	33.7	33.9
Finland	25.9	25.4	25.4	Romania	-	33.5	34.7
France	27.3	29.8	29.3	Slovakia	28.1	25.9	24.3
Germany	26.8	29.3	29.5	Slovenia	23.7	23.8	24.4
Great Britain	32.5	32.9	31.5	Spain	31.9	33.5	34.5
Greece	34.3	32.9	34.3	Sweden	24.0	25.5	27.6
Hungary	33.3	24.1	28.2	-			

\* EU-27

The average rate of disparities in EU in 2006-2016 was on the level of 4.9-5.2%. This means that the fifth quintile of the richest households reached on average 5 times higher incomes than household of the first quintile. The lower the value, the lower the income diversity. In 2006, the value of the rates ranged from 3.4% in Denmark and Slovenia to 7.8% in Latvia. High values of the coefficient were also observed in Portugal (6.7), in Lithuania (6.3) and in Greece (6.1). In Poland the value reached 5.6% in 2006. In 2016 the value of the rate was between 3.5% in the Czech Republic and 7.7% in Bulgaria and then 7 and more in Romania and Latvia. In Poland it was 4.8% and was lower by 0.4 percentage points than EU average (Eurostat, 2018). This confirms the previous conclusions about positive changes in the sphere of income disparities in Poland.

#### 4. POVERTY, SOCIAL EXCLUSION AND MATERIAL DEPRIVATION IN THE EU

Progress in the sphere of lifting people out of poverty or the area described as social exclusion is one of the priorities of Europe 2020 Strategy. It is measured with the use of nominal rate of people at risk of poverty or social exclusion<sup>3</sup> (Living..., 2014, p. 26). Comparing the rates of poverty risk and social exclusion in individual EU countries (table 4) it can be observed that in the years 2006 – 2016 the number of people at risk grew in 14 member states. It must be added that for the purpose of implementation of Strategy 2020 assumptions in the sphere of combating poverty, the member states determined their own national targets (within national programs relevant for their economic and social situation). The Czech Republic, Poland and Romania were found among the countries that achieved their objectives and thus reported progress in the discussed sphere (Smarte..., 2015, p. 139). In Poland the difference in the value of the rate was 17.6 percentage points. The greatest improvement was reported in Bulgaria – by 20.9 percentage points. Apparent improvement was also reported in Latvia, Slovakia and Lithuania. However, the above-mentioned countries, except for the Czech Republic and Slovakia, are still characterised by very high level of risk of poverty and social exclusion.

<sup>3</sup> At risk of poverty or social exclusion, abbreviated as AROPE, corresponds to the sum of persons who are either at risk of poverty, or severely materially deprived or living in a household with a very low work intensity. Persons are only counted once even if they are present in several sub-indicators.

For example, in 2016 in Bulgaria four in ten inhabitants were included in the category. In the Czech Republic the rate of risk was 3 times lower. It must also be added that in 2006 the difference between the country with the highest and lowest poverty risk was 45.3 percentage points, whereas in 2016, 27.1 percentage points. This means that the distance between the wealthiest and the poorest countries decreased. Nevertheless, these differences are still significant and raise serious social concern related to dangerous level of exclusion and polarisation within the EU.

*Table 4: People at risk of poverty or social exclusion (AROPE) in EU, in the years 2006, 2010, 2016 (% of population) (Eurostat, 2018)*

<b>Specification</b>	<b>2006</b>	<b>2010</b>	<b>2016</b>	<b>Specification</b>	<b>2006</b>	<b>2010</b>	<b>2016</b>
EU-28	*25.3	23.8	23.5	Ireland	23.3	27.3	24.2
Austria	17.8	18.9	18.0	Italy	25.9	25.0	30.0
Belgium	21.5	20.8	20.7	Latvia	42.2	38.2	28.5
Bulgaria	61.3	49.2	40.4	Lithuania	35.9	34.0	30.1
Croatia	-	31.1	27.9	Luxemburg	16.5	17.1	19.8
Cyprus	25.4	24.6	27.7	Malta	19.5	21.2	20.1
Czech Republic	18.0	14.4	13.3	Netherlands	16.0	15.1	16.7
Denmark	16.7	18.3	16.8	Poland	39.5	27.8	21.9
Estonia	22.0	21.7	24.4	Portugal	25.0	25.3	25.1
Finland	17.1	16.9	16.6	Romania	-	41.4	38.8
France	18.8	19.2	18.2	Slovakia	26.7	20.6	18.1
Germany	20.2	19.7	19.7	Slovenia	17.1	18.3	18.4
Great Britain	23.7	23.2	22.2	Spain	24.0	26.1	27.9
Greece	29.3	27.7	35.6	Sweden	16.3	15.0	18.3
Hungary	31.4	29.9	26.3	-	-	-	-

\*EU-27

Material deprivation is an expression of inability of consumers to buy some goods considered by majority of people desirable or even necessary to live on an appropriate level. To identify material deprivation, nine elements of acceptable standard of living are analysed. They include covering unexpected expenses, one-week holiday travel, regular meals consisting of chicken meat, fish or vegetarian equivalent (every second day), heating the dwelling place, having a washing machine, a colour TV, a telephone, a car, the possibility to pay off a loan on time, as well as paying the rent and utility bills. Material rate of deprivation is defined as the number of people who cannot afford to pay for or satisfy three of the nine aforementioned items. On the other hand, severe material deprivation is described as the percentage of the population that cannot afford to pay for, or satisfy four of the nine aforementioned items (Living..., 2014, p.39). Data in table 5 show that in 2016, 7.5% of the EU population, i.e. 37.5 million, lived in conditions of severe material deprivation. The trend is declining as in 2006 the rate was 9.9% of the population. Data in the table show considerable differences observed among member states. The lowest rate of people living in conditions of severe material deprivation in 2016 was observed in Sweden and Luxembourg, followed by Finland, Holland, Denmark, Austria and Germany. The highest rate was reported in Bulgaria followed by Romania and Greece. At the same time, Greece is a country in which the largest growth of the rate of people living in severe material deprivation was observed – by 10.9 percentage points since 2006.

Italy was also a country that observed remarkable growth. On the other hand, the largest decline in the analysed sphere occurred in Bulgaria (by 25.8%), followed by Poland (by 20.9 percentage points, from the level of 27.6% in 2006 to 6.7% in 2016), which should be perceived as positive situation. Significant decline of the rate of people living in conditions of severe material deprivation was also reported in Latvia, Lithuania, Slovakia, the Czech Republic and Hungary.

*Table 5: Severe material deprivation in the EU in the years 2006, 2010, 2016 (% of population) (Eurostat, 2018)*

<b>Specification</b>	<b>2006</b>	<b>2010</b>	<b>2016</b>	<b>Specification</b>	<b>2006</b>	<b>2010</b>	<b>2016</b>
EU-28	*9.9	8.4	7.5	Ireland	4.8	5.7	6.5
Austria	3.6	4.3	3.0	Italy	6.4	7.4	12.1
Belgium	6.4	5.9	5.5	Latvia	31.3	27.6	12.8
Bulgaria	57.7	45.7	31.9	Lithuania	25.3	19.9	13.5
Croatia	-	14.3	12.5	Luxemburg	1.1	0.5	1.6
Cyprus	12.6	11.2	13.6	Malta	3.9	6.5	4.4
Czech Republic	9.6	6.2	4.8	Netherlands	2.3	2.2	2.6
Denmark	3.1	2.7	2.6	Poland	27.6	14.2	6.7
Estonia	7.0	9.0	4.7	Portugal	9.1	9.0	8.4
Finland	3.3	2.8	2.2	Romania	-	30.5	23.8
France	5.0	5.8	4.4	Slovakia	18.2	11.4	8.2
Germany	5.1	4.5	3.7	Slovenia	5.1	5.9	5.4
Great Britain	4.5	4.8	5.2	Spain	4.1	4.9	5.8
Greece	11.5	11.6	22.4	Sweden	2.1	1.9	0.8
Hungary	20.9	21.6	16.2	-			

\*EU-27

Considering a selected element proving material deprivation, Eurostat statistics show that every twelfth person in the EU-28 in 2016 (8.3%) could not afford a meal of meat, fish, chicken or vegetarian equivalent every second day. Significant differences are observed on the level of individual countries, from 1.3% in Sweden to 34.6% in Bulgaria. In Poland in 2016, 6.4% people experienced such a situation. It must be added that in 2006 the rate in Poland was on the level of 28.4% which means that much over 1/4 of the population could not afford to have a meal containing meat (Eurostat, 2018). A positive change that could be observed proves remarkable progress that occurred in Poland in the last decade.

## 5. CONCLUSION

On the basis of conducted analysis an opinion can be formed that material living conditions of European Union population are characterised by significant spatial diversity. The countries characterised by most favourable income situation include Luxembourg, Germany and Austria, whereas Bulgaria, Romania, Latvia and Greece are countries of the lowest gross disposable incomes in household sector. The period of studied decade brought improvement in income situation of Polish households which represents the reduction of the distance between Poland and EU-28 and improvement in people's material standard of living. Nevertheless, it must be emphasised that income situation of Poles is still considerably below the average EU level. As for income diversity in terms of change in their distribution, the situation in Poland is relatively favourable. In the year finishing the period of conducted analysis, the largest income disparities were observed in Bulgaria and Lithuania, whereas the smallest in Slovakia, Slovenia, the Czech Republic and Finland.

Considering the rate of risk of deprivation and social exclusion in individual EU countries it can be stated that between 2006-2016, the distance between the wealthiest and the poorest countries decreased; however, disproportions occurring among individual countries are still considerable. The countries that are most at risk of deprivation include Bulgaria, Romania and Greece, whereas the Czech Republic is the least at risk. In relation to the EU average, the situation in Poland seems positive, as the rate is below the average level. On the basis of the analysis of material deprivation rate it can be concluded that the lowest rate of people living in conditions of severe material deprivation in 2016 was observed in Sweden and Luxembourg and the highest in Bulgaria. On the other hand, in Bulgaria and in Poland the greatest progress in this respect was observed. In the studied decade, the rate of Poles living in conditions of severe material deprivation decreased by over 20 percentage points while reaching the level lower than the average level for the EU-28. Summing up it must be added that the current socio-economic situation in the EU still raises serious challenges and needs in the sphere of convergence of the standard of living in the whole EU and combating poverty for the purpose of ensuring better social integration. Actions implemented for the purpose of stimulation of economic growth favouring social inclusion, including promotion of employment as well as guaranteeing appropriate social protection and access to services provided within public consumption are vital.

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## ANALYSIS OF FOREIGN DIRECT INVESTMENT DETERMINANTS IN THE SELECTED COUNTRY

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### ABSTRACT

*In the host country, foreign direct investment opens new work opportunities, positively influences workforce productivity, introduces the latest findings and technological know-how, and positively influences the balance of payments – thus also increasing the rate of economic growth. Viewed through a long-term perspective that takes indirect effects into consideration, foreign direct investment is nonetheless accompanied by many negative effects. Foreign direct investment is claimed to not necessarily support economic growth and employment especially in cases when foreign direct investment largely crowds out existing investments. Investors are claimed to also, not form ties with domestic companies, production also tends to be focused on technologically less complicated phases of the production chain, and transnational companies in the country are also believed to implement unfriendly strategies. Each country has certain factors that are important for investor decision-making. Many of these factors can influence the host economy and encourage interest from foreign investors. Some factors such as the position of the state, on the other hand, cannot influence the host economy. Investors generally prefer countries that are attractive for some reason. A unified definition of factors that are decisive for investors is quite difficult, however, Countries wishing to support the flow of foreign investment use variety of tools to attract investors, including host country promotion, investment incentives, or aftercare services. The aim of the paper is to identify, based on the available literature, the possible factors influencing the inflow of foreign direct investment into the country in general and using statistical methods to identify specific factors influencing foreign direct investment in the selected country. Using multiple regression analysis, the Gross domestic product, Corporation tax, Science and research expenditures and the Corruption perception index were identified as significant factors influencing foreign direct investment in the Czech Republic.*

**Keywords:** *Determinants of Foreign direct investment (FDI), inflows of FDI, regression analysis*

### 1. INTRODUCTION

The issue of foreign direct investment is becoming an increasingly discussed topic in terms of possibilities of influencing their volume and their benefits for the national economy. Foreign direct investment can be defined as an investment in another country that serves to obtain a share of common stock and decision-making powers of at least 10% or a share giving the foreign investor the decision-making power (Liebscher, 2007). Host countries have an interest in foreign investment mainly because of their positive effects. Professional literature states that new investments can influence the labor market, increase competitiveness and complement the lack of domestic capital. Foreign direct investment can also bring new management practices, know-how, innovation or interconnection of national economies. Investments may also have negative impacts, such as crowding out domestic businesses or inequality of investment inflows into different industries.

It is therefore necessary for the host country to consider the possible consequences of the inflow of foreign direct investment. Each country has certain factors that are important for investor decision-making. Many of these factors can influence the host economy and encourage interest from foreign investors. Some factors such as the position of the state, on the other hand, cannot influence the host economy. Investors generally prefer countries that are attractive for some reason. A unified definition of factors that are decisive for investors is quite difficult, however, Countries wishing to support the flow of foreign investment use variety of tools to attract investors, including host country promotion, investment incentives, or aftercare services. In the Czech Republic, there was a turning point in 1995, when a new Foreign Exchange Act No. 219/1995 was introduced, allowing the convertibility of the Czech currency and the free movement of capital. Another important milestone was Government Resolution No. 298 in 1998, which launched investment support through investment incentives. At that time, the government's approach has also changed, which has been aimed at improving and clarifying the legislative environment, improving support for small and medium-sized enterprises and supporting research and development. These changes led to an increase in the number of foreign partners in the Czech Republic and significantly affected the current situation in foreign direct investment. The aim of the paper is to identify, based on the available literature, the possible factors influencing the inflow of foreign direct investment into the country and, using statistical methods, to identify specific factors influencing the inflow of foreign direct investment into the Czech Republic.

## **2. FACTORS INFLUENCING FDI**

Factors influencing foreign capital inflows have been addressed in many empirical studies. The authors Bénassy-Quéré, Coupet and Mayer (2007) analyzed the impact of factors on FDI in OECD countries in 1985-2000. They investigated the impact of numerous factors on FDI, but also whether these factors affect FDI positively or negatively. Their results have shown that common factors such as language, GDP, labor productivity, consumer productivity, or legislation on investor protection are among the factors that have a positive impact on the flow of investment in these countries. Interesting was the discovery and influence of corruption. They have shown that countries with important levels of corruption have up to 7.9 times the influx of FDI. As negative factors that have a major impact on discouraging investors, the authors have described employment protection and a weak concentration of capital. Employers are understood to mean employment law, which regulates working hours and the conditions of remuneration of workers. The above-mentioned authors were followed by Blonigen and Piger (2014), who identified a common language and trade openness as a significant factor. Their results assume that language affinity will affect FDI inflows in up to 85% of the countries surveyed. Trade openness, i.e. the existence of a customs union and free trade agreements, affects FDI in up to 90% of cases. The afore mentioned studies by Bénassy-Quéré, Coupet and Mayer does not agree authors Demekas et al. (2007) who claim that corruption and tax holidays have no impact on FDI. Their work contains data from 1995-2003 from individually selected countries including the Czech Republic. Previous studies have provided evidence to support that if the level of income of the country increases, the significance of the influence of other FDI factors decreases and the factors become crucial in a domestic market and the business environment. Unlike other studies, they also assessed environmental factor which had been shown to influence the influx of FDI. Holland (1998) paid attention to the inflow of FDI into the transforming economies. They assumed that FDI is necessary for these states to "kick-start" their economy. Hence, they studied 8 states including the Czech Republic to verify this. The results of the study showed that the possibility of realizing privatization, proximity to Western and more developed countries, and emerging trade relations between states have a significant impact on the growth of economies.



Another finding was the independence of investment in wage costs and the capabilities of workers. The authors claim they have only a marginal role in the final decision of the investor. The most principal factors were geographical proximity, trade agreements and the opening of accession negotiations with the European Union. Carstensen and Toubal (2004) examined FDI determinants in Central and Eastern European countries. In recent years, there has been a significant increase in investment in Central Europe (Czech Republic, Hungary, Poland, Slovakia), while Eastern European countries (Bulgaria and Romania) have lagged. The classic factors mentioned in previous studies added market potential, corporate costs, business environment, investment incentives, corporate tax rates. As part of their analysis, the authors of the study divided the time series into short and long-term. The result of the study was that if the market potential of the host country increases by an average of 1%, an increase of FDI could be expected in the first year by \$ 166 million. In the long run, it is up to \$ 246 million. Another factor the authors dealt with was wage costs. The fall in these costs will increase the FDI inflow in the first year by \$ 25 million and in the long run by up to \$ 37 million. Additional significant factors identified to affect FDI were market environment, low labor costs, POs taxes and related subsidies. Likewise, a skilled workforce is crucial to the introduction of innovative manufacturing technologies. Another corporate FDI determinant is a corporation tax, with a 1% decrease in the first year averaging an inflow of \$ 2.5 million. This factor, according to the authors mentioned, is not one of the most crucial factors, as well as the quality of workforce and the innovation of technologies. Authors Bevan and Estrin (2004) investigated the FDI inflows in 1994-2000 in selected host countries, as well as the Czech Republic. In the empirical study, they used as variables GDP, inflation, exchange rate risk, institutional development indicators, and country risk for potential investor ratings. The authors of the study considered a significant factor for the inflow of FDI, especially the GDP of the host country. They also confirmed the negative relationship between FDI and wage costs, so the inflow of investment was in areas with lower labor cost per unit. The market risk was quite a surprising revelation from the analysis, as it was shown that FDI flows are not affected by this factor. The study also dealt with the impact of joining the European Union on FDI, with the authors concluding that the flow of investment will be compounded by the mere announcement by the European Union of a country's accession. Biswas (2002) described the respecting of property rights in the country as one of the most crucial factors. This is very important for investors because they prefer investing in an environment that guarantees greater certainty that their capital will be maintained. An important factor is also the democracy that protects the individual property rights. It also allows effective transmission of government policy information, which investors welcome. There are differences in the evaluation of the authors mentioned in the area of identification of FDI inflow determinants in the host economy which can be caused by a considerable difference of the surveyed sample of countries, the different methodology of the survey and the time period studied.

### 3. METHODOLOGY

To fulfill the objective of the research, a multiple regression analysis method is used, which makes it possible to assess the influence of selected determinants on the FDI inflow into the Czech Republic. It also makes it possible to determine the interdependence or independence of the chosen factors. The least squares (OLS) estimates are used in the analysis. Multiple regression analysis seeks values of the dependent variable from a linear combination of values of two or more independent variables. The formula can be expressed as follows:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \dots \quad (1)$$

where:

Y – dependent variable,

$\beta_0$  – constant,

$\beta_1, \beta_2, \beta_3$  – regression coefficients,

$X_1, X_2, X_3$  – values of an independent variable.

Multiple regression analysis can explain the variance of the dependent variable Y, determine the effect of each independent variable X on the dependent variable Y and predict the values for individual cases (Hebák et al., 2005). To use the multiple regression analysis, data must meet several assumptions that ensure unbiased results of regression analysis. These assumptions include the normal distribution of variables, the occurrence of homoscedasticity, the absence of multicollinearity, the variables must be metric, and the data must not be outlying values (Víšek, 1998). All assumptions of multiple regressions were verified for the purposes of the analysis. All modeling and testing of variables was also carried out using Gretl software, testing with a 5% level of significance.

#### 4. ANALYSIS OF FOREIGN DIRECT INVESTMENT DETERMINANTS

The specific localization factors were selected for the regression analysis based on the literature and foreign empirical studies mentioned in the second chapter of the paper. A set of test variables is available in the 1998-2015 time series. This period was selected due to another foreign direct investment record methodology prior to 1998, which could lead to distorted results. The following variables were chosen for the specific localization factors: FDI inflow = f (general unemployment rate, GDP, GDP per capita, minimum wage, Corruption Perceptions Index, corporate tax rate, rating, CZE / EUR nominal exchange rate, science and research expenditure, Index of Economic Freedom, investment incentives). The multiple regression model for identifying FDI determinants in the Czech Republic can thus be expressed according to formula (1) in the form:

$$FDI_t \text{ inflow} = \beta_0 + \beta_1 UR_{t-1} + \beta_2 GDP_{t-1} + \beta_3 GDP/c_{t-1} + \beta_4 MW_{t-1} + \beta_5 CPI_{t-1} + \beta_6 TAX_{t-1} + \beta_7 RG_{t-1} + \beta_8 NExR_{t-1} + \beta_9 SR_{t-1} + \beta_{10} IEF_{t-1} + \beta_{11} II_{t-1}, \quad (2)$$

where are:

t	year in the range of 1 ... t,
UR	general unemployment rate,
GDP	gross domestic product,
HDP/c	gross domestic product per capita,
MW	minimum wage,
CPI	Corruption Perceptions Index,
TAX	corporate tax rate,
RG	rating,
NExR	CZE / EUR nominal exchange rate,
SR	science and research expenditure,
IES	Index of Economic Freedom,
II	investment incentives.

For independent variables, a one-year delay will be taken into account. The reason for this delay could be seen from the studies from a number of authors (Blonigen, Piger, 2014, Carstensen, Toubal, 2004, CzechInvest, 2015, Holland 1998) dealing with FDI issues. According to these authors, investors are reacting to the changing situation in the host economy with a delay, as they are waiting to confirm new information even in the next period.

Another reason is also the lengthy registration of starting entrepreneurs. Prior to using multiple regression analysis, multi-collinearity has to be verified. This is due to the interaction of independent variables. From Table 1, this situation occurs among just a few variables. For this reason, some independent variables must be excluded from multiple regression analysis. Two factors were excluded from the test sample based on the largest number of multi-collinearity with independent factors. Most dependencies have been demonstrated on GDP per capita which has been shown to have multi-collinearity with 6 independent factors. Another variable that will be discarded for the next analysis is the CZE / EUR exchange rate, as the dependence on 5 indicators has been demonstrated.

Table 1: Multicolinearity test (Own processing based on CNB, CSO, CzechInvest, TI)

UR	GDP/c	GDP	MW	SR	II	CPI	TAX	NExR	IEF	RG	
1	-0,28	-0,27	-0,12	-0,24	-0,25	-0,69	0,17	0,20	-0,30	0,23	<b>UR</b>
	1	0,99	0,96	0,92	0,99	0,67	-0,97	-0,93	0,45	-0,81	<b>GDP/c</b>
		1	0,97	0,91	0,99	0,66	-0,97	-0,93	0,42	-0,80	<b>GDP</b>
			1	0,84	0,96	0,49	-0,95	-0,93	0,25	-0,68	<b>MW</b>
				1	0,93	0,66	-0,88	-0,77	0,66	-0,94	<b>SR</b>
					1	0,63	-0,98	-0,93	0,47	-0,83	<b>II</b>
						1	-0,55	-0,47	0,45	-0,57	<b>CPI</b>
							1	0,94	-0,42	0,78	<b>TAX</b>
								1	-0,24	0,70	<b>NExR</b>
									1	-0,74	<b>IEF</b>
										1	<b>RG</b>

After excluding the above factors, the regression model can be written according to the formula (1):

$$FDI_t \text{ inflow} = \beta_0 + \beta_1 UR_{t-1} + \beta_2 GDP_{t-1} + \beta_3 MW_{t-1} + \beta_4 CPI_{t-1} + \beta_5 TAX_{t-1} + \beta_6 RG_{t-1} + \beta_7 SR_{t-1} + \beta_8 IEF_{t-1} + \beta_9 II_{t-1} \quad (3)$$

The next step is modeling of determinants that influence the inflow of FDI into the Czech Republic using the regression analysis mentioned above. The aim is to find a solution that will appear to be the most appropriate for the choice of model using the adjusted determinant coefficient (R2adj), which is considered a comparative quality variable. A better model can be identified from the value of the information criteria, while the lower the value of the information criteria, the better the model. In order to test the best selected regression analysis model, information criteria were used, including the Schwarz information criterion (BIC), the AIK and the Hannan-Quinn information criterion (HIC) (Bill, Němec, Pospíš, 2009). For multiple regression analysis, the following hypotheses apply:

- H0: parameters are insignificant,
- H1: Parameters are significant.

Rejection the zero hypothesis will occur when the p-value is lower than alpha (i.e. 0.05). For this reason, the results of the original model shown in Table 2 are unsatisfactory, and re-modeling has been used to remove factors with the highest p-value. In this case, factor IES, RG, IP, MZ and OMZ were excluded.

The resulting model after adjustments only includes significant variables that meet the assumptions to reject the zero hypothesis.

Table 2: Multiple regression analysis (own processing )

	Original model		Resulting model	
	Coefficient $\beta$	p-value	Coefficient $\beta$	p-value
<b>Const</b>	906,8620	0,6400	1800,2500	0,0396**
<b>UR</b>	-32,5781	0,2525		
<b>GDP</b>	0,6516	0,2512	0,4315	0,0096***
<b>MW</b>	-0,0652	0,5759		
<b>CPI</b>	-20,7404	0,2214	-15,0402	0,0507*
<b>TAX</b>	-30,3660	0,1510	-40,5311	0,0123**
<b>RG</b>	20,1198	0,8210		
<b>SR</b>	10,6922	0,2110	12,0960	8,90e <sup>-5</sup> ***
<b>IEF</b>	-1,7700	0,9150		
<b>II</b>	0,0009	0,8007		
<b>R<sup>2</sup></b>	0,9934		0,9947	
<b>R<sup>2</sup><sub>adj.</sub></b>	0,9902		0,9925	
<b>p-value (F)</b>	0,0008		0,00001	
<b>AIC</b>	213,8221		208,1861	
<b>BIC</b>	222,7258		213,5283	
<b>HIC</b>	215,0498		208,9227	

From Table 2, the resulting functional form of the regression model according to formula (1) can be constructed:

$$\text{FDI inflow} = 1800,25 + 0,4315 \cdot \text{GDP} - 15,0402 \cdot \text{CPI} - 40,5311 \cdot \text{TAX} + 12,0960 \cdot \text{SR} \quad (4)$$

The most significant factor influencing the inflow of FDI into the Czech Republic has been proved by a multiple regression analysis of the expenditure on science and research. The analysis has shown that if science and research expenditure rise by CZK 1 billion, FDI will increase by CZK 12 billion. Another important determinant of FDI is GDP in the Czech Republic. The analysis showed that with an increase in GDP of CZK 1 billion, there will be an investment inflow of CZK 0.4 billion in the Czech Republic. On the other hand, the negative impact on the inflow of FDI was corporation tax. The increase in the income of corporation tax by 1% led to a decrease in the inflow of FDI by CZK 40 billion in the monitored period. The last factor that appears to be significant is the Corruption Perceptions Index. The analysis has shown that if the Index increases by one point (i.e the level of corruption in the Czech Republic will decrease), the FDI inflow will be reduced by CZK 15 billion. It is important to emphasize that this indicator appears to be of least importance from the selected ones.

## 5. CONCLUSION

Foreign direct investment, which is an integral part of the economies of the vast majority of countries, brings many positive impacts on the host economy. However, they are not always associated only with positive consequences for the host economy. One of the main negatives of foreign direct investment is, in particular, the displacement of domestic enterprises. It is therefore necessary to consider each investment individually in the specific time and local conditions of the given economy. Individual countries are interested in positive consequences resulting from inflows of investment. They use various tools to attract investors, and the location factors they naturally have are their own. Each country is unique and unique to them.

In the Czech Republic, geographical location, membership in the EU, NATO, educated population, lower labor costs, attractive investment incentives and stable economic growth can be identified as locating factors for potential investors. The paper aimed to define the determinants of the FDI inflow into the Czech Republic. From the results of the regression model, science and research expenditures, GDP, corporation tax income and the Corruption Perceptions Index have emerged as significant factors. While spending on science and research or GDP seem to have a positive effect on FDI. Corporation tax and Corruption Perceptions Index appear to be negative in the results.

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# WHAT SHOULD WE BE CAREFUL OF WHEN DESIGNING LEARNING OR RECOGNITION TASKS IN THE RESEARCH OF FALLACIOUS REASONING? FINDINGS FROM A PILOT STUDY

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## **ABSTRACT**

*Social media and cognitive fallacies feed the spread of fallacious reasoning. Challenges of the current world such as information manipulation increase the need to evaluate reasoning. Which leads consequently to better judgments and decision making. Critical thinking is perceived as one of the key skills for the future. For the research of fallacious reasoning, it is important to be able to measure the ability to recognize fallacious reasoning and also to educate participants in it. In the paper, we present findings from a pilot study of recognition and learning tasks. The main findings were the wording of instruction affecting the results; balanced correct and incorrect answers to avoid ceiling and floor effect; the necessity to remind the instruction to prevent it being replaced for an easier question; entertaining design of learning task enhancing the attention paid to the experiment. These findings should be considered when designing the experiment focusing on fallacious reasoning to avoid biased data.*

**Keywords:** *informal reasoning; learning and recognition; reasoning fallacies*

## **1. INTRODUCTION**

A man shared a post on Facebook stating that some previous presidents and prime ministers of his country are horrible (he used more offensive words) and that people in the country suffer because of them. The premises to support the conclusion were the higher prices now compared to the year 1989. He compared the prices of some grocery products. The comparison does not take into account that the year 1989 was the end of the communist regime under the control of the Soviet Union and the year 2014 was the country democratic, the prices of other products, inflation and mainly the average income. It is an example of fallacious reasoning. But still, the post was popular: liked, shared and commented. The story demonstrates the necessity to evaluate arguments. The need to evaluate arguments is even higher in the era of social media which create an environment for massive dissemination of misinformation (Del Vicario et al., 2016). The expression information obesity is used to describe information overload (Whitworth, 2009). Whitworth explains that it is not only the huge and still rising amount of information produced every day and the fact that it is easily accessible, but the obesity is also connected to the low quality and imbalance as with the physical obesity. The information load and limited attention decrease the ability to discriminate the high or low quality of the

information (Qiu, Oliveira, Shirazi, Flammini, & Menczer, 2017). More related challenges of the current world are the post-truth era, propaganda, fake news, conspiracy theories, hoaxes, manipulation, trolls, information warfare... are discussed on a regular basis. We can summarize the stated with the name information manipulation (Vilmer, Escorcía, Guillaume & Herrera, 2018). The solution to the problems and challenges as mentioned earlier is critical thinking (Wierzbinska, 2018). World Economic Forum considers critical thinking as the second most important skill for the year 2020 (World Economic Forum, 2018). Critical thinking dispositions are truth-seeking; open-mindedness; analyticity; systematicity; self-confidence; inquisitiveness; cognitive maturity (American Psychology Association, 1990). The analyticity involves also reasoning. The educators, as well as individuals, should be provided with the information that helps to build the immunity for the aforementioned types of information manipulation. The previous research provides some insights but they are not sufficient to answer all the questions. As teachers of the course of the critical thinking, we need to be able to evaluate the abilities of the students related to recognition of the fallacious reasoning and to evaluate. As a part of a broader research of fallacious reasoning and its effects on judgment and decision making of individuals, we needed a task that would evaluate the abilities of participants to recognize the fallacious reasoning and also to educate participants in it. The aim of the paper is to point out the challenges of a research on reasoning fallacies, especially on the recognition and the learning part.

## **2. STATE-OF-THE-ART**

The reasoning may be fallacious in different ways; it includes Ad hominem; Post Hoc Ergo Propter Hoc; False Dilemma, Slippery Slope, Appeal to Authority, Red Herring; Appeal to Ignorance etc. Aristotle was the first one to describe informal reasoning systematically as arguments that are persuasive but not valid. He distinguished fallacies dependent on language and non-linguistic fallacies (Aristotle, 1989). The theory of argumentation recognizes a variety of informal reasoning fallacies. They can be categorized into groups, such as appeal to the mind, appeal to emotions, faulty deduction, manipulating content, garbled cause and effect, on the attack (McCandless, 2012). The categorisation stress that there are differences. To be able to make a general conclusion about fallacious reasoning, the experiment should involve more types of fallacies. Previous research focused mainly on the factors affecting the ability to recognize fallacious reasoning. The context of the reasoning plays a role in the recognition of the fallaciousness of the reasoning (Neuman, Weinstock & Glasner, 2006). Concluding that in the context of a reasoned dialogue, students rejected the legitimacy of fallacious argument more frequently compared to unreasoned dialogue. When reminded, students are able to apply norms of argumentation. Also, the ability to recall the deep structure of the scenario leads to higher satisfaction to identify the fallacy (Neuman & Weizman, 2003). There are differences between types of fallacious reasoning. According to Neuman & Weizman (2003) the easiest fallacy to identify was ad ignorantiam while in Neuman, Weinstock & Glasner (2006) was one scenario where was participant's successfulness the lowest for ad ignorantiam compared to ad populum and ad hominem. Both studies used the same topics - UFO and God. It seems that the evaluation of arguments can be influenced by beliefs. The data from previous research are contradicting, students are influenced by their prior beliefs was concluded in Thompson & Evans (2012) and Neuman, Weinstock & Glasner (2006) but Neuman & Weizman (2003) concluded that it does not. To avoid a possible belief bias (Stanovich & West, 1997), we wanted to avoid such topics that are frequently discussed and people usually have strong opinions on them, such as smoking, God, euthanasia etc. The number of tasks/scenarios available in the previous research is low and it did not suit the needs of our research, especially for the learning part. The number of scenarios varied from 2 (Bizer, Kozak & Holterman, 2009) to 6 (Neuman, Weinstock & Glasner, 2006) to 15 (Ricco, 2007).



### **3. DESIGN AND PROCEDURE**

The requirements for the recognition and learning task were to be able to distinguish different levels of ability of participants to recognize the fallacious reasoning. When a participant succeeds in the recognition task, it is not necessary to spend the time with the education. But when a participant fails to recognize fallacious reasoning, he or she should spend more time in the learning part. The difficulty of the tasks has to avoid ceiling and floor effect (Blair & Imai, 2012). The recognition and learning task is developed as a part of a broader research. To be able to see the effect of a manipulation, it was necessary to get the differing results between participants. The tasks of the recognition of the fallacious reasoning should not require specific knowledge, such as knowledge of someone's work. The two-component model of informal reasoning consists of knowledge-experiential component and an informal reasoning skill component (Means & Voss, 1996). Participants were presented with statements and their task was to judge the reasoning whether it is fallacious or not. The length of the statement was one to three sentences. It was an argument, so it consisted of a conclusion and one or more premises to support the conclusion (Moore & Parker, 2016). They choose one from the given answers: yes, it is fallacious - no, it is not fallacious - I don't know. Immediately after each response, the participants were presented with the result, whether the statement was or was not fallacious complemented with an explanation. Example statements are:

- Fallacious: Cars produced by the Skoda Auto company are of low quality. When I was a child, we had one and it struggled to go up a hill.
- Not fallacious: Low Cost airlines offer tickets for lower prices because they do not offer some services which allow them to keep the prices low.

The default number of tasks was 7. When participants answered incorrectly, the number of tasks increased by one. For a correct answer, the number of tasks to be completed decreased by one and for the response 'I don't know' the number of tasks to be completed did not change; just the one statement was replaced by another one. For example, when a participant answered one time "I don't know" and two times incorrectly, the total number of tasks for him or her was 12. The maximum of tasks for one participant was set as 30. The pool of the statements consisted of 30 various statements of which 15 statements were fallacious and 15 were not. The selection of statements for participants was generated randomly. The random selection of statements included also the proportion of fallacious statements and also the order.

### **4. PROCESS OF PILOT STUDY**

The pilot study had three stages differing in the aim, number of participants, age of participants, procedure etc. The details are described below.

#### **4.1. First pilot study**

The study was part of a set of studies. The learning module was assigned randomly to participants. The participants were university students recruited from a pool of students who voluntarily subscribed for receiving invitations for experiments. They were rewarded the equivalent of 10 EUR for their participation. The reward was fixed; it was not dependent on their answers. They answered the tasks in an experimental lab using computers. The question was: "Is it fair to use this sentence in a discussion?" The procedure described above was further followed. The two main aims of the first pilot study were: 1) to test the technical functionality of the software and the user friendliness of the interface and instructions, and 2) to test the suitability of wording. The participants were asked to fill in the questionnaire while completing the experiment. The questions included topics of clarity of instructions and questions; linguistic side of the scenarios and tasks, typos, feelings during the experiment - especially the difficulty/easiness of the tasks, whether something was frustrating, entertaining, was there

something that complicated the ability to focus on the answers etc. We also conducted the post-experimental interviews with four participants to discuss their answers in depth. The choice of the students for the interview was based on the time they finished the experiment. One researcher interviewed the participants, as the interview was finished next participant was asked. Participants who participated in the post-experimental interview were paid extra the equivalent of 4 EUR. The technical functionality was verified. At the same time, the gamming approach turned out to be promising to keep the attention of the participants which is essential for the quality of the collected data. Testing of the suitability of wording proved to be beneficial. Out of the total of 35 tasks, only 3 were evaluated incorrectly. Two key questions therefore aroused. First, what is the optimal degree of obviousness of reasoning fallacies? Operationalization reasoning fallacies were based on adjusted. Second, how to ask a question so it is not instructive? The word "fair" in the question has proved to be subjective and instructive in searching for reasoning fallacies. Therefore, it was replaced by a word "problematic" as described below.

#### **4.2. Second pilot study**

The second pilot study followed the findings from the first one and enhanced the findings. It was focused merely on the recognition tasks. The participants were asked to evaluate all 30 developed scenarios and decide whether the reasoning was fallacious or not. The aims of the second pilot study were: 1) investigate differences in the success rate to recognize fallacious reasoning for different strengths of the fallaciousness; 2) investigate differences in the answers according to different wording of the instructions, and 3) gather data to identify possibility of problematic scenario description. The participants were high school students (n=23, average age=18). The data collection took place during their usual education class and was followed by a presentation of the principles of critical thinking. The participants were not rewarded for their participation. The participants received a paper with all the tasks to complete and they answered on the paper. The order of the task was random. Compared to the first pilot, they saw all the tasks at one time, they could go back, there was no check of missing answers etc. Due to the specific conditions of the high school education, it was not possible to conduct the data collection in a lab. In order to investigate different strengths of reasoning fallacies, three scenarios were randomly chosen and less recognizable versions of those scenarios were created and tested. The results were inconclusive so this angle was not used in third pilot study. In the first pilot study, the question: "Is it fair to use this sentence in a discussion?" was used in the instructions. For the second pilot study, the question: "Is it problematic to use this sentence in a discussion?" was used and also tested. We find it necessary to use a specific question. Question "Is it problematic to use this sentence?" is too broad. In this case, the participants could focus on stylistic issues, which are not the subject of research. The second part of the question was therefore included. There was a difference in recognizing reasoning fallacies depending on the question which was assigned. Similarly, the answers "yes" and "no" proved to be insufficiently specific. Therefore, participants selected their answer from "problematic" and "non-problematic" options.

#### **4.3. Third pilot study**

The participants, reward, procedure etc. were the same as in the first pilot study except for the questionnaire and post-experimental interview, which were not used. The aim of the third study was to gather bigger data to be able to reveal possible floor or ceiling effect, possible problematic tasks, or significant differences between the successful rates for tasks with and without fallacious reasoning. The number of participants with the learning and recognition part was 73. Other 127 students of the whole study were assigned to a different condition not related to the learning and recognition of fallacious reasoning.

The following table shows the successfulness of the participants in the recognition of the fallacious reasoning. The minimum was set as 7 by the design. It means, that 27 participants answered all the tasks correctly. Three participants answered “I don’t know” for one task; 19 participants had one task incorrectly etc.

*Table1: Number of tasks solved by participants and their frequencies*

<b>Number of tasks</b>	<b>Frequency</b>	<b>Proportion</b>
7	27	37.0%
8	3	4.1%
9	19	26.0%
10	1	1.4%
11	10	13.7%
12	1	1.4%
13	4	5.5%
15	2	2.7%
21	2	2.7%
22	1	1.4%
23	1	1.4%
29	2	2.7%

The proportion of correct answers for the tasks differed. The most successful task was answered correctly in 100% occurrences; the lowest rate was 44%. Both were tasks containing fallacious reasoning. The overall comparison of the tasks including fallacious reasoning and without is in the Table 2.

*Table2: Success rate of the answers according the presence of the fallacious reasoning*

	<b>Median</b>	<b>Standard deviation</b>
Tasks WITHOUT fallacious reasoning	85.19	14.42
Tasks WITH fallacious reasoning	88.46	12.95

## 5. CONCLUSION

As a part of research focused on fallacious reasoning, we needed tasks allowing us to recognize the ability to recognize fallacious reasoning and to educate participants in it. We developed 15 scenarios with fallacious reasoning and 15 scenarios without and procedure to educate the participants according to their success rate in the recognition. We conducted three pilot studies of the developed design to enhance the quality. The identified aspects that should be considered when designing the experiment for fallacious reasoning include the wording of the instructions. At first, we found the gamming approach as promising to keep the attention of the participants which is essential for the quality of the collected data. Second, we used the word “fair” when asking the participants to evaluate the reasoning. The post-experimental interviews showed that the word fair is instructive and reminds the norms of argumentation which affects the ability to recognize the fallacious reasoning. Therefore, “problematic” is more appropriate.

## 6. DISCUSSION

The developed design of the experiment has to be complemented with more tasks investigating the fallacious reasoning broadly. The ability to recognize the fallacious reasoning is not enough by itself. It could still affect the judgments and decisions of the participants.

It seems that individuals struggle ignoring information once they receive it (Cialdini, 1987; Cain et al., 2005) and to avoid a bias even when being motivated and well informed (Wilson et al., 1996). The simplification of the developed design of the experiment was the necessity to answer just yes and no, meaning it is fallacious or it is not fallacious. But the situation of the assessment of the fallaciousness is not so clear all the time. Differentiating inductive and deductive arguments and considering Bayesian approach, even the fallacious reasoning offers some information to consider (Oaksford & Hahn, 2004). We developed the scenarios with the intention to avoid strong effect of belief bias. But in reality, the fallacious reasoning is used in the situation with strong prior beliefs in attempts to vindicate the belief.

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## IMPROVING THE QUALITY OF A BUSINESS TOURISM PRODUCT THROUGH COOPERATION OF ENTITIES

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### ABSTRACT

*The complexity of a business tourism product means that shaping quality is still a challenge for market players. The growing needs of customers and the willingness to satisfy them leads to seeking the possibility of improving quality. Cooperation of entities on the market is one of the main factors for building a high quality product and effective promotion. A business tourism product can be considered as an offer of a specific company or a network product of a place or city. In the first case, the success of the product depends strictly on cooperation with other entities. This is due to the basic characteristic of complementarity services. Looking at the product of business tourism in terms of the offer of a given place or city, is also based on the cooperation of entities, especially since it has the characteristics of a network product. In this context, several questions arise: Is it possible to improve quality in business tourism through the cooperation of entities? Do entities cooperate with each other to promote quality? Is their concept of cooperation based on quality management? Are they aware that good cooperation determines the quality of the product? The aim of the study is to present the results of the study in the scope of defining the role and assessment of the impact of cooperation of tourism entities on improving the quality of a business tourism product. The method used to analyze the literature of the subject and diagnostic survey was an interview. Research has shown that cooperation is one of the main dimensions of the quality of a business tourism product. Thanks to the cooperation of entities, it is possible to increase the tourist attractiveness of the product, create a positive image, but also to develop infrastructure and organizational facilities. The offer based on cooperation of entities is the basis of high quality and complementarity of the product. Entities in which the interview was conducted are fully aware of building the offer through quality and quality improvement through cooperation. However, research has shown that the cooperation of entities in the field of business tourism is negligible. Joint activities are occasional and dispersed. The research shows the lack of clearly defined action strategies in the field of product quality improvement and cooperation between entities. The assessment was based on self-assessment of the surveyed entities.*

**Keywords:** *business tourism product, cooperation, quality*

### 1. INTRODUCTION

According to the analysis of literature, quality is a multidimensional and interdisciplinary concept. It is defined in philosophy, economics or technical sciences. Quality can be related to a specific subject (product, process, system, etc.) (Juran 1962) and to a set of attributes and properties that characterize a given item (Szczepańska 2010, pp. 32-38). Quality in terms of marketing refers to the degree of meeting the expectations and requirements of the client (Holloway, Robinson 1997, p. 21). Quality can be defined as:

- value perceived by the client (Łobejko, 2010, p. 112), quality as the level of customer requirements, closely related to cost (Dahlgaard, Kristensen, Kanji 2000, p. 23),

- a manifestation of excellence, in relation to high standards (Malen, Adams eds. 2011, p. 170, Kachniewska 2006, p. 303),
- exceeding customer expectations, the difference between expectation and assessment from consumption (Trawnicka 1997).

Improvement of quality will always refer to changes resulting from constantly growing customer requirements, technological changes or organizational capabilities. They decide about the standards, both those resulting from the specificity of quality management requirements as well as those resulting from the expectations of specific recipients. In tourism, satisfying demand is mastered through many services at the same time. These services are often complementary and inseparable. Typically, the customer uses a ready-made offers of sellers, shaping and selling service packages. These packages are often modified and adapted to the needs of customers, which is related to the fast-changing marginal utility (Gołembski 1999, p. 221). Marginal utility (utility gain added as a result of consuming the last unit of good) decreases as consuming more and more consumption of each good. In tourism, this usefulness drops very quickly, forcing us to constantly modify the product and improve its quality, that is adapting to subsequent expectations. Integrated quality management (for nearly 50 years) aims to change all components of the organization through intense, long-term efforts to produce the best product, consistent with the consumer's needs (Paranumaraman, Ziethaml, Berry 1885, pp. 41-50). The important element is:

- the necessity to adjust the organization's goals resulting in the need to obtain as a greater satisfaction of the consumer from the delivered products,
- taking into account all organization activities and long-term time perspectives.

With regard to business tourism, this is particularly important. Customers repeatedly use the services of the same organizations if they are satisfied. Business tourism often refers to custom-made packages, especially in the field of conferences, congresses, and business meetings. These expectations are very individualized, so the offer must be very flexible. The business tourism offer counts both the attractiveness of the destination / village, and the level of service offer, e.g. hotel, catering, etc. Cooperation of entities in such a product seems to be a key issue in shaping quality. Both the "enterprise offer" type and "area offer" type products will have the feature of complementarity (Rapacz, Gryszel 2010, p. 295). Customer satisfaction will reflect the satisfaction of the entire stay - from the moment of arrival to the moment of departure. In the context of the above analysis, there are several questions that can be put to the entities serving business tourists: Is it possible to improve the quality of business tourism through the cooperation of entities? Do entities cooperate with each other to promote quality? Is their concept of cooperation based on quality management? Are they aware that good cooperation determines the quality of the product? The aim of the study is to determine the role and assessment of the impact of cooperation of entities in tourism on improving the quality of a business tourism product.

## **2. PRODUCT OF BUSINESS TOURISM AND ITS SPECIFIC AT BUILDING QUALITY**

The inclusion of the quality of a business tourism product is complex and multidimensional. First, its scope, features and structure should be determined. In terms of business tourism, it is identified with business travel. Although the purpose of the service is not synonymous with the goals that are usually associated with tourism (for pleasure and leisure), already in 1993 the World Tourism Organization (WTO 1993) assumed that business travelers or businessmen traveling for business purposes may be considered as tourists (Davidson, Cope 2003, p.3).

In the field of business tourism, the most common are:

- Individual business trips: include trips of people whose work requires mobility (e.g. journalists, politicians, scientists, but also experts, etc.);
- Meetings: including congresses, conferences, seminars, general meetings of the organization and others. They can have different size scale and different goals;
- Exhibitions: for example, fairs or presentations. They can be organized between contractors or for consumers;
- Incentive travels: this is a form of reward for employees, traders or consumers. They are designed to motivate you to even better results. Most often these are trips of a luxurious nature;
- Corporate travels: travels that aim to improve the image, build relationships with VIPs. Often, these are trips to important sports or cultural events.

Business trips can be carried out in such a way that the travelers are focused only on business matters, they can also run in the full tourist offer, combining the pleasures such as sightseeing, or using the SPA services. Business tourism products intended for groups can be considered as:

- The offer of one entity (hotel, company, association, university, etc.), where the product is offered comprehensively combining the offer of services typically related to the implementation of work tasks with the offer of recreation and tourism. Usually, such a platform requires the agreement and cooperation of many entities. In one package, a complete travel time service is offered. The product elements are located at the level of the real product and the extended product. Potentially, it is possible to achieve individual goals of the participants, but on condition that he resigns from the part of the already prepared offer.
- One entity offer as a narrow offer for participants, where participants of the trip are served only in terms of their living and business needs. Such an offer may be limited to the services of a single entity, e.g. a hotel. The hotel offers only accommodation, food, conference room, etc. It does not deal with the leisure time of participants;
- The offer of many entities, where the product is offered to potential travelers. Everyone can decide what to do at the moment. The basis of the offer is the satisfaction of living needs and related to business purposes. Recreational and tourist purposes can only potentially be realized. The task of the entity servicing these clients is to show the possibilities of the destination. The product elements are largely placed at the level of the potential product. The offer is not one package, but it gives individual possibilities to clients and let to interfere other local entities (information can be provided in conference materials, to the reception, etc.). The main organizer is only an intermediary and provides information. In business tourism of individual people, the offer usually takes this form.

After the political changes in Poland, the attitude to cooperation is also changing. Despite the specific features associated with the past era, such as lack of trust, closing to the surrounding entities, the ability to cope without help, entrepreneurs in the field of tourism are increasingly seeking cooperation (Awedyk, Niezgoda 2015, pp. 137-154). The dominant feature of tourist products, including business tourism is their service character (Middleton 1996, p. 32). It is characterized by immateriality, impermanence, complexity, complementarity, inseparability of the process of production, exchange and consumption, lack of ownership, seasonality, heterogeneity and uniqueness (Altkorn 2005, p. 20, Hamrol 2007, p. 20). In the improvement of quality, knowledge originated from the client is necessary. Obtaining information is very limited, since tourist services can not be assessed by the customer before purchase, there is a limited possibility of making multiple measurements after implementation (Maciąg 2016, p. 166).



The specificity of a business tourism product means that it often occurs in the form of a multifunctional and multidimensional offer (Wanagos 2009, p. 588). For example, basic hotel services are combined with an expanded gastronomic offer (from catering services during conference services to formal and sumptuous dinners), as well as cultural offer (such as performances by artists, film presentations, specially prepared thematic exhibitions) or recreational (most often performing integration functions, e.g. city games for participants of meetings or conferences or the use of local assets, e.g. participation in a cruise, a walk around the area, entry to viewpoints, or many others) (Czernek 2012, p. 11; Kotylak, Małachowski 2017, pp. 756-766). When building a business tourism offer, the offer of other entities is often combined with a basic package which is potentially available for use. Sometimes it is a joint offer of many entities. Basically, the range of the offer depends on the size of participants' group and on the cause of arriving. An additional offer filling the time for participants is usually given as an additional offer, but it happens that it is already mentioned in the program of exposures (e.g. conference, konger, etc.). At that case various entities join the organization by creating a network product (Rapacz 2008, pp. 106-117). Such a product through extension is aimed at increasing customer satisfaction, which also constantly increases its requirements (Rosa, Ostrowska, Słupińska, Gracz 2018, pp. 351-360). It also often promotes local attractions and presents the local culture (Smalec 2014, pp. 43-51). Cooperation in combining the offer gives the opportunity to expand the product.

### **3. COOPERATION OF ENTITIES AS A FACTOR IN THE IMPROVEMENT OF BUSINESS TOURISM PRODUCTS**

The company's environment changes. The needs and requirements of consumers are changing, the technical and functional possibilities of satisfying these needs are changing. Therefore, it is necessary to improve not only the product, but also processes that accompany the shaping of products on the market. Keep in mind that quality is a dynamic concept, and the quality and processes that make it change. Lao Tsu maintained that quality is something that can be constantly improved (Szymankiewicz, Śniegowski 1987, p. 10). In dynamic terms, the quality was also presented by W.E Deming, who popularized statistical quality control techniques in Japanese companies, and also the idea, later called TQM, is considered to be the leader of the Japanese quality revolution. W.E Deming gives a definition of quality as a predicted, a degree of homogeneity and reliability with possible low costs and adjustment to market requirements (Deming 1982, pp. 1-2). He is also known for developing the so-called PDCA cycle, also referred to as W.E. Deming cycle or circle. This concept speaks of continuous improvement (a concept known, among others, from Kaizen). According to W.E Deming, this improvement takes place in four successive stages, which must be completed in order for the cycle to be effective: planning - execution - checking - improving. "Planning" is the stage in which the method of action that is to lead to the quality goal is determined. Stage two "implementation" implementation of previously planned activities. In the next stage, the "check" is to verify the actions taken in terms of the intended objectives included in the plan. The "correcting" stage is the stage of providing ideas and solutions for improving the product and processes in subsequent plans. Through cooperation, the process of improving the quality of the tourist product is launched, because the individual elements of the product offered by the different entities are closely related. All together they decide about the general opinion of the clients, create a coherent image of the place / city and influence post-purchase and loyalty behavior (Skowron 2013, pp. 21-30; Szromnik 2010, pp. 11; Żabiński 2009). As can be seen from the studies of J. Cronin, M. K. Brady and G.T.M. Hult product quality influences customer satisfaction and its post-purchase and loyalty behavior (Cronin, Brady, Hult 2002, p. 207). Individual elements of the complementary product of business tourism have a very strong influence on each other.

Cooperation, which is based on the offer of high quality individual elements creates a general impression of the stay. For example, the satisfaction of the hotel's services builds a general opinion about the conference, and the nice time spent in the theater or on a walk around the city builds the opinion about the city, it also helps to remember the whole conference. The behavior of the buyer will largely depend on the comprehensive experience of the stay. This is important for image-related reasons (the opinion will probably be forwarded further), loyalty (the person who positively assesses the product will be more likely to return to the place / place of stay and once again use the same services). So the benefits of a high-quality offer in a tourist product, built by several entities, increase significantly. Assuming "good" cooperation, they intensify the satisfaction effect. This is almost always the case, because the entities are dissatisfied with cooperation and the cooperation ends. The quality of an area tourist product is extremely difficult to measure (Szostak 2008, pp. 209-215), but excellent verification can be obtained thanks to tourists. Thanks to cooperation, a broader and more effective exchange of information is also possible (Smalec 2011, pp. 489-502). As a result, entities can adapt the offer much faster and more efficiently. Among these information are those that concern the opinion of the tourist, but also the possibilities of technological or organizational improvements. The contemporary organization is based on the use of new opportunities in the field of communication and efficient information flow (Marciszewska 2017, pp. 319-334). Cooperation is also the basis for creating the policy of a given place / city (Florek 2006, pp.28-44). The group of entities that cooperates with each other is able to influence the policies and decisions of local or regional authorities in order to improve the quality of the product (Sołtysik 2013, pp. 35; Forsyth, Dwyer, Clarke 1995, pp. 265-282). There may be decisions regarding public infrastructure, cultural events, etc. Through cooperation, it is also easier to use external funds, including from the EU (Kizielewicz, Lukovic 2017, pp. 1774-181). Cooperation between entities is also conducive to improving the competitiveness of cities and regions. Quality and cooperation are an important factor of competitiveness (Małachowski 2015, pp. 225-235, March, Wilkinson 2009, pp. 455-462, Zielińska-Szczepkowska 2017, pp.109-139). On the other hand, cooperation can also be considered in the context of the scope of the area. The business services market is also stimulated by interregional and international contacts (Studzieniecki 2016, pp. 235-241).

#### **4. METHOD AND RESULTS OF EMPIRICAL TESTING**

The results presented below are part of a broader research of the a business' tourism product development among hotel facilities in 2018 by the Maritime University of Gdynia. The research was carried out by means of a diagnostic survey using surveys and interviews addressed to entrepreneurs associated with creating the offer of business tourism (hotels). The aim of the research was to present the potential of hotel services in the development of business tourism in Gdynia. For the purposes of this study, the research selected only those aspects that concerned the cooperation of entities in the field of presenting the business tourism offer on the market. They were implemented through an interview. The study was of a qualitative nature and was carried out in all hotel facilities in Gdynia (13 facilities). The research sought to answer the following questions: Is it possible to improve quality in business tourism through the cooperation of entities? Do entities cooperate each other to promote quality? Is their concept of cooperation based on quality management? Are they aware that good cooperation determines the quality of the product? To analyze the implementation of the stated goal in this study, questions were used that were asked to all subjects: 1. Do you cooperate with other entities in the field of business tourism? 2. Is it possible to improve quality in business tourism through the cooperation of entities? 3. Do you aim to bear quality when working with other entities in shaping a business tourism product? 4. Do you have quality management systems and do you apply quality management principles? 5. Do you think that good cooperation determines the quality of the product? If so, to what extent?

6. Are you satisfied with the previous cooperation with other entities in the field of business tourism? In conclusion the empirical study, it can be concluded that:

- Entities in which the interview was conducted are fully aware of building the offer through quality and quality improvement through cooperation. All entities recognized that good cooperation with other entities raises the quality of the product - it gives the opportunity to expand the offer and thus full customer's satisfaction;
- However, research has shown that the cooperation of entities in the field of business tourism is negligible. Joint activities are occasional and dispersed. The majority of respondents answered that they cooperate only in the area that the client will designate for them, e.g. when they demand a specific element in the offer (concert, city guide, special exhibition, etc.). Offering leisure time attractions is usually done on an individual basis - information at the reception desk, indicating websites, etc. Entities do not want to include an offer for which they would have to respond, although they have little impact on this offer before;
- Research shows (hotels) that quality systems are run where the law is required - meeting the requirements for categorizing the facility, catering services. The subjects surveyed declare a philosophy of action through quality, but they are rarely able to indicate specific actions to improve it. One entity only indicated cyclical training of employees, three entities indicated systematic repairs, five entities mentioned the care for a friendly atmosphere, efficient professional service and regular care and cleanliness of the facility. It follows that there are no clearly defined operating strategies for improving product quality;
- None of the respondents mentioned cooperation as system activities to improve the quality of products offered.

As it results from interviews with surveyed entities, cooperation as a factor in improving product quality is noticed and its significance is confirmed, but practically unused by these entities almost completely.

## 5. CONCLUSION

Summing up the literature considerations, it should be stated that co-processing plays a fundamental role in shaping the quality of a business tourism product. First of all, it enables combining many offers into one, creating a complementary product, optimally adapted to the needs of recipients. The quality of such a product depends on all elements and service providers. It is also quickly verified, because information about the poor quality of each participant propagates quickly and cooperation is usually not continued. It should also be remembered that quality is a dynamic and variable category - it is influenced by market phenomena, both on the demand and supply side, phenomena and trends appearing in economy, technology and technology, in society, etc. Perceiving these changes may be different by entrepreneurs and tourists. Cooperation can influence the flow of information about trends or tourists' expectations. Cooperation is also an important factor influencing the policy and decision of local authorities. Appropriate attitude of entrepreneurs may cause that the authorities will favorably meet their needs and needs of tourists, e.g. by improving specific elements of infrastructure. Entities in which the interview was conducted are fully aware of building the offer through quality and quality improvement through cooperation. However, research has shown that the cooperation of entities in the field of business tourism is negligible. Joint activities are occasional and dispersed. The research shows the lack of clearly defined action strategies in the field of product quality improvement and cooperation between entities. All actions aimed at shaping the quality of the business tourist product should be based on shaping the high quality of individual elements and constant adaptation to the changing environment. Quality is changeable, subjective and requires constant cooperation between different entities.

Many authors also claim that it is not possible to define the concept of quality in an unambiguous and categorical way. It can be summed up to quote the sentence of M. Woodheads, who wrote: "Attempts to determine quality are like looking for gold at the end of the rainbow. We can go in the right direction, but we will never get there".

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## IMPLEMENTATION OF CONTRA - RADICALIZATION IN ALKHAIRAAT EDUCATIONAL INSTITUTIONS

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### **ABSTRACT**

*Most of countries include Indonesia are facing threats especially radicalism. Many effort that is done by global radical group to spread their action such as spreading the radicalism via internet. Global radical group in Indonesia assigns the students as their target. This is a real problem that must be addressed seriously by Government of Indonesia and need the support from the educational institution to contra the radicalization. Educational institution could contribute of contra-radicalization activities through the teaching and learning process or educational curriculum and also by community service activities. The Alkhairaat Foundation is one of influential foundation in the Central Sulawesi Province, Indonesia, that has educational institution on the form of public school, islamic school, and university that are located on Sulawesi, Maluku, and Papua. From the research conducted by qualitative methods, the result shown that Alkhairaat had implemented contra-radicalization activities by contra-grienvances, contra-ideology, and contra-mobilization. Generally, the activities had carried out in the community through da'wah. As well as especially for contra-radicalization carried out through character education by requiring the implementation of curriculum to Alkhairaat which is made by PB Alkhairaat and must be applied by all of the organization under PB Alkhairaat. Implementation of contra-radicalization by Alkhairaat has succeeded in preventing radicalization in its cadre by implementing a local content curriculum (Muatan Lokal/Mulok) of Alkhairaat in the public school, islamis school, boarding school, and university. In line with the efforts of Government of Indonesia to developing character building on curriculum to educational institution so the curriculum of Alkhairaat could be a model for making character building on curriculum as an effort to contra-radicalization. This model could be implemented nationally and globally over the world.*

**Keywords:** *Implementation Contra-Radicalization, Character Building, Curriculum Model*

### **1. INTRODUCTION**

Terrorism and radicalism are big threats that occurs globally for countries around the world. Various attempts have been made by terrorists and radical groups to spread their ideology. In Indonesia, the radicalization process is also carried out verbally or through internet media. At the first, radicalization process could be through the internet and continued verbally, for example the terror in Chruch of Medan and the cases of labor of Indonesia in overseas that were exposed to radicalization via the internet by Indonesian terrorist figures in abroad. Internet is a way of terrorist to spread their ideology and it is a big challenge of Indonesia because the largest internet users in Indonesia is young people. In 2014, SETARA Institute presented the results of research that of 300 high school students in Jakarta and around, 46 students agreed to fight those who burned and closed their places of worship. Researchers from the State Islamic University (UIN), Prof. Dr. Bambang Pranowo in his research said that high school students who are the younger generation still agree with radical actions with a religious background (Sarwono, 2012).

From research by several institutions in Indonesia, the trend of radicalism growth is being intensive through high school level education (Gaus, 2011). Students in university are also the target of the radicalization, the results of the study of the Indonesian National Police said that many students were involved in radical groups. Generally, students involved in radical groups are those who study science, such as physics and chemistry. The exposure of students by radicalization programs by radical groups should be a priority of educational institutions in Indonesia. So, the educational institution have to pay attention of counter radicalization as the curriculum of their institution. Several regions in Indonesia have vulnerability of radical group movements, one of them is the Central Sulawesi Province. The influence of violence due to the conflict in Poso is still felt, some incidents of terrorism are still occurring. The National Agency for Combating Terrorism of Indonesia certainly has carried out a program of deradicalization and counter radicalization. But, the role of another institution is still needed especially educational institutions that also conduct counter radicalization in synergy will certainly maximize the results obtained. One of the most influential educational institutions in Central Sulawesi Province is Alkhairaat Foundation which has schools and colleges in there. Based on the results of previous studies, it was found that Alkhairaat had a big role in counter radicalization. Therefore, the researchers conducted a specific study of the role of Alkhairaat in implementing counter-radicalization in the community and in the education sector.

## **2. DETAILS RESEARCH**

### **2.1. Theory**

#### *2.1.1. Radicalism and Radicalization of Religion Theory*

Zakiah (2016) describes radicalism as a religious spirit that aims to change the political or social order with violent tactics. Today, the government, religious leaders, academics, and civil society in various parts of the world have taken precautions against radical ideals called counter radicalization with the target of young generation, especially students (Calhoun, 2012). According to Golose (2014), there are six causes of radicalism that could grow and develop:

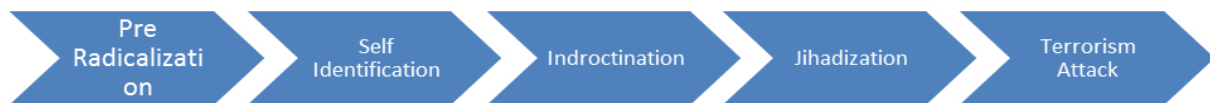
- a) The low quality of education and dogmatic teaching methods.  
The low quality of education is the reason for young generation to do and join radical actions. Dogmatic teaching could be the opportunity of radical ideology to grow into the minds of students. Thus, the mindset of students becomes narrow, uncritical, intolerant and unable to filter information. All information becomes absolute and indisputable.
- b) The identity crisis and the life motivation research  
High school students who are psychologically immature are very vulnerable to radical ideology. Their psychological conditions tend to seek identity and need a figure or role model. With these conditions could be used by radical organizations in spreading radical ideas. According to Mingarelli (2015), students are always the target of recruitment by radical organizations. Candidates who have been trapped of radical organizations will continue to be indoctrinated by radical ideology through an intensive communication process to influence their behavior.
- c) Poverty and access to economic improvement  
Despair could be causes of individuals to act radically.
- d) Social and cultural alienation  
The socio-cultural environment can also make a person be radical. They consider themselves different from society in general, so they automatically isolate themselves.
- e) Limited access to politics  
Political aspirations that are not accommodated also could be causes of individuals to take radical actions. They argue that the formal politic do not able to answer the problems faced by the people (Eze, 2014). To achieve their goals and interests, they carry out radical actions with violence as the way to convey messages to be known by the public.



f) Interpretations that are biased towards religious teachings

Radical groups often interpret sacred texts to justify their actions. They take the verse according to their needs, without understanding the context. Therefore, understanding religion becomes so biased and different from the Islamic community in general.

Based on Moghadam (2005), a person cannot directly become a terrorist. To be radical that leads to violence, a person will get some process. Radicalization is the process of spreading and absorbing the thoughts of radical groups, including terrorist organizations. Radicalization is also a step of individuals turn into militant, extreme or revolutionary. An explanation of the process of radicalism towards terrorism can be seen in Figure 1.



*Figure 1: The process of Radicalism to Terrorism*  
Source: <http://fathalimoghaddam.com//10/1256627645.pdf>

Radicalism need a tool to influence the minds of others. Due of Golose (2014), the tool that often used in the spread of radical ideas are mass media, direct communication, family relations, and through educational institutions. Radicalization usually occurs in places of worship, educational institutions, prisons to the cyber domain (Golose, 2014: 60). Radical groups usually infiltrate mosques as ta'mir mosques or missionaries to disseminate radical ideology. In addition, they carried out the spread of radical understanding through educational institutions such as campuses, Islamic boarding schools, and even high schools (Sarwono, 2012: 78-92). Radical groups also utilize the cyber as a tool to spread their ideology. The technological era provides extraordinary benefits for them through propaganda sites.

### 2.1.2. *Contra Radicalization Theory*

To prevent the development of radical ideology, a preventive strategy is needed. Prevention of radicalization strategies are known as counter radicalization. Counter radicalization is defined by the United Nations Working Group on Radicalization and Extremism that leads to Terrorism as follows "A package of social, political, legal and educational and economic programmes specifically designed to deter disaffected (and possibly already radicalized) individuals from crossing the line and becoming terrorists" (Schmid, 2013). Counter radicalization has a difference with deradicalization. Deradicalization is focused on a person or suspected group that contact of radical group with the aim of rehabilitating and reintegrating them into society or at least making them stop to commit violence. Thus counter radicalization can be defined as prevention efforts, namely preventing individuals or groups that are potentially exposed to radical ideology by persuasion (Schmid, 2013). Counter radicalization as a prevention effort can be said to be more effective when compared to deradicalization and disengagement (The National Coordinator for Counterterrorism, 2007). According to the Counter Terrorism Implementation Task Force (2008) counter radicalization is a policy program aimed at people who are potentially involved in terrorism with the aim of preventing individuals from engaging in terrorism and against the law. The main targets in counter radicalization are not the terrorists themselves, but the wider community. With regard to counter radicalization, society becomes an object and at the same time the subject of empowerment and strengthening in overcoming

radicalism (Schmid, 2013). In relation to the handling of radical Islamic movements, counter radicalization strategies can be divided into:

a) Counter grievances

Counter grievances as a counter-radicalization strategy that is focused on solving problems that are local rather than global, faced by people who are vulnerable to radical understandings. The efforts in counter-grievances strategies include:

1. Doing public services
2. Providing the channels and also voicing social aspirations for the community, especially marginal group
3. Supporting and implementing the law enforcement, human rights, democratization, and welfare improvement
4. Provide training and individual capacity building to the community and the victims of terrorism
5. Supervise and provide an evaluation of counter terrorism carried out by government

b) Counter ideology

Counter ideology is a counter-radicalization strategy that aims to provide resistance to radical group ideologies through counter narratives, education of the community, and empowerment of community leaders to fight against radical group violence and its ideology. The efforts in counter ideology strategies include:

1. Providing socialization of peace, tolerance, security, pluralism and the dangers of terrorism to the community
2. Building public support and understanding of counter terrorism through education, counter opinions and counter narratives, directly and through cyber space.

c) Counter mobilization

Counter mobilization is a counter radicalization strategy by assisting the community in building networks and knowledge in preventing cell formation and radical recruitment. The efforts in counter mobilization strategies include:

1. Building cooperation with other actors, such as religious organizations of civil society and the government in efforts to prevent radicalism
2. Monitor groups / individuals who are vulnerable to be exposed to radical ideology.

## 2.2. Methodology

This research will take a lot of data in the form of words and activities of people or groups and supported by documents in the form of notes, administrative documents, photos and others. So that in this study, researchers chose the qualitative research methods. The researchers will carefully examine the activity, event, activity, process or group within a predetermined time and region. In this study researchers will use a case study approach (Creswell, 2010).

## 3. RESULT AND DISCUSSION

Alkhairaat Foundation has climbed the age of three quarters of a century. Like the seed of knowledge, Alkhairaat has planted the young shoots, then develops into trees that give benefit to another. Since establish in 1930, it has 1561 schools from various levels and 35 Islamic boarding schools which are the largest in Eastern Indonesia. For the trust of the community and encouraged by the desire to participate in educating the nation, Alkhairaat has succeeded in having a University which is named as Alkhairaat University. It currently has six faculties: Faculty of Religion, Faculty of Agriculture, Faculty of Fisheries, Faculty of Economics, Faculty of Literature and Vocational Faculty of Education. The Faculty of Medicine is also being prepared. This is the contribution of Alkhairaat to The country.

The school that huilded by Alkhairaat is not just located in Central Sulawesi Province but also spread into another cities and prouncines.

### **3.1. The role of Alkhairaat to counter radicalilzation in community**

According to Schmidt (2013) Regarding counter radicalization, society becomes an object and at the same time the subject of empowerment and strengthening in overcoming radicalism. So that it will be discussed how counter grievances, counter ideology, and counter mobilization strategies are carried out by Alkhairaat.

#### **a) Counter grievances**

Activities that carried out by Alkhairaat as a counter radicalization strategy is focused on resolving local problems and do not globally, faced by people who are exposed to radical ideology, especially in Central Sulawesi Province and other regions that have institutions under Alkhairaat Foundation such as in Gorontalo, Papua , Maluku and North Maluku. The activities that carried out include: doing public services; Alkhairaat Foundation through the organization under its, carrying out public service activities for example the service of the corpse. As explained by Chairman of Alkhairaat Foundation, Habib Alwi Saggaf Aljufri Lc, MA, the training has been carried out in the management of the bodies in educational institutions under Alkhairaat foundation if this pubic service is needed by the community. Besides that, Alkhairaat also carries out the health services to community for example holding mass circumcision and treatment. From the results of interviews and observations, it can be proven that Alkhairaat also serves as a channel and voices of social aspirations for the community, especially marginalized groups in areas where the Alkhairaat is located. This is because there are many Alkhairaat cadres in government, members of the legislature, and community leaders. In order to support and implement law enforcement, human rights, democratization, and welfare improvement, Alkhairaat also plays a role through da'wah by cadres in the community, as well as by Alkhairaat cadres who become community leaders, government officials and councilors Alkhairaat also provides training and individual capacity building to the people and victims of terrorism, especially through preachers who are in the community. Alkhairaat also oversees and evaluates counter-terrorism efforts carried out by the government, especially through his cadres who are widely distributed in the community.

#### **b) Counter ideology**

Counter radicalization strategies that aim to provide resistance the radical ideologies through counter narratives, education of the community, and empowerment of community leaders to fight against radical group violence and their ideology. From the results of research through interviews, observation and study of literature, that effort is also carried out by Alkhairaat, and the trail is quite long, especially if we look at the efforts made by armed rebel groups that have occurred in Indonesia which seeks to influence Alkhairaat cadres to support them, but due to adherence to the "Guru Tua" or Old Teacher, and through an understanding of Hubbul Wathon, Alkhairaat cadres continued to defend the Unitary State of the Republic of Indonesia. Likewise with the phenomenon of radicalization carried out by radical groups today, Alkhairaat also does some action, such:

1. Providing socialization of peace, tolerance, security, pluralism, and the dangers of terrorism to the community, especially through its missionary interpreters in the community. This is also done in educational institutions under Alkhairaat Foundation by incorporating the congregational curriculum on the all levels of education. This curriculum is a character education derived from the main values brought by Guru Tua in establishing Alkhairaat as its missionary organization. Character education through

the Alkhairaan curriculum has created Alkhairaat cadres who are tolerant, moderate and respect differences.

2. Alkhairaat also builds the public support and the understanding of counter terrorism through education, counter opinion through da'wah and discussion but never try to do public debate, and counter narratives are also carried out especially by Alkhairaat cadres who are currently spread in various lines in the government and community leaders.

c) Counter mobilization

Alkhairaat provides assistance to the community in building networks socialize in preventing cell formation and radical recruitment. The efforts include:

1. Alkhairaat build cooperation with another actors, such as religious organizations of civil society and the government in an effort to prevent radicalism, this can be proven its role when the riots hit Ambon and Poso. At present the role is carried out through the activities of Alkhairaat cadres in autonomous organizations under Alkhairaat Foundation.
2. To strengthening the nationalism, Alkhairaat will very pleasure if the training of state defense could be held on Alkhairaat Foundation.
3. Basically, Alkhairaat is also monitoring the groups or individuals who are vulnerable to being exposed of radical ideology.

### **3.2. The role of Alkhairaat to counter radicalization in education**

The role of educational institutions as well as Alkhairaat in carrying out counter radicalization activities certainly cannot be separated from the applied of curriculum. In the institution of education that is under religious foundations there is indeed a religion and nationality base. Benchmark for the success of the curriculum can be proven by the success of Alkhairaat when it comes to colaberate the schools that are developed by Christian missionaries, so that the existence of Alkhairaat and Christian schools can be built side by side. The implementation of the integrated curriculum in Alkhairaat Foundation is also reflected in the extra curricular activities carried out by students. This extra curricular activity is also related to the social service activities carried out by the foundation. The extra curricular activities are not exclusive, so in the competitions that be held by the local government could be followed by representatives of students from Alkhairaat Foundation. The curriculum that is applied in Alkhairaat give so much influences of their students, so that the alumni are known to develop a moderate and tolerant attitude towards differences.

a) Counter grievances

One of the real action by the curriculum implementation of Alkhairaat is through the special curriculum that is knows as "KeAlkhairataan". One of the activities included in the curriculum is the practice of managing remains. The aim of this program is to give instruction of students so they can provide publis services in their surrounding. The curriculum that is implemented in the Akahiraat educational institution is same in everywhere. The curriculum comes from the Alkhairaat central committee. According to Habib Alwi, Alkhairaat has local content (Muatan lokal) in a curriculum that is implemented in accordance with the standards set by the government (Ministry of Religion and Ministry of Educational and Culture), in the local content to Alkhairataan that's the vision and mission of Alkhairaat founder, how can Alkhairaat cadres become moderate Muslims understanding problems not from one dimension but multi-dimensional, like those that are always taught, and this is contained in the curriculum. So that it can be said that the life of Alkhairaat's founder is an example for Alkhairaat cadres.

b) Counter ideology

In Alkhairaat educational institutions there are also Scouting activities (Pramuka) to give a skill, knowledge and faith of the student. This extra curricular activities in Alkhairaat educational institutions is the same same as another. Alkhairaat is also join on the sport competition that organized by other organizations or by government, active in Scout activities with other schools, and also there is a drumband in kindergarten and elementary school (Tsanawiyah). The activity shows that counter ideology within the framework of counter radicalization activities that has been carried out in Alkhairaat. Counter ideology in education is already done by Alkhairaat through teaching, especially through Islamic lessons. This lesson teach how to be tolerance to another which have different religion with us and they need our protection. Alkhairaat also teach their cadres to los the state, patriotism and nationalism. In the context of counter ideology, Alkhairaat builds public support and teach about counter terrorism, counter opinions, and counter narratives through education.

c) Counter mobilization

In the field of education the way to carry out counter mobilization is by collaborating with other actors, such as religious organizations of civil society and the government to prevent radicalism. Alkhairaat is already succeed to build the doctrine for their student about to be an Islamic moderat cadres so the could be the part if society tha could gie more contribution for the nation.

#### 4. CONSLUSION

Alkhairaat has played a role in carrying out counter radicalization by contra grievances, contra ideology, and contra mobilization. All of the action generally carried out in the community through da'wah (recitation and social activities carried out by autonomous organizations under Alkhairaat Foundation), and specifically in educational institutions through character building by requiring the implementation of the curriculum KeAlKHairataan which is made directly by Alkhairaat Foundation and must be applied in the educational institution. Character building through the KeAlHairataan curriculum includes the basic principles of Alkhairaat, history that contains the example of "Guru Tua" who must be guided and followed by students.

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# THE IMPORTANCE OF FINANCIAL SUBJECTS IN HIGHER EDUCATION DEGREES: THE CASES OF PORTUGAL AND CROATIA

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## **ABSTRACT**

*A relentless dynamic and demanding worldwide competitive environment is continuously more exigent in terms of qualifications of human resources, as professionals and managers face more demanding challenges. More soft and hard skills are requested from the education systems as such competitiveness is increasingly demanding more from businesses and management. Until not such a long time ago, illiteracy was a major caveat for modern and developed societies and economies. As such levels have been significantly reduced, nowadays is another type of illiteracy, the financial one, which seems to keep being a reason of concern. Unsurprisingly, there is an increasing awareness of the importance of having skills in the field of finance, being such highly valued, at times, in several different types of higher education degrees, i.e. from a non-financial strand. Accordingly, this paper examines the continuum of insights that financial education can provide by enquiring higher education students from non-financial degrees lectured in Croatia and Portugal, in order to capture and comparatively discuss their perceptions on financial matters, namely related to accounting, taxation, and controlling. Overall, the results obtained suggest that students, from both Croatia and Portugal, acknowledge that, regardless the nature of their non-financial educational choices, it is important to have, at the very least, some basic knowledge on financial topics.*

**Keywords:** *Higher Education, Management, Accounting, Controlling, Taxation, Croatia, Portugal*

## **1. INTRODUCTION**

It is commonplace thinking that the need for managerial skills is mostly only for leaders and managers at the top level, as they are understood as responsible to ensure performance and achievement of objectives, in accordance with the organizational goals. As Schermerhorn, (2010) notes, the senior management is regarded as responsible for the performance of an organization as a whole or as for one significant part of. However, little consideration is given to the importance of managerial skills for other lower levels of management. Furthermore, almost no attention is devoted the importance of financial skills. Neither for managers at top or at lower hierarchical positions; and neither for non-management positions and roles. On the other hand, the education systems have to adjust to the socio-economic framework. More importantly, the education systems should have concerns with employability, being such particularly relevant not only for certain high schools, but for most higher education organizations as well. This is certainly an objective for the education systems in Croatia and Portugal, but is not necessarily being attained, as shown by statistics of emigration of young, and highly qualified young people.

Indeed, the matter of fact is that, despite qualified, many young people cannot find a suitable job when they leave higher education organizations, being the lack of knowledge about financials, such as financial statements, salaries, tax obligations, or tax relief, one of the possible reasons. This is because in their education process, these students might have not enough - or none at all - accounting, tax, or controlling. Therefore, such students cannot understand the elements of financial statements that serve private and public organizations. They are not aware as well about tax incentives and liabilities, something which is particularly relevant for entrepreneurs who engage in business within EU countries or outside the EU countries. Concomitantly, the introduction of controlling knowledge enables students to better understand and develop the potential of companies. Accounting, controlling, tax policy, these are just some of the subjects of financial education that every student should have in their higher education development. Nevertheless, only a few organizations care about nourishing students from departments or faculties other than accounting and finance, failing, or ignoring, to offer awareness about the importance of accounting, taxation, and controlling, as essential needs of the general knowledge to improve businesses activity and their private life even. Likewise, not only financial subjects provide several advantages for a better profitability from business opportunities, but also from employment offers. Indeed, such subjects, offer a certain degree of security concerning the student's possibility of employment after completing their higher education degrees, as students with knowledge of accounting, taxation and controlling can easily collect relevant information about future employers, have a better understanding about the financial statements, or about their salary components. In this paper, different levels of management in corporations are examined, together with a discussion on the relevance of different skills to each layer of management jobs, and together with an analysis of the impacts resulting from the increasingly dynamism of the business environment, which is increasingly demanding in terms of financial knowledge. Therefore, it has the purpose to make some links between different strands of literature, as a comprehensive analysis and understanding on this topic is still missing on literature. Furthermore, following the seminal research of Roska et al. (2018) on Croatia, this paper aims to expand the research to Portugal, examining whether students from non-financial degrees of both countries are also becoming aware of the importance to gather knowledge from accounting, taxation and controlling and perceive those subjects essential to improve businesses and private life, as such knowledge may provide certain advantages regarding better seizing of business opportunities and employment.

## **2. THE IMPORTANCE OF FINANCIAL KNOWLEDGE FOR MANAGERIAL FUNCTIONS**

As introduced in the beginning of this paper, financial knowledge is important not only for professional managers, but for managing in general, at both corporate and even personal life levels. This raises the issue of the skills that individuals should possess in order to perform better in their personal lives and professionally. Discussions about skills have been proliferating in literature, mostly asserting that managerial skills allow managers to enact the functions of management, performing therefore better, enhancing the ability to successfully reach organizational objectives (vid. e.g. Katz, 1974; Whetten & Cameron, 2002; Bigelow, 1991; Analoui, 1998, and Peterson & Peterson, 2004). Other authors, such as O'Neal (1985), stressed that without fundamental skills, managers could not effectively plan, direct, control and/or evaluate work activities, as skills are effectively necessary for carrying out managerial functions that are in turn necessary for the effective and efficient functioning of organizations. There are several understandings and approaches to skills and knowledge taxonomies. As Ribeiro and Kumpikaite (2012) outline, one can start by consider the existence of technical skills, which can be defined as primary skills. Technical skills include the understanding of specific activities that require the use of specialized tools, methods, processes, procedures, techniques, or



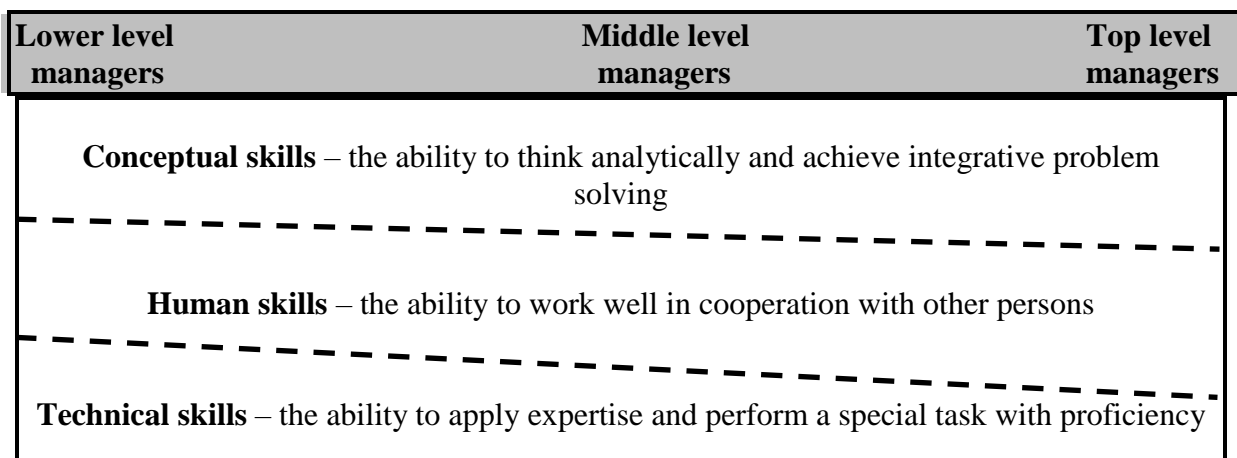
knowledge, as in the case of specific financial knowledge. Overall, technical skills are transmitted as the specific skills an individual needs to perform some specialized task, as in the case of finance, and related ones. Indeed, they may include knowledge of proficiency in a certain specialized field, such as engineering, computers, manufacturing, or finance, as we want to discuss in this paper. It is important to make clear that technical skills primarily mean working with things not people. Nonetheless, one can consider the relevance of the human skills, being this view based on Katz (1974). Human skills represent the ability to work cooperatively with other people and to understand them, to communicate effectively, to motivate, to understand behavioural principles, to work in group, to resolve conflict, and to be as a team player (Katz, 1974). In addition, and in a complementary mode, more recently Analoui (1998) labelled these skills as people-related skills, involving teamwork, the ability to deal with conflicts, communication, and the creation of an organizational climate. Another set of skills are the conceptual ones. The conceptual skills are defined as the ability to regard the organization as a whole or to have a systemic viewpoint. People must also have the ability to conceptualize and to think about abstract situations. While technical skills focus on things and human skills focus on people, conceptual skills focus on ideas and concepts. They are considered mental abilities that allow the manager to understand the interaction between the different work units within the organization, the effect of changes on any one part of the system, and how the organization fits into the system. Returning to Katz (1974), these skills extend to visualizing the relationship of the firm to the external environment. In Table 1, shown below, are resumed the main types of skills, including a brief description, together with the corresponding type of finance knowledge required, according to different managerial levels and demands.

*Table 1: Types of skills and finance knowledge required for different managerial levels*

<b>TECHNICAL SKILL</b> The ability to apply specialized procedures, techniques, and knowledge required to get the job done.	<b>HUMAN SKILL</b> The ability to work and deal well with other people, focus on motivation, leadership; great importance given to good interpersonal relations.	<b>CONCEPTUAL SKILL</b> The ability to regard the organization as a whole, how the different parts affect each other, and how the company fits into or is affected by its environment.
1. Usually more important for lower level managers. 2. Minimal relevance for top management. 3. May be very important to have knowledge about financial topics, depending on the specific task that is performed.	1. Equally important for all levels of management. 2. Upper level management spends most of time dealing directly with people. 3. Having a sound financial culture is not regarded as much relevant. Nevertheless, financial issues are increasingly pressuring the human resources management.	1. Importance increases as managers move up in hierarchy. 2. Managers with above-average intelligence outperform managers with average intelligence. 3. Financial knowledge may prove to be critical as it is fundamental for a comprehensive understanding of the organization and its environment.

Concurrently to the resume of the most relevant skills – technical, human, and conceptual - together with management and generic motivation, one can present a further main item, connecting levels of management, skills, and the need for financial knowledge: the motivation to manage.

This motivation entails an assessment of how enthusiastic employees are about managing the work of others. Typically, the motivation to manage assumes that: 1. Managers at higher levels typically have stronger motivation to manage than their subordinates; 2. Managers with stronger motivation to manage are promoted faster, are rated as better managers by their employees, and earn more than managers with a weak motivation to manage. Finally, regarding the possible relevance of having financial knowledge: 3. In order to have an edge over colleagues, and to be upper considered by their pairs, it is better to have, at least, a certain level of financial culture. Furthermore, using different sets literature which examined the importance of the skills topic, and adding other pieces of literature as well, such as the contributions of Rue and Byars (2003), and Williams (2010), one can establish the connection, as shown in Figure 1 below, between different levels of management and different types of skills, taking into consideration that the lower level managing is likely to suit any managerial function, and has not to be necessarily performed by anyone having a sound financial education.



*Figure 1: Types of manager's levels and weighted of skills required (adapted from Ribeiro and Kumpikaite, 2012)*

Observing Figure 1, one can conclude that the lower level of managing is more depending on technical skills, having some degree of dependence on human skills, and only a little relevance from the conceptual skills. The exactly opposite situation is applicable to the top managerial level. A certain degree of technical expertise is needed even for a very low demanding degree of management, where we include the non-financial experts that have assumed some kind of managerial role that requires some financial knowledge needs.

### 3. THE IMPORTANCE OF HAVING FINANCIAL CONCEPTS IN HIGHER EDUCATION

With the previous discussion we become aware that, regardless the organizational level, every professional must have some critical skills, such as technical skills, interpersonal skills, or conceptual skills, regardless the importance of other types, such as the diagnostic skill, or political skills. Moreover, every professional at each managerial level shall be responsible for performing their duties efficiently to achieve maximum productivity for the firm as a whole. This can only be achieved with well-prepared students, benefiting from an education system that can stand for what is required by the society and, on the economic strand, by businesses. Nevertheless, as Roska et al. (2018) discussed before, economic and cultural globalization has created new challenges for higher education system since it requires global openness and knowledge exchange. Furthermore, Roska et al. (2018) added the crude reality of Croatia being one of a few countries in Europe that still has higher unemployment rates, which are inclusively at two-digit level.

That is no longer the reality for Portugal, with a current unemployment rate well below the two digits, but that was not until very recently, as only in the beginning of 2017 that unemployment rate became single-digit. Portugal, Croatia, and most of countries register a clear correlation between the level of education and employment rate. Normally, higher levels of education contribute to higher rates of employment (CAE, 2017, p.27). Bilten states (CEA, 2018, p.30) that students who finished business economics, accounting and auditing department find jobs easier because the recruitment of those students is noticeable higher than in other areas. On the other hand, the slowest recruitment was between groups of students who finished general economy. Many young, educated people, everyday leaves Croatia because of the general economic situation and inability to find a job. That was also a clear condition for Portugal, particularly during the time that the country was under a program of international financial aid. Higher education needs to adapt to the labour market, being this a reality for both Croatia and Portugal. Some people, after a long search, have managed to work in their profession, but without sufficient knowledge about financial statements, salary, tax obligation or tax relief. Many of them do not use the incentives of the governmental agencies, as employment services, because they do not know about it. In their education, many students did not have accounting, taxation, or controlling so they could not understand the elements of financial statements that, besides state administration, need and serve them for business development. These are just some of the subjects that all students should need to have in their university education. However, these subjects are held only on few faculties or departments at certain Universities. Being important to be aware of the importance to gather knowledge from accounting, taxation and controlling and perceive those subjects as something essential to improve business and student's private life, an analysis regarding financial education follows.

### **3.1. The relevance of accounting for higher education students**

Accounting education does not mean only accounting or bookkeeping. It also means a deep understanding of financial statements, taxes and controlling, as we are going to discuss in the following sections of the paper. As Roska et al. (2018) pointed out, in modern business, the importance of knowing the issues and areas of accounting is indisputable. As the centre of information necessary for business management and making business decisions, accounting is an inexhaustible source of information. Accounting as a source of information can provide the company competitive edge on the market as well as quality and further continuous development of the company. Knowledge in the area of accounting is important whether individuals are engaged in sales, procurement, and accounting and top management. Managing business and being competitive is inconceivable without adequate support from accounting and information provided by accounting. A formal academic education in the field of accounting is nowadays necessary for those who are being educated in the field of economy, but also for those who are educated in another area, but having the knowledge in this area is of great importance. The labour market requires a lot of knowledge, employment in companies carries with it handling and solving many problems, making business decisions, managing a company where accounting and accounting information are very important as well.

### **3.2. The relevance of taxation for higher education students**

No one can avoid taxes; they are part of our daily lives. Roska et al. (2018) remembers Benjamin Franklin's famous quote: "In this world, nothing is certain but death and taxes are.". Regardless of age, everyone has met some form of tax. It could be salaries tax, property tax, value added tax, income tax, and so on. Although Portugal and Croatia sharing one of the highest rates of VAT in Europe, other taxes are present both in business and private life. Every employed citizens pay income tax, salary tax or self-employment tax. Similarly, companies at the end of each business year determine the business result and pay the corporate profit tax.

New entrepreneurs start business without minimum knowledge of VAT or other kind of tax liabilities, with EU countries or countries outside the EU. Many entrepreneurs with unpaid taxes came to illiquidity and stop to pay salaries which automatically put their employees into illiquidity. Therefore, today's student when they finish their higher education should know where they can check their future employer. They need to be friendly with the Tax Administration and Social Security websites as well. Those are websites when they can find information about the tax or other obligations which companies need to pay or financial reports for future employers. Also, all those who want to open a company had to know what their tax obligations are, but also how can they get various incentives. However, in higher education taxes are often included in the field of accounting and they are not separated as specific field, because of the general opinion that only accountants need to take care about taxes.

### **3.3. The relevance of controlling for higher education students**

Controlling is a set of multidisciplinary knowledge that is necessary for those who manage companies in order to make quality decisions based on a countless data taken from and outside the company (Ocko and Svirig, 2009, p. 13, op. cit. Roska et al., 2018). It ensures that company remains on the "right path" and supports management to be able to efficiently and effectively manage company on a daily, monthly, quarterly and annually basis. Controlling involves all business functions in the company and is oriented toward the future. If we make an analysis of a labour market demand for skills in the area of controlling (which can be easily done by analysing job ads for positions in controlling) with the supply of controlling subject held at Universities, there is still a disproportion between the actual demand and the supply of knowledge and skills in the area of controlling held at Universities in Croatia and Portugal. The fact is that students at University recognize the need for acquiring new knowledge and skills learned in controlling subject which represent an upgrade of knowledge learned at courses such as accounting and finance. Benefits from acquiring valuable skills and knowledge from subjects mentioned earlier can be analysed from the aspect of advantages that students get in business and in private life. With the knowledge gained in the field of controlling, students understand overall picture of business processes and necessity to continuously follow market trends in everyday uncertain environment. Students also see private benefits from this courses and use acquired skills when planning their home budget or when they choose to start their own businesses.

## **4. RESEARCH ON FINANCIAL TOPICS IN HIGHER EDUCATION**

Higher education and financial matters are highly researched. As Roska et al. (2018) refer, accounting is a business language, which the business community needs to understand. Business community includes not only accountants but also people working in sales, marketing or other economic activities who work like employees, managers or owners. Terms such as equity, assets, and balance sheet are part of the accounting meta language. The results of the pre-test assignment suggests that students' level of understanding of the meta language of accounting is fairly low (Elson, O'Callaghan, Walker, Williams, 2013, p. 4). In addition to financial literacy, accounting literacy is also of a great importance, encompassing the understanding of accounting indicators, which include the knowledge of bookkeeping. The research of Pavković showed that most respondents believe that better accounting knowledge would allow a better financial situation (Pavković, 2017, p. 44). A research from a graduate thesis (Pera, 2017, p.35- 37) confirmed that top ranking companies have managers who know accounting well, and the smallest those who have considered their knowledge sufficient. Also, the largest number of respondents believe that management and decision-making cannot be imagined without accounting information. In rapidly changing job markets, higher education systems should provide graduates with relevant skills and competences and all faculties need

to improve their educational service quality (Štimac, Leko Šimić, 2015, p.9). The main finding of much of the research produced nowadays is that there is a big gap between financial knowledge and skills (what is called financial literacy) that young people have and those that employers need: "Accounting and Finance literacy is a key factor for successful entrepreneurial projects" (Trombetta, 2016). In the research of European Union (Bartlett, 2016, p.9) is pointed out that many graduates in the Western Balkans have a precarious entry to the labour market and often experience periods of unemployment before they find stable employment, being this a near reality for the Mediterranean countries as well. Only 48% of graduates are vertically well matched to the skills required by the job they hold by the level of their qualification, about 35% of graduates are horizontally mismatched in relation to their field of study. Looking from the aspect of business, employers seek students with certain skills because they are aware that these students can apply specific knowledge in practice. Students with those specific skills have advantage in the labour market. The results of a recent research done by Meter and Sarcevic (2017) have shown that in Croatian companies more often are used operational instruments (average point of 3,2 on a 5-point Likert scale), while use of strategic instruments is more rarely (2,4 average point on a 5-point Likert scale). Also, findings from the same research show that with the increase of education level, increases the application of controlling instruments (Meter and Sarcevic, 2017, p. 19). At the Forum of Finance for Everyone - financial education for a better life in all parts of Croatia, that was held in February 2018, it was pointed out that the educational system needs to start education about financial literacy from elementary school. Such kind of similar conclusions were also taken by the Portuguese Central Bank in a research conducted in 2010.

## **5. RESEARCH OBJECTIVES, METHODOLOGY AND HYPOTHESES**

The main objective of this paper is to examine whether students who do not study in the field of accounting and finance in Portugal and Croatia, are aware of the importance to gather knowledge from accounting, taxation and controlling, and whether they perceive those subjects as essential to improve their professional activities, businesses, and private lives. The research was conducted at one higher education institution in Croatia and at two other in Portugal. A survey was prepared, by the means of a questionnaire. The questions were prepared using a Likert scale from 1 to 5, where 1 meaning "do not needed at all" up to 5 meaning "life-needed". For the statistical data treatment it was used the software package SPSS 24. The sample included students who are studying economics and management degrees, or other related, such as in interdisciplinary degrees, or logistics - but do not include any students from finance-related degrees, excluding therefore any student coming from accounting, tax, or controlling degrees. The students composing the sample are mostly undergraduate, but there are post-graduation students as well. Most respondents are exclusively studying, however the sample comprises working students as well. The questionnaire design included several questions, and controls, allowing to outline the following research questions, which are going to be accordingly subject to testing:

- H1: Higher education students from non-financial degrees are aware of the usefulness of financial education in their private and business life.
- H2: There is a statistically significant correlation between student characteristics (gender, employment, working experience, status, study, year of study and department) and their opinions about the need of accounting subjects that are not directly related to their education and/or professions. (Q8).
- H3 = There is no statistically significant correlation between student characteristics (gender, employment, working experience, status, study, year of study and department) and the importance of accounting subject in their private and business life. (Q9, Q10).

For the statistical analysis, this paper uses descriptive analysis and analysis stemming from correlation coefficients to examine interdependencies between factors.

## 6. RESEARCH RESULTS AND DISCUSSION

In order to have a parity of analysis, the research sample was constructed weighting the same number of students from Croatia and Portugal: 131 from each country. Therefore, the final sample totalled 262 students who have successfully participated in the survey. Nevertheless, conclusions can also be taken from the samples from each participating country, which can be regarded as subsamples. The main characteristics of the sample, regarding data for each participating country, and also for the grand total, are shown below in Table 2. There are great similarities between countries, but there are differences as well. According to the gender, approximately 59% are female students and 41% are male students, for both Croatia and Portugal. Most students are unemployed, around 60%, being this situation similar for students of both countries, although there are a larger number of unemployed students in Portugal. Most employed students, around 40%, are working in between 1 to 5 years. Around two-thirds of the students participating in the survey are undergraduate students. The major difference between countries is regarding the commitment to the studies. A staggering 95.4% of Portuguese students are regular in their studies, while for Croatian students such regularity is 61.8%. That may be due to the fact that in Portugal is common for students in higher education to focus entirely and exclusively on their studies. This difference can also be due to the fact that the Portuguese sample being supported mostly by first-year students, 72.5%; while the sample for Croatia is more balanced, with similar figures for each year of study.

*Table 2: Research sample characteristics (rounded values shown in percentages)*

		<b>Portugal</b>	<b>Croatia</b>	<b>Total</b>
<b>Gender</b>	<b>Female</b>	58.8	59.5	59.2
	<b>Male</b>	41.2	40.5	40.8
<b>Employment</b>	<b>Employed</b>	38.2	42.7	40.1
	<b>Unemployed</b>	61.8	57.3	59.5
<b>Years Employed</b>	<b>&lt; 1 Year</b>	37.3	23.3	29.5
	<b>1-5 Years</b>	41.2	40.0	40.2
	<b>6-10 Years</b>	7.8	6.7	7.2
	<b>&gt; 10 Years</b>	13.7	30.0	23.1
<b>Academic Status</b>	<b>Regular</b>	95.4	61.8	72.9
	<b>Irregular</b>	4.6	38.2	27.1
<b>Studies</b>	<b>Undergraduate</b>	64.9	67.2	65.3
	<b>Graduate</b>	35.1	32.8	34.7
<b>Year of Study</b>	<b>1</b>	72.5	33.6	53.1
	<b>2</b>	19.1	29.0	24.0
	<b>3</b>	8.4	37.4	22.9

Regarding the hypotheses testing, questions 8, 9 and 10 of the questionnaire, from a total of 15 questions, asked Portuguese and Croatian students' opinion on the necessity and benefits of accounting education in their private and business life. Question 8 (Q8) is: "Do you think that you need financial knowledge that is not directly related to your profession?"; Question 9 (Q9) is: "Do you think that knowledge from accounting subjects can be applied in private life?"; Question 10 (Q10) is: Do you think that financial knowledge can be applied in business life?

The results show that accounting courses and controlling are, roughly, at the average point of 3,5 on a 5-point Likert scale and tax course are at average point of 3,2 on a 5-point Likert scale. Results show that students see better benefits from tax course in their private life (average point of three and a half on a five-point Likert scale), while benefits from accounting and controlling courses are better for business life. Average rank for accounting and controlling is 3,9, on a 5-point Likert scale. Students consider very seriously the accounting subjects which can be confirmed with the fact that two-thirds of students stated that they are not learning this subject only for better grade, but for knowledge which they believe it will use in the future. The first hypothesis is then confirmed, both in terms of grand total, and at country-level, since Portugal and Croatia shown similar figures. In tables 3, 4, and 5, are shown the correlations between basic student characteristics (gender, employment, year of employment, status, study, year of study) and answers to questions 8, 9 and 10. Table 3 is concerning Croatia, Table 4 is for Portugal, and, finally, Table 5 shows the total for both countries.

Table 3: Correlations of sample characteristics with accounting, tax, and controlling knowledge for Croatia

Croatia Correlations		Q. 8			Q. 9			Q. 10		
		ACC	TAX	CTRL	ACC	TAX	CTRL	ACC	TAX	CTRL
<b>Gender</b>	Pear. Corr.	0.064	0.118	0.120	0.056	0.123	0.089	0.039	0.113	0.145
	Sign. (2-t.)	0.470	0.178	0.174	0.526	0.162	0.311	0.659	0.200	0.098
<b>Employment</b>	Pear. Corr.	-0.139	-0.214*	-0.059	-0.124	-0.123	-0.028	0.103	0.027	0.092
	Sign. (2-t.)	0.112	0.014	0.501	0.157	0.160	0.747	0.239	0.760	0.297
<b>Years Empl.</b>	Pear. Corr.	0.085	0.191*	0.094	0.086	0.142	0.019	-0.162	-0.079	-0.157
	Sign. (2-t.)	0.336	0.029	0.284	0.328	0.106	0.832	0.064	0.369	0.073
<b>Acad. Status</b>	Pear. Corr.	0.156	0.043	0.088	0.058	0.024	0.002	-0.131	-0.131	-0.144
	Sign. (2-t.)	0.075	0.625	0.315	0.507	0.786	0.985	0.135	0.137	0.101
<b>Studies</b>	Pear. Corr.	-0.089	-0.007	-0.040	-0.020	0.041	-0.005	-0.148	-0.094	-0.083
	Sign. (2-t.)	0.314	0.937	0.652	0.825	0.638	0.957	0.092	0.285	0.346
<b>Year's Study</b>	Pear. Corr.	0.194*	0.122	0.231**	0.092	0.075	0.149	0.183*	0.133	0.156
	Sign. (2-t.)	0.027	0.165	0.008	0.298	0.393	0.089	0.036	0.129	0.075

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

For Croatia, the analysis for Q8 shows statistically significant correlations between student characteristics and accounting course. Statistically significant correlations can be seen ( $p < .05$ ) between student characteristic and courses as follows:

- Taxes and employment (negative correlation)  $r = -0.214$
- Taxes and year of employment (positive correlation)  $r = 0.191$
- Accounting and year of study (positive correlation)  $r = 0.194$
- Controlling and year of study (positive correlation,  $p < .01$ )  $r = 0.231$

This confirms that employed students are aware about the importance of taxes, and that student during their education start to be more aware of the importance of accounting and controlling courses. Accordingly, the second hypothesis can be confirmed. In questions 9 and 10 there is no statistically significant correlations,  $p < .01$  or  $p < .05$ , which means that some of student characteristic do not influence their opinion that accounting education is important for their private and business life. Accordingly, the third hypothesis is confirmed.

Furthermore, financial statements and basic rules of accounting are the most important things for students. For example, for tax course, the most important thing for students are basic information about tax laws and VAT, because this kind of tax is important for all aspect of life and influences cost of life. Students state that the most important thing about controlling would be an emphasize on controlling of human resources and analysis of financial statement. Students opinion about what is need for learning in accounting course are more exercises, especially in accounting information systems, and in tax and controlling courses they would like more practical work.

Table 4: Correlations of sample characteristics with accounting, tax, and controlling knowledge for Portugal

Portugal Correlations		Q. 8			Q. 9			Q. 10		
		ACC	TAX	CTRL	ACC	TAX	CTRL	ACC	TAX	CTRL
<b>Gender</b>	Pear. Corr.	-0.035	0.136	0.066	-0.010	0.228**	0.119	-0.048	-0.054	0.097
	Sign. (2-t.)	0.687	0.121	0.456	0.910	0.009	0.175	0.586	0.537	0.270
<b>Employment</b>	Pear. Corr.	-0.021	0.021	0.049	0.003	0.041	-0.089	0.127	0.071	0.036
	Sign. (2-t.)	0.814	0.813	0.580	0.975	0.644	0.310	0.147	0.420	0.682
<b>Years Empl.</b>	Pear. Corr.	0.078	-0.021	0.070	0.139	-0.051	0.168	-0.026	-0.030	-0.135
	Sign. (2-t.)	0.584	0.886	0.626	0.332	0.724	0.238	0.854	0.833	0.344
<b>Acad. Status</b>	Pear. Corr.	0.059	-0.015	0.070	0.099	0.021	0.037	-0.087	-0.034	0.002
	Sign. (2-t.)	0.502	0.866	0.428	0.261	0.808	0.679	0.322	0.699	0.979
<b>Studies</b>	Pear. Corr.	0.011	0.076	0.061	0.005	0.097	0.207*	-0.119	-0.030	0.053
	Sign. (2-t.)	0.898	0.388	0.485	0.957	0.271	0.017	0.175	0.736	0.545
<b>Year's Study</b>	Pear. Corr.	0.100	-0.066	0.100	0.064	0.044	-0.073	0.165	0.099	0.092
	Sign. (2-t.)	0.257	0.452	0.255	0.467	0.621	0.405	0.060	0.260	0.296

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

As for Portugal, there are no statistically significant correlations for Q8 and Q10. The only correlations found are for Q9. Statistically significant correlations could be captured between student characteristic and courses as follows:

- Taxes and gender (positive correlation,  $p < .01$ )  $r = 0.228$
- Controlling and studies (positive correlation,  $p < .05$ )  $r = 0.207$

The lack of a higher number of statistically significant number of correlations does not allow to fully confirm the research hypotheses. Nevertheless, the few statistically evidence obtained suggest that the second and third research hypotheses may be partially confirmed.

Table following on the next page



Table 5: Correlations of sample characteristics with accounting, tax, and controlling knowledge for Portugal and Croatia

Portugal & Croatia Correlations		Q. 8			Q. 9			Q. 10		
		ACC	TAX	CTRL	ACC	TAX	CTRL	ACC	TAX	CTRL
<b>Country</b>	Pear. Corr.	0.076	0.008	0.045	0.187**	-0.163**	0.080	0.081	-0.052	0.044
	Sign. (2-t.)	0.222	0.898	0.471	0.002	0.008	0.195	0.192	0.398	0.481
<b>Gender</b>	Pear. Corr.	0.026	0.098	0.096	0.027	0.164**	0.101	0.004	0.039	0.124*
	Sign. (2-t.)	0.681	0.114	0.121	0.663	0.008	0.103	0.944	0.530	0.045
<b>Employment</b>	Pear. Corr.	-0.089	-0.025	-0.013	-0.057	-0.061	-0.049	0.115	0.042	0.071
	Sign. (2-t.)	0.151	0.688	0.834	0.356	0.325	0.433	0.063	0.494	0.252
<b>Years Empl.</b>	Pear. Corr.	0.067	0.016	0.055	0.042	0.096	0.049	-0.149*	-0.060	-0.127*
	Sign. (2-t.)	0.281	0.796	0.373	0.499	0.123	0.431	0.015	0.333	0.040
<b>Acad. Status</b>	Pear. Corr.	0.077	-0.046	0.048	-0.039	0.102	-0.032	-0.144*	-0.063	-0.116
	Sign. (2-t.)	0.212	0.456	0.439	0.530	0.101	0.601	0.020	0.313	0.062
<b>Studies</b>	Pear. Corr.	-0.048	-0.037	0.003	-0.007	0.063	0.085	-0.133*	-0.066	-0.026
	Sign. (2-t.)	0.438	0.550	0.964	0.912	0.308	0.170	0.032	0.289	0.675
<b>Year's Study</b>	Pear. Corr.	0.117	0.082	0.150*	-0.005	0.125*	0.030	0.127*	0.131*	0.104
	Sign. (2-t.)	0.059	0.186	0.015	0.932	0.044	0.627	0.041	0.034	0.094

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

In terms of testing for the whole sample, the number of statistically significant correlations found is the highest. For Q8, only one:

- Controlling and year of study (positive correlation  $p < .05$ )  $r = 0.150$

For Q9, four significant correlations, three at the 0.01 level:

- Taxes and country (negative correlation)  $r = -0.163$
- Taxes and gender (positive correlation)  $r = 0.164$
- Taxes and year of study (positive correlation  $p < .05$ )  $r = 0.125$
- Accounting and country (positive correlation)  $r = -0.187$

Finally, for Q10, seven significant correlations, all at the 0.05 level:

- Accounting and years employed (negative correlation)  $r = -0.149$
- Accounting and academic status (negative correlation)  $r = -0.144$
- Accounting and studies (negative correlation)  $r = -0.133$
- Accounting and year of study (positive correlation)  $r = 0.127$
- Taxes and year of study (positive correlation)  $r = 0.131$
- Controlling and gender (positive correlation)  $r = 0.124$
- Controlling and years employed (negative correlation)  $r = -0.127$

The overall results, i.e. for both Portugal and Croatia together, are a little puzzling. When examined alone, H2 and H3 can be confirmed for Croatia, and partially confirmed for Portugal. When examined together, H2 can be partially confirmed, but H3 cannot. Looking to other data collected and also to some further statistical testing, there is some evidence about the possible country influence. Looking mostly for possible dependences of country type with the remaining variables (based primarily on Pearson Chi-Square), one can suggest there is some country influence on several descriptive data, namely: academic status, and year of study.

Furthermore, one can suggest that "Accounting", "Tax" and "Controlling" are country dependent, therefore there is some kind of effect between country type and importance given to accounting for non-accounting students. Other questions do also present some interesting insights. For example, the importance given to academic studies, and to the type of grade obtained.

## 7. CONCLUSION

In this paper, different levels of management in corporations were examined, together with a discussion on the relevance of different skills to each layer of management jobs, together with an analysis of the impacts resulting from the increasingly dynamism of the business environment and the relevance and need for some financial kind of knowledge at different socio-economic levels. Depending on the type of activity, or the organizational level, every professional must have some critical skills, such as technical skill, interpersonal skill, or conceptual skill, regardless the importance of other types, like diagnostic skill, and political skill. Every professional at each level shall be responsible for performing their duties efficiently to achieve maximum productivity of the firm as a whole. For that, knowledge on financial matters will most certainly provide some kind of contribution. Financial subjects, such as accounting; and other related, such as taxation or controlling, apart for the management of their own, give a certain security of employment to students after graduation. Students who gain knowledge in accounting, taxation and controlling can easily collect relevant information about future employers, better understand financial statements, their salary, or their own business. It is necessary for higher education institutions to cooperate more closely with labor market and research their needs and requirements. Financial and accounting literacy development in higher education is probably critical to enhance future economic growth. Financial knowledge today is being treated as the key factor of economic growth, and higher education students need to have accounting education for a brighter future. The results of our research have shown that higher education in Portugal and Croatia share many characteristics and challenges. A certain gap can be noticed between what the academia produces and what business needs. It could be observed that in higher education topics such as taxes and controlling are neglected among non-financial degrees, while in practice they are highly recognized as an important strategy that can assure long-term survival in a highly competitive environment. The current research suggests that, overall, students are aware of the importance of financial education and the possible benefits they may get in private and business life. In terms of suggestion of future research, it would be very interesting to expand the study to other countries, than simply focusing in Croatia and Portugal.

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## REVIEW OF COMMUNICATIONAL DISCIPLINES IN NAVAL MILITARY STUDIES IN THE EU WITH THE REVIEW OF THE NEW NAVAL STUDIES AT THE UNIVERSITY OF SPLIT

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### **ABSTRACT**

*The army existed already at the time of the early civilizations as a specific weapon mastering and weapon training system. As the time went by and the society developed, the need for an institution that would be dedicated to the training of top warriors who have undergone the physical and mental part of preparing for combat missions for the purpose of defending society also increased. Mentioned missions require good physical condition and they often take place in international areas, broader than national ones and they also require higher education at the university level. Future officers are expected to be able to understand the administration of the host country and to apply acquired knowledges to solve problem situations. The basic aim of this paper has its focus on the analysis of the scholar part of newly opened Naval Studies programme at the University of Split and on its comparison with study programmes of military and naval school and academies on master level, undergraduate level and at the level of specialisation in prominent countries of the EU. The author is focused on general programmes and then in particular on courses in communicational sciences, where he discovers that Germany, Belgium, France and Greece have a programme or parts of a programme based on courses in communicational sciences. Obtained results are then compared with NATO PAO (Public Affairs Officer) programme for education which provides the insight in specific areas of public relations: media relations, internal communication with planning and management and community relations. Based on the unified information on mentioned EU members and NATO programmes, the author implements his proposals for the introduction of new courses at the newly opened Naval programme at the University of Split.*

**Keywords:** *army, university study programme, naval study, communicational discipline, NATO, public relations*

### **1. INTRODUCTION**

In 2010, Ministry of Defence of the Republic of Croatia (MORH) and the Institute for Research and Development of Defence Systems (IROH) commanded a project „Croatian army – Croatian society“. That project was conducted by the Institute of Social Sciences Ivo Pilar in collaboration with IROS. There were four major reasons for the realisation of this project, and one of them is related to this paper: „A small number of researches related to the analysis and explanation of relations between the society and the army in practical areas of everyday life was conducted so far“. Except for the mentioned, officially considered main reason for the realisation of a project was „Encouraging of systematic and permanent analysis of relations between the society and the army, conditioned by democratic transformation of institutional order and by the form of national development strategy“. From previous quotation we can notice the lack of researches on Croatian army as of the institution and a member of society and this is why the paper was based on the analysis of study programmes of the newly opened Naval study programme in Split and on the comparison of this programme with programmes of army and naval academies of prominent members of the EU. As the example of military education in Croatia, we used Split specifically because it is a newly opened study which contains courses of military character and scientific nature.

Second recommendation and the conclusion of executional project are two models appropriate for higher education in military sector: „(a) Higher education institutions which are explicitly military institutions and in which students acquire qualifications for obtaining certain army rank are institutions which neglect scientific component, and (b) higher military schools attended by military and civil students who obtain diplomas recognized in the European system, BA, MA and PhD, are institutions which also develop a scientific component“ (PROJECT Croatian army – Croatian society, 2010). Plans and realisation of plans for the opening of Naval studies in Split started in 2014 and hard work continued four years in order to open a quality studies. Study programme was launched by the Ministry of Defence of the Republic of Croatia together with the University of Split and in collaboration with the Ministry of Science, the Ministry of the Interior of the Republic of Croatia and the Ministry of the Sea, Transport and Infrastructure. During the solemn oath of 15th generation of military cadets in Croatian Military Institute „Franjo Tuđman“, minister Krstičević spoke about the importance and the reason for opening of this study programme: „The importance of the opening of a specialized studies for army officers arises from the need of Croatian army to assure professional officers compliant with NATO standards, but also from the need to equalise military education with civil one“ (WE FIND OUT: What brings the study programme „Military navy“?, 2017). Minister also added as follows: „For the first time in Croatia we will have the unique education of navy officers for all of the state institutions which operate in the domain of maritime security. (...) As Croatian land forces have their studies of Military Leadership and Management and Military Engineering, Croatian Air Force and Air Defence their programme for military cadet pilot, from this moment Croatian Navy will have its own programme in Naval studies, which will produce quality naval officers and continue Croatian naval tradition with dignity“ (Hina, 2018). Programme of naval studies was carefully designed so the future students could obtain more knowledge and competences in understanding maritime practices and nautical skills necessary in order to navigate. Rector of the University of Split, Šimon Anđelinović states that the new Naval studies will be implemented in the area where they were opened given the Mediterranean character and that“... the first results of this project will be visible only in several years „with the announcement that the programme will be carried out in English and that they will cooperate with NATO and other institutions. Plans for the academic year 2019/2020 are for the courses to be carried out in English, and with the completion of the study programme students acquire the academic title of master, engineer of military studies, as they reported from the Ministry of the Sea (R.I., 2018).

## **2. COMPARISON OF NAVAL STUDY PROGRAMMES IN COUNTRIES MEMBERS OF THE EU**

Out of 27 members of the EU, Belgium, France, Greece and Germany are considered as leading countries regarding the quality of military academies, and the comparison in this paper is being based on the comparison of study programmes of Croatian naval studies and those in mentioned countries of the EU. Study programme of Naval studies at the University of Split in an integrated undergraduate and graduate programme which lasts 10 semesters or 5 years and with its completion students acquire at least 300 ECTS. Annually, 40 students will be enrolled (30 through the Ministry of the Defence, two through the Ministry on the Interior, two through the Ministry of the Sea, Transport and Infrastructure of the Republic of Croatia and six foreign citizens) („University of Split: About Naval studies“, 2018). Royal Military Academy in Belgium was established in 1834 and in 1909 it has been moved to its present location, where her infrastructure has been entirely renewed between 1994 and 2010. At the beginning, students attended courses in different parts of Bruxelles, while the employees were placed in a big residence in Naamsestraat. (Short historical overview) Elementary education and training of Belgian navy officers takes place at the Academy.

Royal military academy has integrated bachelor and master studies which last 5 years. Each year they enrol 7 cadets at nautical studies, while a total number of cadets is 25 (Belgium – Royal Military Academy). French Military Academy Saint-Cyr was established by Napoleon Bonaparte in 1803 and at its beginning, the academy prepared officers for infantry and cavalry. But, after the WW2, the Academy took over the training of the biggest part of technical officers (The Editors of Encyclopaedia Britannica, 2018). Study programme of the Academy consists of two years of bachelor and three years of master degree studies and receives 240 candidates per year, of which 150 is being recruited directly. In fact, in order to become officers, cadets must either pass three years of bachelor studies, or two years of preoperational studies at a “civil” university. After the completion of bachelor degree, cadets enrol to master studies, which is integrates and comprises a specialisation (France: Organisation of the basic officers' education). Hellenic Military Academy in Greece was established in 1845. Since the establishment, the Academy is focused on academic education, mental competence and physical training of future officers. In order to enrol at the Academy, candidates must pass psychometric and athletic entrance examination held by the Ministry of Education (Academic education). Study programme of the Academy consists of four years of elementary education followed by the specialisation. Enrolment quota for the first year, and total number of candidates at the academy is 200 /Greece: Hellenic Naval Academy). „Bundeswehr Naval Academy“ in Germany was established in 1955. Bundeswehr consists of land forces, navy and air force. Study programme consists of integrated undergraduate and graduate studies which last six years and it is followed by the specialisation (Germany: Universities of the Bundeswehr: Naval Academy Marineschule Mürwik – MSM, Organisation of the basic officers' education).

### **2.1. Comparison of undergraduate programmes in prominent European countries**

Programme of Naval studies in Split consists of integrated undergraduate and graduate studies which last five years. Studies have two courses: navy and marine engineering with optional courses for students educated for the needs of the Ministry of the Interior (Elaboration of the studies programme, 2018, p. 12). Although the programme consists of integrated undergraduate and graduate studies, it can be divided on „core“ knowledge and professional knowledge (naval courses and engineering courses). In fact, during the first two years of studies all of the courses are common, and during the following three years there are common and specific courses depending on the graduate programme. First semester has 31 ECTS and consists of nine courses: (1) Nautical English I, (2) Mathematics I, (3) Computing, (4) Nautical law, (5) Academic writing, (6) Seafaring I, (7) Army leadership, (8) Military professional practice I (winter camp) and (9) Physical education and sports. Second semester also has nine courses with 30 ECTS. Courses are common for both programmes as in the first semester: (1) Nautical English II, (2) Mathematics II, (3) Safety on the sea, (4) Protection of the sea and maritime environment, (5) Seafaring II, (6) Ship electrical engineering and electrical engineering I, (7) Military Management, (8) Nautical practice I and (9) Physical education and sports. Second year of studies also has nine courses in each semester, where each semester brings 31 ECTS. In third semester (first semester of the second year) all of the students attend core courses: (1) Naval English, (2) Technical mechanics I, (3) Means of maritime transport I, (4) Seafaring III, (5) Medicine for seafarers, (6) Naval geography, (7) Maritime history, (8) Hydro acoustics and physical fields of a boat and (9) Physical education and sports. For the difference of third semester, in fourth semester new courses appear (Ship energetic systems and Nautical practice II) attended by the students of engineering who did not finish nautical engineering high school and they must attend and finish the additional educational programme. Except for the two mentioned courses, students of both programmes must attend seven common courses: (1) Naval English II, (2) Technical mechanics II, (3) Means of maritime transport II, (4) Organisation of a work and ship management, (5) Ship electrical engineering and electrical engineering II, (6)

Engineering graphics in seafaring and (7) Physical education and sports (Elaboration of the studies programme, 2018, p. 16-17). Study programme of Royal Military Academy in Belgium consists of three years of undergraduate (180 ECTS) and two years of graduate studies (120 ECTS). Undergraduate studies „Social and military sciences“ consists of 75% of academic education, 5% of military training, 10% of character development and 10% of physical training. Each semester has an equal number of ECTS and there are six of them. In first semester of the first year students attend eight courses: (1) Ethics, (2) Sociology, (3) English, (4) German, (5) Dutch, (6) Critical thinking, (7) Basics of Mathematics and (8) Basics of Informatics. In second semester they also attend eight courses: (1) Military psychology, (2) Presentational skills, (3) Introduction in military history, (4) Research methods, (5) Application of mathematics, (6) IT management, (7) Electronics and (8) Theory of mechanics. Students can choose an optional course (Mother tongue for foreign students + two languages of their choice). They attend courses of chosen languages until the second year of graduate studies („Royal Military Academy: Academics: Basic academic training: Bachelor in Social and Military Sciences“). Second year of undergraduate studies consists of two semesters during which students attend 15 courses; eight in first semester and seven in second. In first semester they attend: (1) Principles of flying, (2) Writing skills, (3) Communicational psychology, (4) History of Belgian defence politics, (5) Principles of the law, (6) Basics of telecommunication, (7) Probability and statistics and (8) Energetic materials. In second semester courses are: (1) Civil and military ethics I, (2) Military sociology, (3) Belgian military laws, (4) General economics, (5) Human resources management, (6) Insurance of the network and information and (7) Basics of ballistics (Bachelor in social and military sciences). For the difference of the second year, on the third year of undergraduate studies, on the third year of undergraduate studies they attend 13 courses; eight in first semester: (1) Military didactics, (2) Military campaigns from historical perspectives, (3) International safety, (4) Law of military operations, (5) Economical politics, (6) Introduction to management, (7) Geodesy and navigation and (8) Armament and ammunition. In second semester they have five courses: (1) Political geography, (2) Leadership, (3) Final work, (4) Tactical military sensors and (5) Survival/sustainability of army systems („Royal Military Academy: Academics: Basic academic training: Bachelor in Social and Military Sciences“). Military Academy Saint-Cyr Coëtquidan in France offers study programme which lasts 5 years and consists of two years of undergraduate and three years of graduate studies. At the undergraduate level students choose one of three departments: (1) Science, (2) Art, (3) Economics and social sciences and they continue their master studies where they attend courses for the specialisation in three fields: (1) Engineering sciences, (2) International sciences and strategies and (3) Management of human resources and organisation (France: Military Schools of Saint-Cyr Coëtquidan, Academic Curricula).

## **2.2. Comparison of graduate programmes in prominent European countries**

As we mentioned in previous chapter, although study programme of Naval studies in Split is an integrated undergraduate and graduate studies, courses can be divided into „basic“ knowledge and professional knowledge (exclusively nautical courses and navy engineering): all of the courses are in common during first two years of studies, while they differ on last three years depending on a programme. First semester of the third year has five mandatory common courses: (1) Mathematics III, (2) Military psychology, (3) Military pedagogy, (4) Professional military practice II (winter camp) and (5) Physical education and sports and four courses for each programme. Students in Naval studies have following mandatory courses: (1) Maritime meteorology and oceanology, (2) Terrestrial navigation, (3) Handling of the load I and (4) Maritime communication. Ship engineering programme has following mandatory courses: (1) Technology of the materials, (2) Thermodynamics and heat transfer, (3) Solidity of materials and (4) Ship electro energetic systems. Each programme has an equal number of ECTS; 12 for

common mandatory courses and 19 ECTS for professional courses. Second semester on the third year of studies consists of three mandatory common courses: (1) Construction and combat ship resistance, (2) Military communicational and informational systems and (3) Physical education and sports and five mandatory professional courses for each programme. Common courses have 8 ECTS and mandatory professional courses 21 on each programme. Students in naval studies must pass exams in: (1) Navigation practice, (2) Electronic navigation, (3) Handling of the load II, (4) Techniques in handling a ship and (5) International law. On the other hand, students in ship engineering follow: (1) Work on a simulator and nautical practice III, (2) Ship machine elements, (3) fuel, lubricants, water, (4) Ship auxiliary machines and devices, (5) Ship engines. On the fourth year students attend following common courses in first semester: (1) General tactics, (2) Detection systems, (3) History of maritime wars and (4) Physical education and sports. In second semester they attend: (1) Electronical warfare, (2) Navy tactics, (3) Safety management and seafaring risks and (4) Physical education and sports. In both semesters mandatory common courses bring 12 ECTS, while the first semester on the fourth year courses for students in nautical studies bring 1 ECTS less than courses in nautical engineering. In first semester, two courses (Criminal law and Surveillance of state border) are mandatory for the Ministry of the Interior students instead of the course „Nautical armed systems I“ and four other courses: (1) Nautical armed systems I, (2) Journey planning, (3) Astronomical navigation and (4) Ship maintenance. Those courses are attended by Naval studies students. Students in military engendering have four mandatory courses with 18 ECTS in total: (1) Ship energetic electronics, (2) Ship machine systems, (3) Ship hydraulics and pneumatics and (4) Automatization of ship machine systems. In second semester, students in naval studies programme for the need of the Ministry of the Interior must attend „Violation law“ and „Police authority and their application“ instead of „Nautical armed systems II“ and „Tactical navigation“, while other students must attend: (1) Navigation practices IV, (2) Nautical armed systems II, (3) Tactical navigation, (4) Automatization in maritime transport and (5) Contemporary transport technologies. These courses have 20 ECTS in total, equally as the group of mandatory courses for ship engineering programme, whose students must attend: (1) Work on a simulator and nautical practice IV, (2) Nautical armed systems, (3) Diagnosis of malfunctions, (4) Ship cooling devices and air-conditioning devices and (5) Propulsion systems of warships (Elaboration of the studies programme, 2018, pp. 19-22). What differs the fifth year of previous three are courses. In fact, on previous years students attend some common courses and some particular courses depending on a study programme. On the other hand, fifth year consists of seven courses mandatory for all students. In first semester those courses bring 28 ECTS. Those are following common mandatory courses: (1) Methodology of scientific research, (2) Modelling and simulation of a process, (3) Nautical integrated safety and surveillance systems, (4) Maintenance management, (5) Management of crisis situation on the sea, (6) Management of military logistic systems and (7) Physical education and sports. Unlike the first semester on the fifth year, second semester has only three courses, (1) Hydrographical engineering, (2) Professional practice and (3) Graduate thesis. All of them have 32 ECTS ((Elaboration of the studies programme, 2018, pp. 23-24). At the Royal Academy in Belgium, graduate studies consist of two years and have a total of 120 ECTS. In a first semester of the first year students attend two courses: (1) Integrated armed systems and (2) Humanitarian laws, along with two languages chosen at the beginning of undergraduate studies. In second semester students attend only two courses: (1) Military leadership and (2) Management in public sector and defence (Master in social and military sciences). But, students are obliged to choose three courses on the first and on the second year among 11 offered so called „A courses“ (Technology of a vehicle, Armed systems, Communication and information systems, Management, Economy and management, Aeronautical sciences – pilot, Aeronautical sciences – ATC/ADC, Military operations, History, Behavioural sciences and International relations).



They are also offered 16 „B courses“ (Aeronautical sciences – mechanic, Nautical sciences – mechanic, Cyber sciences, Aeronautical sciences – pilot, Nautical sciences – doctrine, Military sciences – Land operations, Aeronautical sciences – ATC/ADC, Business process, Development, Interventional engineering, Advanced second language, Advanced English, German and Concepts of advanced military systems) of which they choose one on each year („Royal Military Academy: Academics: Basic academic training: Master in Social and Military Studies“). Graduate studies at the Military Academy Saint-Cyr Coëtquidan in France last three years. Students graduate in three fields: (1) Engineering sciences, (2) International relations and strategy and (3) Management of human resources and organisation. In the first field students attend courses for specialisation in three fields: (1) Energetic mechanics, (2) Informational sciences and simulation and (3) Electronics and electromagnetic field. In third area they attend courses in six fields: (1) Management, (2) Laws, (3) Economy, (4) Sociology and (5) Communications and (6) History. In second field they attend equal number of courses as in third field: (1) Defence, (2) International safety and cooperation, (3) Armed forces and international relations, (4) Eastern Europe and Eurasian regions, (4) Mediterranean Eastern African regions and (6) United States (France: Military Schools of Saint-Cyr Coëtquidan, Academic Curricula).

### **2.3. Comparison of naval studies according to the specialisation**

With the signature of a contract with one of mentioned ministries (the Ministry of the defence and the Armed forces of the Republic of Croatia, the Ministry of the Interior, the Ministry of the Sea, Transport and Infrastructure, a system of state administration, a state agency or similar) students have a guarantee to find a job at the end of their studies in ministry with which they signed the scholarship contract. Scholarship beneficiaries of the Ministry of the Defence have following expenses covered: accommodation, nutrition, mandatory literature, military uniform, sports equipment, public transport costs. At the end of their study programme they are assigned their first officer rank and they take over their first duty in troops of the Armed forces. During their regular professional development, officers are being sent for higher officer's level educations and to specialized courses in country and abroad. With the completion, they acquire conditions necessary for the promotion in higher ranks and to be set up on higher duties („University of Split: Possibilities of a career development“, 2018). After the completion of five years long integrated study programme, students must choose among six specialisations; infantry, artillery, signalisation, technical forces, armed forces and engineering. All of the specialisations are being conducted in Officers school in Zagreb (Croatia: Croatian Defence Academy „Dr. Franjo Tuđman“, Military specialisations). After mentioned undergraduate and postgraduate programmes of Military school in France a specialisation is possible. Students who terminate graduate studies can choose among 6 different specialisations: Cavalry in Samur, Infantry and Artillery in Draguignan, Signalisation in Rennes, Logistics in Bourges and Military aviation (France- Military Schools of Saint - Cyr Coëtquidan, Military specialisations). After the five yearlong study programme at the Royal Military Academy in Belgium, students can choose among three specialisations: Maritime officer in Central maritime-nautical school and Technical officer or Weapon officer in Central maritime-technical school (Belgium: Royal Military Academy, Military specialisations). After undergraduate and graduate studies in Hellenic Military Academy, cadets continue their specialisation. They can choose among 9 different military specialisations: cavalry, infantry, artillery, signalisation, military aviation, technical and armed forces, forces for supply, transport and engineering. All of those specialisations are conducted in different towns and in different professional schools (Greece: Hellenic Naval Academy, Military specialisations). After the completion of a six years long integrated undergraduate and graduate studies in Bundeswehr in Germany, students can choose among five specialisations: Operations at the sea in Bremerhaven, engineering in Parow,

Leadership in Mürwik and Kiel, Infantry in Plön and Medical services in Kiel (Germany: Universities of the Bundeswehr, Naval Academy Marineschule Mürwik – MSM, Military specialisations).

### **3. COMPARISON OF STUDY PROGRAMMES FROM THE POINT OF VIEW OF COMMUNICATIONAL SCIENCES**

In recent years, an increasing number of states have abolished the mandatory military service in favour of other organisations. In fact, the development of the technology leads to increased specialisation of military work and better educated employees. This results in decrease of the need in physical training and strength. Participation in non-war missions (humanitarian and peace missions) is being increased and the demands for the training in other levels, not only on the physical, arise. According to that, the demand for the new cadre trained for new duties which were not previously part of military duties appears; administrative work (cooperation with civil administration of other states), cooperation with media and different NGO on the field, etc. (Moskos et al., 2000., p. 1 according to Rodik, 2005, p. 1002). Certain universities in the US in recent time show a higher level in integrity of different scientific disciplines that are applied in creation of programmes at undergraduate and graduate levels. Foreign scientific experiences show that, since the WW2 and especially in the US, a more professional cadre for PR in public affairs is being formed. It is interesting to emphasize that NATO's school in Oberammergau (Germany) nowadays organises courses for military and civil officers from NATO partner countries. In this way, students can reach experienced lecturers (lieutenant of Canadian army Luca Gaudeta) with the subject of the role of an officer for PR in NATO and on NATO's politics in that area. In the mentioned context, the Regional centre specialized in PR (Partnership Education and Training Centre) appears in Skopje. Centre accomplished NATO's criteria and started with courses for basic PR skills in public affairs for NATO and partner countries in 2013 (Allied Command Operations and Allied Command Transformation, 2014). Year after year, the number of participants from different countries increases, including China since recently. Course is being reduced to a method of studying through a practice: basic part lasts four weeks and fifth week is reserved for a practical part. Mentioned examples enable to students to acquire practical experiences in their future work, are getting new acquaintances and similar. After all, we are not speaking about the science, because the acquired knowledge and the experience are not science, but only one of its attributes. In other words, measuring results by the method of attempts and errors and their generality, or reduction on the speech from the own experience does not lead necessarily to the science. We need to be subjected to the process of permanent critical reinterpretation, but such a process is not possible without scientifically established theoretical knowledge. Therefore, the process of professionalization starts with the academic education, where the acquired theoretical knowledge is the prerequisite for practical knowledge and skills, measurable with practical instruments (methodology of a working theory). As a good example for university education we should mention San Diego University (programme of graduate studies: Journalism and Media studies) which is oriented toward PR cadre in public affairs in the US army, navy, aviation, nautical corps and coast guard. Mentioned programme was initiated by the American navy with the intention to create strategically directed educational programme, which was then expanded at all of the other branches in the American army. Participants come from different countries and civilians attend courses with them. Mentioned faculty wants to offer broader choice of professional expertise in technical aspects of the PR (news writing, media relations, distribution of information...) Of course, a job of the PR officer in public affairs is the same as in any other field of the PR. We are speaking about same method, same problem approach, with the same basic process: research, planning, implementation and estimation. But the product is different. Faculty education is reduced to the adoption of strategic analytic skills in the sense of planning PR

programmes in public affairs – with measurable outcomes, application of such programmes and measurement of their efficiency. Faculty education provides an additional support in the sense of a critical role of strategic consulting their superiors. Within the study programme of Naval studies in Split, which completely has a military character, communicational courses are being implemented (Nautical communication, Military communication and information systems and Management of crisis situations). Course that should be emphasized is „Management of crisis situations“, especially because the Military Academy in Belgium is the only one among five leading countries with the accent on crisis situations. In fact, at its Academy, Belgium has a special department called „Department for conflict studies“, which researches all the aspects of military confrontations in present times and in future taking the geographical background into consideration. It is divided in three departments: history department, world politics department and the department for additional undergraduate education of officers from Belgium or other countries. According to the official Departments website, they aim to be included into public debates on military and armed conflicts in the past and in the present through the 'implementation' of „civilian“ professors and getting into media („Department of Conflict Studies: Welcome to the Department of Conflict Studies“). Regarding communicational disciplines and sciences, in the first semester of the second year of undergraduate studies, students have the course „Basics of telecommunication“, while the „Economical politics“ is offered on third year, and the „Management in public affairs and defence“ on the last year of graduate studies. Although Belgium has rich undergraduate and graduate programme, courses related to communicational disciplines are not much represented. Meanwhile, mentioned Department for conflict studies is of the extreme importance and it starts to use media and public in order to achieve goals related to new researches and analysis of the area where military and defence conflicts appear. Regarding communicational sciences and disciplines at the Military Academy in France, there is the possibility to attend one of three options within graduate engineering studies: (1) Technical sciences, (2) Social sciences and (3) Research studies. Social sciences are of the biggest importance for communicational disciplines and those are: (1) Communication, (2) Laws, (3) Economy and management, (4) History and geography, (5) International relations, (6) Sociology and (7) Political sciences. (FRANCE: Military Schools of Saint-Cyr Coëtquidan, Academic curricula). Study programme at the Hellenic Academy lasts 6 years: 4 years of undergraduate and 2 years of graduate studies. Courses are in general completely adjusted to military programme and the only sector with communication disciplines is the so called Sector 1. Sector 1 is divided on 4 groups of courses: (1) Navigation and maritime sciences, (2) War systems and naval operations, (3) Electronics and (4) Telecommunication. All of the course groups consist of several courses in the science domain of the same name, while communicational disciplines are being used in the group Electronics and Telecommunications („HNA: Academic Education“). Students at the Military Academy in Germany can choose among more than 10 departments (Psychology, History, Management and media, Economic and management sciences, Political and social sciences, Industrial engineering, Informatics, Civil engineering, Mathematical engineering, Mechanical engineering, Electronic engineering, Mathematical engineering, Mechanical engineering, Electronical engineering, Constructional engineering and Sport sciences), among which we must emphasize Management and media department as well as Political and social sciences because German Military Academy is the only one who offers education which is not necessarily of a military character already when choosing undergraduate studies (Germany-Universities of the Bundeswehr, Naval Academy Marineschule Mürwik – MSM, Academic curricula).

### **3.1. Comparison of naval studies programmes of prominent EU and NATO members**

Plans and realisation for the opening of Naval studies in Split started in 2014. Rector of the University of Split, Šimun Anđelinović states that new Naval studies will implement well into the area where it is opened, given the Mediterranean character and that „...the first results of this project will be visible only in several years „with the announcement that the programme will be carried out in English and that they will cooperate with NATO and other institutions.“ Out of 27 EU members, Belgium, France, Greece and Germany make part of leading countries regarding the quality of military academies so the comparison of the work is being based on the comparison of study programme of Croatian navy and of those in mentioned EU members. Naval studies in Split are an integrated undergraduate and graduate programme where students acquire 300 ECTS at the completion of their studies. Elementary education and training of Belgian navy is conducted at the Academy. Royal Military Academy is recognized as a higher education institution whose students must graduate in Social and military sciences or in Engineering at the Academy in order to be recognized. Royal Academy has an integrated undergraduate and graduate studies which last 5 years. French Military Academy Saint-Cyr was established by Napoleon Bonaparte in 1803 and at its beginning it prepared infantry and cavalry. Academy's study programme consists of two years of undergraduate and three years of graduate studies and annually they enrol 240 candidates, of which 150 is being directly recruited. In order to become officers, cadets must either accomplish three years of undergraduate studies, either two years of preoperational studies at a „civil“ university. Hellenic Naval Academy in Greece was established in 1845. Since its foundation, Academy is focused on academic education, mental competences and physical training of future officers. In order to enrol to the Academy, candidates must pass psychometric and athletic entrance exam held by the Ministry of Education. „Bundeswehr Naval Academy“ in Germany was established in 1955. Bundeswehr consisted of land forces, navy and air forces. Study programme consisted of integrated undergraduate and graduate studies which lasted 6 years that are followed by the specialisation. Although Naval studies programme in Split is an integrated undergraduate and graduate programme, courses can be divided in „basic“ knowledge and professional knowledge (exclusively nautical courses and exclusively ship engineering courses). In fact, during the first two years all of the courses are in common. On the last three years there are common groups and different groups depending on the programme. Study programme of the Royal Military Academy in Belgium consists of three years of undergraduate (180 ECTS) and two years of graduate (120 ECTS) studies. Undergraduate studies „Social and military sciences“ consists of 75% of academic education, 5% of military training, 10% of character development and 10% of physical training. Military Academy Saint-Cyr in France offers study programme which lasts five years; two years of undergraduate and three years of graduate studies. At the undergraduate level, students choose one of three departments: (1) Science, (2) Art, (3) Economy and social sciences and they continue their studies at the graduate level where they attend courses for specialisations in three fields: (1) Engineering sciences, (2) International relations and strategy and (3) Management of human resources and of organisations. Regarding above mentioned countries, NATO's „Public Affairs Handbook“ from 2018 is worth mentioning. It brings basic directions for the role of an expert in public affairs in NATO's army sector, determines his role and gives basics for tasks planning in regard to entrusted staff, media, basic principles of internal communication, including external communication and community relations. Mentioned guidelines include the training in practical performance and offer some exercises. This handbook also deals with the question of social media as of modern technological achievements in military purposes.

#### 4. CONCLUSION

Military education is an aimed education with a certain goal and role. It existed already in ancient times when spear and sword were used (Military Encyclopaedia, 1973 according to Kozina, 2018, p.121). When speaking about military training, we think of a training which develops skills and abilities, which make part of the practical training. Meanwhile, military training recently abandons so called traditional military training and approaches to the academic community and its education. In fact, academic knowledge is being combined with previously mentioned skills and abilities, necessary for a military person (Kozina, 2018, p. 122). International military cooperation means answers on crisis abroad and comprises peace and humanitarian operations as well as the plan of the development of Armed Forces of the Republic of Croatia from 2006 until 2015. It is planned to increase participations in international operations, therefore it is extremely important for officers to acquire academic education and training in order to be able to cooperate with other countries at the administrative level (DPR, 2006., pp. 65-66 according to Matika, 2009, p. 356). If the scientific approach requires „new researches, new jobs, new products in order to contribute to the development of civil and military sector“, military/nautical PR of the University of Split could be integrated in the newly opened Naval studies with main goals: timely, complete and accurate informing of the national and wider public about activities of the army/navy (their work is often being supervised by local, national and international media), coordination of the participation of the army/navy in special events and in local community works, following of the internal communication in army/navy, the role of an official in local community affairs and their role in decision making process. It is also possible to offer a choice at the Naval studies at the University of Split. Following proposals could be included at undergraduate level:

- Lectures and seminary: Military communication: historical development and contemporary situation
- Lectures and seminary: PR Basics
- Lectures, seminary, exercises – Communicational skills of PR practitioners (written and spoken). Seminary work (exercise) anticipated inclusion of certified media trainers of the Ministry of Defence and the Ministry of the Interior of the Republic of Croatia.
- Lectures and seminary: Media and media research

At the graduate level it would be good to include home and international experts in charge for public affairs introducing following courses:

- Lectures and seminary: PR in seafaring and public affairs
- Lectures and seminary: PR in army and public affairs
- Lectures and seminary: Researches and evaluation in PR

Motioned courses make their way for postgraduate studies which would train graduated experts for independent scientific-research work in the sense of generating new knowledge and strengthening the recognition of the study and of the University of Split at the national level but also abroad, because, as Trzun (2012, p.36) wrote in his scientific paper: (...) with a change of objective circumstances and with the development of the conscious in (old and newly created) democracies, the time has come for the army to get implemented in real political life together with all its values and modalities, i.e., to adjust its internal and external life to the rules of society“.

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## THE RELATIONSHIP BETWEEN THE COMPANY SIZE AND ENTREPRENEURIAL ACTIVITIES-THE CASE OF SERBIA

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### ABSTRACT

*More and more companies, regardless of their size start to behave entrepreneurially, adopting the basic postulates of entrepreneurial business and using entrepreneurial management. While small enterprises consider entrepreneurial activity as a key source of growth in the market, the importance of innovation in large enterprises is reflected in their contribution to long-term sustainability of business through the process of continuous adjustment to changes in the environment. One of the ways to achieve this is the consolidation of the advantages of small businesses (creativity, flexibility, innovation, market recognition) with market power and financial resources of a large enterprise. In order to describe the process of entrepreneurial activity of already existing enterprises the term corporate entrepreneurship is used in literature. As the basic dimensions, that is, manifest forms of the concept of corporate entrepreneurship we can mark off: innovations and ventures and self-renewal activities. Although the literature emphasizes the importance of entrepreneurial activity of all enterprises, regardless of their size, in Serbia, entrepreneurial orientation is still most often associated with newly established, small enterprises. According to previously mentioned, the aim of this paper is to identify, on the basis of a sample of 208 companies, the current state of entrepreneurial activity within them and to assess whether there are differences in the level of these activities between small, medium and large enterprises in Serbia. The analysis was carried out for the total level of corporate entrepreneurship, but also for its individual dimensions. In order to test the statistical significance of the differences between the three groups of companies, one-way analysis of variance (ANOVA) was used, while the Tukey post-hoc test was carried out to identify the specific groups among which differences exist. The results of the conducted testing indicate that there are statistically significant differences in the level of entrepreneurial activities between small and medium-sized enterprises, especially when it comes to innovations and ventures. The ratio of the level of innovations and ventures from one side to the size of the enterprise on the other side can be presented by U-curve, which implies that innovations and ventures are the most represented in the case of large and small enterprises, while their level is the lowest in the middle ones. On the other hand, self-renewal activities are decreasing with the growth of enterprise size. The importance of measuring the level of entrepreneurial activities is especially important for economic policy-makers. More precisely, identifying the dimensions that represent the cause of the low level of entrepreneurial activity in each of the observed groups of enterprises can be the first step in creating incentive strategies for their improvement.*

**Keywords:** *corporate entrepreneurship, company size, Serbia*

### 1. INTRODUCTION

More and more companies, regardless of size, financial strength and ownership relationships, start to behave entrepreneurially, adopting the basic postulates of entrepreneurial business and using entrepreneurial management. In this regard, a model of corporate entrepreneurship has been developed. The concept of corporate entrepreneurship emphasizes the implementation of innovations within already established enterprises. This is a continuous creative process, whose main goal is the implementation of innovations in the organization in order to increase the success of business.



The modern organization's business should be based on concept of the entrepreneurial behaviour of each individual and which should emphasize a strategic approach based on the risks accepting, creativity, innovation and responsibility for the organization's business. Entrepreneurial behaviour, in a modern organization, is not exclusively related to one person and his abilities and experience, but relies increasingly on teamwork, whose members are motivated to work on achieving success and accepting risks. Thus, beside traditional conception of connecting the concept of entrepreneurship with independent individuals and implementation of their ideas through the establishment of new entrepreneurial activities, there is a tendency of increased encouraging of these activities within the already formed small, medium-sized as well as large companies lately. Entrepreneurial activity is significant in all enterprises, regardless of their size, but there are some differences when it comes to the function of their implementation. More precisely, unlike small companies where entrepreneurial activity aims to contribute to further expansion and development of enterprises on the market, large enterprises, which have become bureaucratized and rigid systems, use entrepreneurial activities in order to improve the flexibility and adaptability to the environmental changes. Taking into account the importance of entrepreneurial activities in all enterprises, the aim of this paper is to identify the situations and potential differences in the level of entrepreneurial activities between small, medium and large enterprises in Serbia. Although, small and medium-sized enterprises are very often analysed together, in this paper they will be examined separately. This is because in the group of medium-sized enterprises there are those closer to the category of large enterprises when it comes to organizational structure, culture, maturity and focus, so the function and probably the level of entrepreneurial activities are different than in the case of small enterprises. Thus, after defining the concept of corporate entrepreneurship in the first, and detailed explanation of its manifestations in the second, in the last, third part of the paper, potential differences between the observed groups of companies will be considered in terms of the overall level of corporate entrepreneurship as well as in terms of its individual dimensions.

## **2. THE CONCEPT OF CORPORATE ENTREPRENEURSHIP**

Corporate entrepreneurship has been the subject of scientific research and practical interest for more than three decades. In the early 1980s, several researchers revealed the importance of entrepreneurship and its role in the renewal of existing organizations, innovations, risk taking and the creation of new enterprises. Due to its beneficial effect on the revitalization of the company performance, from that moment on, corporate entrepreneurship has become a subject of interest of many researchers. Interest in the development of corporate entrepreneurship is growing from year to year, as managers become more aware of the necessity of finding new ways to manage the organization, in order to remain competitive in the dynamic and turbulent environment (Davis, 1999). Although the concept of this kind of entrepreneurship seems simple, the researchers use different definitions to describe the entrepreneurial activities in the existing organizations (Burgelman, 1983). The period of the first more serious research in this field is related to Burgelman's definition of corporate entrepreneurship. In 1983, he states that corporate entrepreneurship refers to the process of enterprise diversification through its internal development (Burgelman, 1983). Kuratko et al. state that corporate entrepreneurship represents a set of behaviours requiring organizational sanctions and resource commitments for the purpose of developing different types of value-creating innovations (Kuratko et al., 2005). Jennings and Lumpkin (1989) associate corporate entrepreneurship exclusively with the creation of new products and the conquest of new markets. Sathe (1989) defines corporate entrepreneurship as a simple process of organizational renewal. Spann, Adams and Wortman (1988) define corporate entrepreneurship as establishment of a separate corporate organization (often in the form of a profit centre, strategic business unit, division, or subsidiary) to introduce a new product, serve or create a new market, or utilize a new technology.

Covin and Milles emphasized that corporate entrepreneurship involves innovation in various areas of business, from the introduction of new products, technology, work techniques, resources, or the acquisition of new markets. Somewhat later, Dess et al. explained corporate entrepreneurship in a similar way. According to these authors, corporate entrepreneurship is defined as the ability of the company to monitor the market and use the changes that occur within it in the most creative way (Dess, Lumpkin and Mcgee, 1999). A more precise and widely accepted definition of corporate entrepreneurship indicates that this is a process of discovering and developing new opportunities for value creation through innovation, regardless of resources or position of entrepreneurs (Antoncic, 2001). Zahra summarizes these definitions stating that corporate entrepreneurship is the sum of a company's innovation, renewal, and venturing efforts (Zahra, 1993). Different authors have explained corporate entrepreneurship in different ways and they have also used different terms to describe it. Beside the term corporate entrepreneurship, which is most commonly used, the terms that can also be found in the literature are: intrapreneurship or internal entrepreneurship (Pinchot, 1985; Nielson, Peters and Hirsch 1985), strategic or organizational renewal (Stopford and Baden-Fuller, 1994) and strategic undertakings (Block and MacMillan, 1993). In comparison with the interpretations of these authors, the term corporate entrepreneurship, in its broadest sense, nowadays can be understood as a combination of all the aforementioned concepts.

### **3. DIFFERENT APPROACHES TO THE STUDY OF CORPORATE ENTREPRENEURSHIP**

A large number of authors (Sharma and Kristman, 1999) emphasized that corporate entrepreneurship consists of three phenomena that can, but also do not have to be connected: the creating of a new business within the existing corporation, the innovation and transformation of the existing organization through the renewal and shaping of the key ideas on which it is based. In order to describe the first two phenomena, the authors have used different names, so they use terms such as *internal corporate entrepreneurship* (Zajac, Golden and Shortel, 1991), *intrapreneurship* (Pinchot, 1985) for creating a new business within the existing company. On the other hand, the process of enterprise transformation through the renewal of key ideas is referred to as strategic change, recovery and transformation (Shendel, 1990), or organizational renovation (Stopford and Baden-Fuler, 1994) in literature. Synthesizing these two phenomena Sharma and Christman (1999) define corporate entrepreneurship as a process in which an individual or group of individuals, in cooperation with their existing organization, create new organizations or encourage renewal or innovation in an existing organization. Birkinshaw also describes the forms of corporate entrepreneurship as the schools of corporate entrepreneurship, and classifies them into: corporate investment in new enterprises, intrapreneurship, bringing the market inside, entrepreneurial transformation (Birkinshaw, 2003). Vesper differentiates three types of corporate entrepreneurship: new strategic direction, initiative from below and autonomous business creation (Vesper, 1984). Although different authors define different manifestations, that is, the forms of corporate entrepreneurship, all of them find the base for their theories in the classification that was given by Guth and Ginsberg back in 1990. They grouped all the activities of corporate entrepreneurship into two main directions. The first, called innovations and ventures, is manifested as the creation of brand new businesses within the company, while the other refers to the organization's transformation through the renewal of the ideas the company is based on and it is named strategic renewal (Guth and Ginsberg, 1990). Zahra also accepts this classification of corporate entrepreneurship and he used it as the base for identification of the dimensions of corporate entrepreneurship, whose measurement will indicate the level of this phenomenon within the company (Zahra, 1993).

When it comes to corporate entrepreneurship in modern literature, these two variables are highlighted. This is the reason why two previously mentioned forms of corporate entrepreneurship have also been analysed in this paper.

#### **4. THE RELATION BETWEEN ENTREPRENEURIAL ACTIVITY AND COMPANY SIZE**

In the modern economy, the basis of successful business operations, especially in global terms, is to create a favourable climate in an organization that encourages entrepreneurial behaviour, innovation and flexibility. According to contemporary understanding, an entrepreneur has no longer to be an individual who is a business owner. An entrepreneur may also be an employee who possesses properties that are characteristic of entrepreneurial behaviour. From all above mentioned, we can conclude that the company size is not an obstacle to entrepreneurship. Most of the research results give us as the final conclusion that the corporate enterprise occurs everywhere, independently of the type and size of the organization. Entrepreneurial activities and entrepreneurial orientation of all types of enterprises are subject of the interest of numerous authors. The prevailing opinions are that they will contribute to improving the business of both small and medium enterprises as well as large enterprises (Wiklund and Shepherd, 2003, Zahra and Covin, 1995, Zahra, 1993). On the other hand, it is often thought that the size of the enterprise and corporate entrepreneurship are negatively correlated (Zahra, 1996), that is, with the growth of enterprises, the level of entrepreneurial activity will decline. Taking into account the importance of corporate entrepreneurship for the growth and development of small enterprises, as well as for the revitalization of already established corporations, the aim of this paper is to examine the state of this phenomenon in enterprises of different sizes in Serbia. Specifically, after identifying the current levels of entrepreneurial activities in all categories of enterprises, we will examine whether there are significant differences in the overall level of corporate entrepreneurship and in its individual dimensions. The level of entrepreneurial activities of the companies in Serbia has been identified on the basis of data collected from company managers through a questionnaire. The used questionnaire was defined in 1993 by Zahra, who was among the first to deal with the problem of measuring corporate entrepreneurship in enterprises (Zahra, 1993). It covers two essential, previously mentioned, dimensions of corporate entrepreneurship: innovations and ventures and self-renewal activities. These two dimensions of corporate entrepreneurship are estimated by averaging the following six variables, where the first three are related to the core of innovations and ventures, and the other three to self-renewal activities. Creating a new business is the first variable within the scope of innovations and ventures, and it refers to the expansion of current business activities within the same or in completely new industries as well as it refers to finding new unopened markets or creating completely new jobs in new industries that are connected with the current business domain. Innovations of products are related to investments in the development of new products and services, to the creation and introduction of brand new products and services to the market, as well as to the addition of new products and services to those already created by competing companies. Technological innovations, as the third variable within the scope of innovations and ventures, are related to investing in technology, participating in its development and introduction to the market. It is also related to the degree of acceptance of technological innovations within the industry in which the company operates. The second stronghold of corporate entrepreneurship, the so-called self-renewal activities are examined through three variables: reformulation of the mission, reorganization and systemic changes. The reformulation of the mission aims to determine to what extent companies change the defined mission, the already set business concept or the industry in which they operate. The reorganization refers to structural and organizational changes that will contribute to the improvement of entrepreneurial activities within companies.

They can be, for example, the process of increasing the autonomy of company parts or coordinating activities between employees in order to create innovations. The systemic changes include the establishment of regular creativity trainings for employees, as well as defining the employee reward system for proposed innovative solutions and providing the necessary resources for their operationalization. The significance of each of the six variables for the company was evaluated by the respondents on the Likert 5 point scale. The questions included in the questionnaire are given in Appendix 1, and the calculated values of each variable are shown in Figure 1 for easier comparative analysis between enterprises of different sizes. The division of enterprises into groups of small, medium and large companies was carried out according to the valid official categorization of enterprises in Serbia, taking into account three criteria: number of employees, revenue size and value of total assets<sup>1</sup>. The analysed sample consists of 208 companies, 26% of which are small, 36.5% medium and the remaining 37.5% are large enterprises.

Figure 1a: Comparative presentation of the state of the dimensions of corporate entrepreneurship in small, medium and large enterprises in Serbia

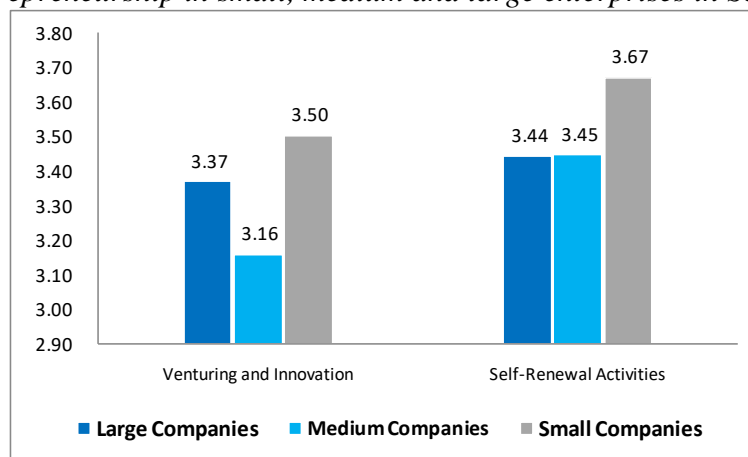
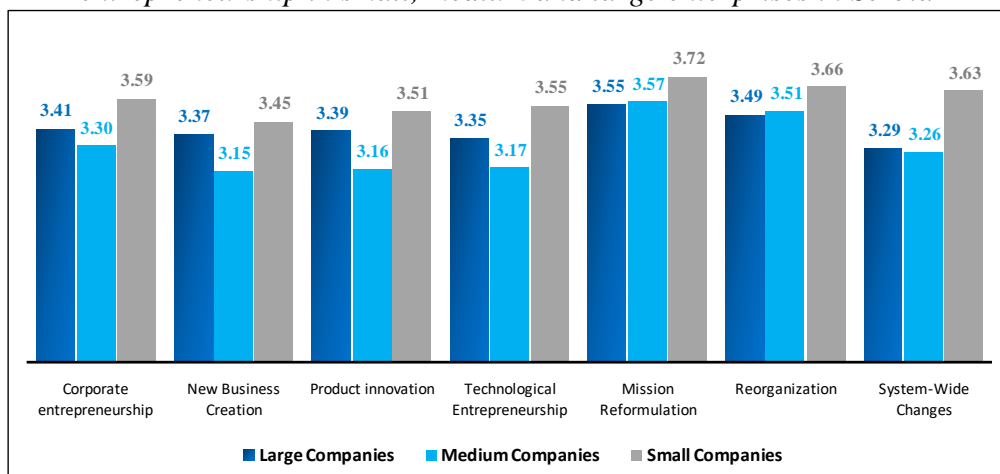


Figure 1b: Comparative presentation of the state of the separated dimensions of corporate entrepreneurship in small, medium and large enterprises in Serbia



It is interesting that the relationship between innovation and ventures on the one hand and the size of the company on the other hand can be presented by U-curve, which indicates that these forms of entrepreneurial activities are the most represented in the case of large and small

<sup>1</sup> Law on Accounting and Auditing, "Official Gazette of the Republic of Serbia", no. 62/2013 and 30/2018), Article 6.

enterprises. On the other hand, self-renewal activities are decreasing with the size of the enterprise. As can it is shown by Figure 1, the level of entrepreneurial activities is, on average, the highest in small enterprises, while in the case of medium-sized enterprises is the lowest. Entrepreneurial activities of large enterprises are more significant than those in medium-sized enterprises, although they are still at a lower level than in the case of small enterprises. If we observe the two basic directions of corporate entrepreneurship, we can conclude that the cause of the low level of entrepreneurial activity of medium-sized enterprises is precisely the low level of its first construct, both in terms of creating new jobs as well as in the domain of production and technological innovations. On the other hand, self-renewal activities are equally represented as in the case of large enterprises, and they are at a much lower level than in the case of small enterprises. The justification for this level of self-renewal activities is the fact that with growth, enterprises become significantly more stable and less flexible than at the beginning of their business, especially in terms of organization of work, structure, procedures, as well as with the mission, directions of operations and other strategic activities. According to Bierwerth's claims larger firms are often trapped in their bureaucratic and highly formalized structure, mitigating the successful implementation of corporate entrepreneurship (Bierwerth et al., 2015). Additionally, if the implementation of entrepreneurial activities is analysed through the function of risk to lose the current position and available funds of the company, the risk certainly grows with the increase in the size of the company. Although we can perceive the existence of differences both in terms of the level of corporate advancement, and in terms of its individual elements, we cannot see whether these differences are statistically significant. In order to test the statistical significance of the differences in the level of entrepreneurial activities amongst individual groups of companies, one-way analysis of variance (ANOVA) was used. The first step was to analyse whether there are statistically significant differences between small, medium and large enterprises in terms of the level of entrepreneurial activities (CE). Descriptive statistics of the observed variables for all enterprises, but also for all three groups of enterprises are given individually in Table 1.

*Table 1: Descriptive statistics on the level of entrepreneurial activities*

Descriptives								
CE								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Small	54	3.5869	.59206	.08057	3.4253	3.7485	2.47	4.87
Medium	76	3.3033	.73904	.08477	3.1344	3.4722	1.09	4.46
Large	78	3.4056	.76491	.08661	3.2332	3.5781	1.04	4.64
Total	208	3.4153	.71945	.04988	3.3169	3.5136	1.04	4.87

The assumptions about the satisfaction of the normal distribution according to Kolmogorov-Smirnov test indicate that the observed variable CE for a group of small and medium-sized enterprises has a normal distribution ( $p = .200$ ), while in the case of large enterprises we cannot claim to come from a set with a normal distribution (Annex 2, Table 1). According to the ANOVA test results shown in Table 2, we can conclude that there is a statistically significant difference in the level of entrepreneurial activities among the observed groups of enterprises ( $p = .085$ ).

Table 2: The results of the ANOVA test

ANOVA					
CE					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2.550	2	1.275	2.499	.085
Within Groups	104.594	205	.510		
Total	107.144	207			

Although the use of this test indicates the existence of statistically significant differences between the observed groups of companies, based on its results we cannot conclude among which specific groups the differences occur. For this reason, post-hoc tests are also used in the paper. Before carrying out a post hoc analysis, it is necessary to check if the assumptions about the homogeneity of the variance are satisfied, since it indicates which type of test that should be used. Based on the obtained results of Levin homogeneity test (Table 3) we cannot reject the hypothesis of their equivalence ( $p = .158$ ), so we have used the Tukey post hoc test to identify the groups of enterprises among which statistically significant differences occur.

Table 3: Test of Homogeneity of Variances

CE			
Levene Statistic	df1	df2	Sig.
1.861	2	205	.158

Multiple Comparisons table contains the results of the Tukey post hoc test (Table 4), which show that there are statistically significant differences in the level of entrepreneurial activities between small and medium enterprises ( $p = .068$ ) at a level of significance of 10%. The level of entrepreneurial activities is higher in the case of small than in the case of medium-sized enterprises, which can be justified by a greater degree of enterprise flexibility in the initial stages of development in comparison to medium-sized enterprises in which the degree of formalization of both structural and organizational as well as management activities is at a much higher level. We cannot claim that there are statistically significant differences in the state of the observed variable among other groups of companies.

Table 4: Multiple Comparisons

Dependent Variable: CE						
Tukey HSD						
(I) Type	(J) Type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Small	Medium	.28356	.12713	.068	-.0166	.5837
	Large	.18121	.12645	.326	-.1173	.4797
Medium	Small	-.28356	.12713	.068	-.5837	.0166
	Large	-.10235	.11513	.648	-.3742	.1695
Large	Small	-.18121	.12645	.326	-.4797	.1173
	Medium	.10235	.11513	.648	-.1695	.3742

For the purpose of a more detailed analysis of the causes of the defined differences, we have examined whether there are statistically significant differences between companies when it comes to individual dimensions of corporate entrepreneurship, i.e. innovation and venture (ICV) and self-renewal activities (SR). The descriptive statistics of the observed variables, as well as testing the satisfaction of the assumptions for carrying out the tests are given in Appendix 2. The results of the ANOVA test, shown in Table 5, indicate that there is a statistically significant difference only in case of the first element, both innovations and ventures ( $p = .040$ ) at a level of significance of 5%, while differences do not exist in case of self-renewal activities ( $p = .200$ ).

As in the previous case, the post hoc test was used for the analysis of group of companies in which differences exist. The results of the post hoc testing are shown in Table 6. The only difference in comparison with the previously performed post hoc test is the fact that in this case the Games-Howell post hoc test was used, because Levin's test results indicate that the equality of variances hypothesis is rejected ( $p = .015$ )(Annex 2, Table 4).

Table 5: ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
ICV	Between Groups	3.926	2	1.963	3.281	.040
	Within Groups	122.665	205	.598		
	Total	126.591	207			
SR	Between Groups	2.036	2	1.018	1.624	.200
	Within Groups	128.492	205	.627		
	Total	130.528	207			

Table 6: Multiple Comparisons

Dependent Variable: ICV Games-Howell						
(I) Type	(J) Type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Small	Medium	.34267*	.12607	.020	.0437	.6416
	Large	.13330	.12393	.531	-.1605	.4272
Medium	Small	-.34267*	.12607	.020	-.6416	-.0437
	Large	-.20937	.13283	.259	-.5238	.1050
Large	Small	-.13330	.12393	.531	-.4272	.1605
	Medium	.20937	.13283	.259	-.1050	.5238

\*. The mean difference is significant at the 0.05 level.

Based on data in Table 6, it is confirmed again that the difference in the level of corporate entrepreneurship, but now in the context of its first dimension, that is, innovations and ventures, occurs in the case of medium and small enterprises ( $p = .020$ ). This indicates that the business of small enterprises, unlike medium-sized enterprises, is more entrepreneurial oriented in the context of both production and technological innovations, as well as in terms of creating new jobs related to the existing business domain. This type of business is also characteristic for small enterprises, since they are at the beginning of their own development, which requires a constant investment in growth and new ways of expanding the market. Bierwerth with associates also confirms this, pointing out that the growth of small enterprises is a key challenge precisely in continuous adaptation and self-renewal (Bierwerth et al., 2015). Their flexibility makes them space for rapid changes in both products and services, as well as the markets on which they operate. On the other hand, a lower level of innovation and entrepreneurial ventures in medium-sized enterprises is certainly the result of a formalized just established business mode. After a period of development, adaptation and constant change in order to grow on the market, medium-sized enterprises finally enter the phase of a stable structure, management methods and more explicit degree of control. Just established formal procedures, clear channels of communication, bureaucratic system of management and control require a certain period of adaptation of both employees and the business in whole. Repeated sudden changes probably would not have a positive impact on the unfixed, still insufficiently established business system. This concept is supported by the fact that, although there are no statistically significant differences between medium and large enterprises in terms of corporate entrepreneurial levels, the degree of both production as well as technological innovation is higher in the case of large enterprises, which are much more arranged in terms of established formal systems of business. The common to all observed companies in Serbia, regardless of their size, is the fact that in terms of all its dimensions, the state of corporate entrepreneurship is slightly above the average level.

## 5. CONCLUSION

Entrepreneurial activities have a major role both in the further growth and development of small enterprises, as well as in the revitalization of already mature companies. The condition of the internal ambient, as well as the orientation of companies of different sizes in terms of entrepreneurial activities, however, often differ. That is the reason why the current state of the level of entrepreneurial activities in enterprises of different sizes is examined in this paper. The results of the analysis show that the level of corporate entrepreneurship is still the highest in small enterprises in Serbia, both in terms of innovation and ventures, as well as in the implementation of self-renewal activities. It is interesting that the ratio of the level of innovation and ventures from one side and the size of the enterprise from the other can be presented by the U-curve, which indicates that they are the most represented in the case of large and small enterprises but they are very weak in the medium - sized enterprises. On the other hand, self-renewal activities are decreasing with the growth of enterprise size. However, the results of the ANOVA test indicate that statistically significant differences exist only between small and medium-sized enterprises, both in terms of innovations and ventures, while the defined differences between other groups of companies both in terms of the overall level of corporate entrepreneurship and in the case of its individual dimensions are not statistically significant. All this indicate the fact that entrepreneurial activities continue to be mostly related to small enterprises in Serbia, while the frequency of changes in already mature companies is not so common. This is especially emphasized in the case of medium-sized enterprises, where the level of innovation, entrepreneurial ventures and self-renewal activities is the lowest. In addition to the defined differences, the level of entrepreneurial activity of all groups of enterprises is at a level slightly above the average. As might be expected, there is a space for further improvement both in the case of medium-sized, as well as in small and large enterprises. The existence of differences among the observed groups of enterprises can be justified only in the case that, depending on the size of the enterprise, different levels of entrepreneurial activities lead to superior performance. This will certainly be one of the next research topics.

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## *APPENDIX*

### **APPENDIX 1. - ORIGINAL SURVEY DISTRIBUTED TO CORPORATE MANAGERS (ZAHRA, 1993)**

#### **I Venturing and Innovation**

**1. New Business Creation.** Indicate the extent to which your company has emphasized each of the following items. (Minor Emphasis= 1, Major Emphasis=5)

- a) stimulating your new demand on your existing products in your current markets through aggressive advertising and marketing
- b) broadening your business lines in your current industries
- c) pursuing new businesses in new industries that are related to your current business
- d) finding new niches for your products in your current markets
- e) entering new businesses by offering new lines and products

**2. Product innovation.** Indicate the extent of changes that might have taken place in your company over the past three years. (Decreased Significantly= 1, Increased Significantly=5)

- a) your company's emphasis on developing new products
- b) rate of your new product introduction into the market
- c) your company's spending on new product development activities
- d) the number of new products added by your company
- e) the number of new products introduced by your company

**3. Technological Entrepreneurship.** Indicate the extent of changes that may have taken place in your company over the past three years. (Decreased Significantly= 1, Increased Significantly=5)

- a) your investment in developing proprietary technologies
- b) your emphasis on creating proprietary technology
- c) your adoption of technologies developed by other companies or industries
- d) your company's emphasis on technological innovation
- e) your company's emphasis on pioneering technological developments in your industry

## II Self-Renewal Activities

**1. Mission Reformulation.** Indicate the extent to which your company has emphasized each of the following items. (Minor Emphasis= 1, Major Emphasis=5)

- a) defining your company's mission
- b) revising your business concept
- c) redefining the industries in which your company will compete

**2. Reorganization.** Indicate the extent to which your company has emphasized each of the following items. (Minor Emphasis= 1, Major Emphasis=5)

- a) reorganizing units and divisions to increase innovation
- b) coordinated activities among units to enhance company innovation
- c) increasing the autonomy (independence) of different units to enhance their innovation
- d) adopting flexible organizational structures to increase innovation

**3. System-Wide Changes.** (Minor Emphasis= 1, Major Emphasis=5)

- a) training employees in creativity techniques
- b) rewarding employees for creativity and innovation
- c) establishing procedures to solicit employee ideas for innovations
- d) establishing procedures to examine new innovation ideas
- e) designating formal idea (project or venture) champions
- f) making resources available for experimental projects

## APPENDIX 2.

*Table 1: Kolmogorov-Smirnov test of normality for CE*

	Type	Kolmogorov-Smirnov <sup>a</sup>		
		Statistic	df	Sig.
CE	Small	.096	54	.200*
	Medium	.065	76	.200*
	Large	.100	78	.050

Table 2: Descriptive statistics: Corporate entrepreneurship dimensions

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
					Lower Bound	Upper Bound			
ICV	Small	54	3.5024	.60616	.08249	3.3370	3.6679	2.07	4.73
	Medium	76	3.1597	.83111	.09533	2.9698	3.3497	1.07	4.47
	Large	78	3.3691	.81691	.09250	3.1849	3.5533	1.00	4.93
	Total	208	3.3272	.78202	.05422	3.2203	3.4341	1.00	4.93
SR	Small	54	3.6702	.77168	.10501	3.4596	3.8808	2.22	5.00
	Medium	76	3.4459	.76800	.08810	3.2704	3.6214	1.11	4.69
	Large	78	3.4432	.82725	.09367	3.2567	3.6297	1.08	4.89
	Total	208	3.5031	.79409	.05506	3.3946	3.6117	1.08	5.00

Table 3: Kolmogorov-Smirnov test of normality for CE dimensions

	Type	Kolmogorov-Smirnov <sup>a</sup>		
		Statistic	df	Sig.
ICV	Small	.092	54	.200*
	Medium	.153	76	.000
	Large	.083	78	.200*
SR	Small	.081	54	.200*
	Medium	.092	76	.175
	Large	.051	78	.200*

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 4: Test of Homogeneity of Variances for CE dimensions

	Levene Statistic	df1	df2	Sig.
ICV	4.307	2	205	.015
SR	.039	2	205	.961

