

Varazdin Development and Entrepreneurship Agency and
Medimurje University of Applied Sciences in Cakovec, Croatia

In cooperation with:

University of Applied Sciences of Rijeka, Croatia
Karlovac University of Applied Sciences, Croatia
Polytechnic "Nikola Tesla" in Gospic, Croatia
Faculty of Management University of Warsaw, Poland
Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat, Morocco
Ecole Nationale de Commerce et de Gestion de Tanger - Abdelmalek Essaadi University, Morocco
GOVCOPP - University of Aveiro, Portugal



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Resilience in an Unsustainable World: Shaping the Future

Editors:

Igor Klopotan, Vesna Buterin, Humberto Ribeiro



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APPLICATION OF ARTIFICIAL INTELLIGENCE IN PROJECT MANAGEMENT EDUCATION: CURRENT PRACTICES AND FUTURE DIRECTIONS

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ABSTRACT

The increasing prevalence of project-based organisations has significantly reshaped how work is structured and value created across industries. As projects become the dominant mode for implementing strategic change, the demand for competent project professionals puts emphasis on the effectiveness and adaptability of project management education, which must respond to diverse learner profiles, evolving competence frameworks and rapidly changing professional environments. To gain an in-depth understanding of current educational practices and examine the potential of incorporation of technological solutions, particularly those that are based on artificial intelligence, into educational curricula to influence the development of project management competence, a desk research of the relevant scientific literature was conducted. The findings indicate that traditional educational approaches, mostly grounded in standards-based instructions and procedural knowledge transfer, are insufficient for developing the competence required for effective project leadership in volatile, uncertain, complex and ambiguous contexts. In response, AI-supported educational environments proved to be powerful enablers of competence development through personalised learning trajectories, adaptive feedback mechanisms and immersive scenario-based simulations. Based on these insights, several key recommendations were formulated for educational institution seeking to create education that is more compatible with the market needs. These include aligning curriculum with industry and professional bodies, sustained investment in the digital and pedagogical capabilities of educators and formulation of institutional strategies for AI adoption. Furthermore, the paper outlines directions for future research including organisational readiness for AI-supported project management education, ethical frameworks and policy guidelines for responsible education based on AI-supported tools, integration of AI-supported tools into capability development frameworks, standards and certification systems, and longitudinal and comparative research across institutions, industries and cultural contexts to better understand human-technology collaboration and long-term transformation of project management education.

Keywords: *Artificial Intelligence, Competence, Education, Professional Development, Project Management*

1. INTRODUCTION

Global economic integration and increased market uncertainty have significantly reshaped the way companies are operating, moving them towards project-based work arrangements to enhance flexibility and sustain competitive positioning (Kostalova et al., 2024). Project-oriented economic activity worldwide is expected to increase to 20 trillion USD with professionals engaged in project-oriented roles surpassing 88 million (Niето-Rodriguez, 2021). This shift leads to a growing need for highly skilled professionals who can manage projects within complex social, cultural and organisational contexts (Irfan et al., 2021; Karanja and Malone, 2021; Chen et al., 2019; Verenych and Bushuyev, 2018). However, the number of available experts in the field does not increase at the same rate, thus creating resource shortage, which combined with concern that still in numerous cases project management is considered to be an *accidental* profession, i.e., the role of project manager is entrusted upon individuals

without formal project management education, but rather based on general managerial or technical expertise, further expands this gap (Daniels et al., 2025; Cabot and Gagnon, 2021; PMI, 2021; Borg and Scott-Young, 2020; Alvarenga et al., 2019; Pant and Baroudi, 2008). Project managers are expected to combine broad and domain-specific knowledge and experience with interpersonal skills such as leadership, adaptive thinking and communication, allowing them to align projects with organisational strategy, maintain a clear focus on intended benefits, and impact the project from the earliest phases to ensure sustained performance despite the inherent challenges of project-based work (Rastovski et al., 2023; Gharouni Jafari and Noorzai, 2021; Ekrot et al., 2016; Eggington, 2012). This means they should build project management competence which will add both economic and social value to stakeholders and organisation, and although the term competence lacks a universally accepted definition, in the literature, most frequently adopted scholar approach is the KSA (Knowledge-Skills-Abilities) model which defines it through the lens of knowledge as theoretical and/or practical understanding acquired through education or experience; skills as the application of knowledge through mental, verbal or manual processes, and abilities as the capacity to achieve specific objectives based on individual's mental and physical attributes (Struková and Bašková, 2017; Ahsan et al., 2013; Boyatziz, 2008; Hsieh et al., 2012; Crawford, 2005). As competence is not static over time, organisations need to systematically invest in their development and continuously identify the evolving requirements and determinants of project success to ensure resilience and effective recovery from disruptions (Zheng and Qiang, 2022). Preparing project professionals still seems to be a pressing concern of both academia and practice as individuals should be developed as system specialists who can provide structural, relational and cognitive frameworks for project management instead of pure technical experts, while educational institutions are using over-simplified models which lack relevance to practice and are not sufficient in meeting the organisational and market needs (Daniels et al., 2025; Delle-Vergini et al., 2023; Nimmo and Usher, 2020). Furthermore, as technological advancements have a significant impact and reshape various sectors including project management, reform of the education in the field also requires reassessment of traditional pedagogical approaches and implementation of innovative teaching methods to prepare individuals with the necessary knowledge and skills to cope with increasingly volatile, uncertain, complex and ambiguous project landscape in which project managers depend on adaptive responsiveness rather than static expertise (Özsoy, 2025; Pires and Varajão, 2024; Lloyd-Walker et al., 2016; Umpleby and Anbari, 2004). Therefore, with the aim to obtain a comprehensive understanding of existing educational practices and to explore technological solutions, particularly those that are based on artificial intelligence, that could be incorporated into educational curricula and influence the development of project management competence, the author of this paper conducted desk research of the relevant scientific literature. The remainder of the paper is organized into three chapters. First, an overview of the prior research on project management education and competence development is presented, followed by an examination of AI-supported project management education, with the focus on main tools, areas of application, benefits and challenges. The paper ends with main conclusions, recommendations for educational institutions, as well as proposals for future research directions.

2. PROJECT MANAGEMENT EDUCATION AND COMPETENCE DEVELOPMENT

In response to the growing demand for project management professionals, education institutions have incorporated a multitude of project management courses and programs in the business and engineering curricula at undergraduate, graduate and postgraduate levels, as well as lifelong learning and continuous professional development initiatives (Nijhuis et al., 2018). Despite this expansion, many academic offerings remain heavily aligned with global project management standards and frameworks developed by leading project management associations

commonly used for certification purposes (eg. *International Project Management Association - IPMA, Project Management Institute - PMI and Association for Project Management - APM*). While these standards provide core discipline concepts, principles, methodologies and tools, their dominance in academic curricula can result in offerings that are conceptually too narrow and overly prescriptive for beginners or missing the necessary academic rigour and contextual relevance for higher education (Berggren and Söderlund, 2008; Crawford et al., 2006). Traditional lecture-based teaching, frequently supplemented by case studies or collections of best practices, emphasize procedural thinking, textbook learning and acquisition of theoretical knowledge, technical skills and routine expertise, instead of developing contextual judgement, critical thinking, resilience, soft and digital skill that can be transferred into real-world context for managing dispersed project teams in uncertain and ambiguous project environments dominated by fluid stakeholder dynamics (Jayasinghe, 2025; Özsoy, 2025; Kearney et al., 2024; Tumpa et al., 2023; Ewin et al., 2017; Ramazani and Jergeas, 2015; Egginton, 2012; Darrell et al., 2010). Therefore, to acquire competence that reflects real-world project demands, learners should be exposed not only to formal project management concepts and processes but also challenges that might arise from their practical applications, requiring pedagogical approaches to move beyond transmission of terminology and concepts and adopt more active, experiential and reflective learning methods with realistic project scenarios that will bring meaning and relevance (Naseer et al., 2025; Hussein, 2015; Abernethy et al., 2007). Consequently, careful consideration must be given not only to the curricular content (eg. knowledge, skills, attitudes or professional traits to be developed), but also to educators, pedagogical instruments and learning environments through which this content will be delivered (Hussein, 2015). Research emphasize the need for diversified teaching strategies which combine established traditional academic (incl. theoretical frameworks and scholarly discussions based on relevant literature) and contemporary approaches (incl. simulations, serious games, peer learning, digital and web-based training formats) to support acquisition of technical expertise, while simultaneously fostering interpersonal skills and reflective capabilities necessary for effective project leadership (Naseer et al., 2025; Mozhei and Lukianov, 2019; Pant and Baroudi, 2008; Geist and Myers, 2007; Crawford and Pollack, 2006; Cicmil et al., 2006; Winter et al., 2006). In addition, Turner and Huemann (2000) identified several essential conditions to be included in development of project professionals to achieve better results globally – alignment of educational content and delivery methods, while respecting cultural contexts and specifics; defined educational structures that integrate stakeholder expectation; practical relevance of the curricular content aligned with individual and organizational needs; adherence to pedagogical and quality standards in educational systems, as well as active engagement of industry and professional organisations in supporting education, professional recognition and career pathways. Given the strategic role of project managers in both private and public sector, education institutions are not only expected to be up to date with the latest research findings but actively contributing to the advancement of the discipline which is going to require a transition from predominantly scientific to a more project-oriented institutional mindset (Ackermann et al., 2024; Berggren and Söderlund, 2008; Divjak and Kukec, 2008).

3. AI-SUPPORTED PROJECT MANAGEMENT EDUCATION

The implementation of emerging digital technologies into project management education has revealed significant opportunities to enhance pedagogical effectiveness by supporting learning within a project, across multiple projects and from various examples and accumulated project experience (Jaccard et al., 2022). Digital innovations also enable a range of educational functionalities such as intelligent tutors for content delivery, automated and real-time assessments, continuous monitoring of learning progress and feedback provision. In addition, digitally supported learning environments allow greater personalisation of learning pathways,

while fostering higher levels of personal responsibility, accountability and engagement. By reducing geographical and physical constraints it becomes possible to reach wider and more diverse audience to deliver high-quality and inclusive education in the field (Oran et al., 2024; Adeshola and Adepoju, 2024; Konstantinou, et al., 2023; Shaik et al., 2022; Khan et al., 2021; Chen et al., 2020). They facilitate generating data on learner behavior and performance, enabling systematic monitoring and analysis of learning patterns over time to support refinement of pedagogical approaches, curriculum design and educational policies to ensure that learning environments remain adaptive and responsive to changing learner's needs (Holmes et al., 2022). Previous research show that digitalisation is reshaping traditional teaching models focused on knowledge transmission to those creating space for more learner-centric pedagogy, with experiential, collaborative, interactive and engaging modes of learning to improve individual autonomy and intrinsic motivation, reflective practice, decision-making under pressure and ethical reasoning. Technologies such as generative artificial intelligence systems, virtual tutors, conversational agents - chatbots and learning analytics are no longer just facilitating instruction, but actively shaping and co-constructing learning experiences by providing adaptive feedback, enabling simulated intelligent dialogue, offering short-term personalised mentoring and dynamically adjusting challenges (Mariani et al., 2025; Aliu et al., 2023; Konstantinou, et al., 2023; Afzal and Crawford, 2022; Carvalho et al., 2022; Kim et al., 2022). Artificial Intelligence is gaining recognition as a trusted ally in creation of responsive and emotionally meaningful scenario-based learning environments that offer psychologically safe yet realistic simulations of real-world project situations where learners with diverse backgrounds and competence profiles can experiment, reflect and refine their leadership identity (Daniels et al., 2025; Ruark and Biazzin, 2025; Zakeri et al., 2023; Winkler and Söllner, 2018). The value of AI-mediated environments results from careful creation to support development of adaptive project professionals with the expertise to apply knowledge creatively and flexibly in conditions that are unfamiliar or changing, perform the known procedures efficiently, solve problems and reflect. It can serve as both content creator and pedagogical co-operative providing personalised and flexible learning paths that match professional goals, diverse learning styles, customised real-life scenarios with inclusion of different dilemmas to boost adaptive decision-making, while at the same time interpreting learner's behaviour and matching learning needs and weak spots to increase engagement and understanding, critical reflection and ethical reasoning. Such an approach which offers individual support, monitoring of communication effectiveness and integral human-centred educational experience, changes the paradigm to encourage individuals with skills, self-awareness and capability to be ethically grounded and lead with integrity in environment dominated by complex technologies through aligning human abilities with technical potential (Daniels et al., 2025; Özsoy, 2025; Hashmi and Bal, 2024; Kumar et al., 2024; Wang et al., 2023). It is more of an epistemic than technological transition since it principally alters the way knowledge and practice are conceptually associated with the development of contemporary project professionals. From the learner's perspective, incorporating AI in education might enable them to focus on strategic aspects of their projects and engage in more advanced simulations, while using the available tools as support for operational tasks such as drafting project plans or structuring project reports (Garcia and Garcia, 2025; Ruark and Biazzin, 2025; Oran et al. 2024). In these intelligent learning ecosystems educators will no longer only transfer knowledge, but serve more as designers who create learning experiences, form the conditions under which the students will have the opportunity to critically engage with complex and uncertain project scenarios, with technology as enabler of interaction, adaptation and reflection helping individuals to understand, challenge and reframe their own work (Lin et al., 2025, Mariani et al., 2025). As a final result, individuals should be AI-literate meaning skilled to critically analyse and question received algorithmic outputs instead of passively receiving them, recognise underlying

assumptions, interpret data-driven insights within context and evaluate effects for various stakeholders, learn from failure and make decisions which consider both context and human values. This in turn will also require fundamentally rethinking or even reinventing the project education system including institutional readiness and technological capabilities, adoption of digital tools and development of digital competence of educators to understand the technology used for course creation, have pedagogical expertise, creativity and adaptability to shape interactions, guide critical engagement and validate outputs, and ongoing professional training for construction of spaces where humans and machine intelligence can work together and shift the focus from fact-based teaching to reflexive learning (Özsoy, 2025; Vettori and Warm, 2025; Ng et al., 2023; Holmes et al. 2022). AI can reshape educational experience, assist in particular aspects of course creation (e.g. content generation, personalised learning paths, optimized assessment processes, with continuous monitoring, automated grading and real-time feedback and performance analysis ensuring identification of students that are struggling, areas for improvement and enabling timely intervention and personalised support) and introduce innovative learning approaches to enhance motivation. Human course authors remain essential for bringing critical pedagogical insights, crafting meaningful, engaging learning experiences and contextualization of learning outcomes for specific educational settings or industries (Garcia and Garcia, 2025; Ingasson et al., 2025; Mariani and Mancini, 2025; Rohan et al. 2023). As AI technologies are rapidly evolving, their full impact and potential of their adoption and limitations remain uncertain, including technical constraints, skill shortages, trust deficits, cultural oversights and weak alignment with pedagogical theory and new roles of educators (Jayasinghe, 2025; Zawacki-Richter et al., 2019). Emerging technologies may create obstacles for those learners that have less affinity to technology or lead to misinterpretations or misusing the tools among those with lower technological literacy (Garcia and Garcia, 2025; Oran et al., 2024; Huang, 2023). On the other hand, their use can lead to over-reliance and dependence on the AI-generated solutions, which could be contra productive and hinder the development of analytical and critical thinking, autonomy in decision-making or problem solving. Limited capacity has been noticed in various technologies in connection to assessment of the complex materials which include texts and visuals, and concerns raised about the reliability of algorithms, transparency of their assessments and validity of the information as they are trained on specific and contextual datasets, which might limit their applicability and adaptability across different cultures and educational settings (Mariani et al., 2025; Celik et al., 2022; Chen et al., 2020; Nikiforos et al., 2020). To foster these challenges, integration of AI into education needs to be carefully executed requiring establishment of well-defined guidelines that prioritise ethical considerations and data privacy and security, strategies for validating AI-generated information and methods for integrating these tools into specific project management contexts (Garcia and Garcia, 2025; Ruark and Biazzin, 2025; Hashmi and Bal, 2024, Adams et al., 2023; Kooli, 2023). Educators will need additional training, require support, as well as community dialogues to make informed decisions on when and how they should adopt these technologies ethically and effectively as the question is not whether to use AI anymore, but how to steer its development as an enabler of personal and professional growth (Ingasson et al., 2025).

4. CONCLUSION

This paper examined how contemporary project management education can respond to growing need for competent project management professionals. The reviewed literature confirmed that traditional approaches, mostly grounded in standards-based instructions and procedural knowledge transfer, struggle to equip individuals with competence required for effective project leadership in volatile, uncertain, complex and ambiguous context. AI-supported educational environments emerge in this context as a powerful enabler of competence development through personalised learning trajectories, adaptive feedback mechanisms and immersive scenario-

based simulations. Based on the research findings, several main recommendations arise for educational institutions to provide more relevant, market aligned project management education leveraging the benefits of emerging technologies. Project management curricula should be updated in collaboration with industry and professional organizations to ensure its relevance, support experiential learning opportunities and align educational innovations with evolving professional practices and career pathways. Investments should be made in the development of digitally and pedagogically capable educators who can design, facilitate and critically evaluate AI-supported learning experiences. And finally, institutional strategies for AI-adoption should incorporate governance mechanisms that will address issues such as data privacy, transparency, accountability and ethical use together with mechanisms to validate AI-generated outputs within specific educational and cultural contexts. Although this paper provides a comprehensive overview, it is primarily based on desk research, therefore subject to limitations related to the scope and availability of existing empirical evidence. Future research should focus on institutional readiness for AI-supported project management education (including governance models, faculty capabilities and infrastructural requirements), ethical frameworks and policy guidelines for responsible education based on AI-tools and ways to integrate AI-supported tools into capability development frameworks, standards and certification systems. Longitudinal and comparative research across institutions, industries and cultural contexts could provide a valuable insight into human-technology collaboration within various pedagogical frameworks and long-term transformation of project management education.

LITERATURE:

1. Abernethy, K., Piegari, G., and Reichgelt, H. (2007). Teaching project management: an experiential approach, *Journal of Computing Sciences in Colleges*, 22(3), 198-205.
2. Ackermann, F., Maytorena, E., Gavin, C. and Forsyth, S. (2024). Developing enduring leadership competences in complex project management: charting a course, embarking on a journey. *Journal of Management Development*, 43(1), 35-48.
3. Adams, C., Pente, P., Lemermeyer, G. and Rockwell, G. (2023). Ethical principles for artificial intelligence in K-12 education. *Computers and Education – Artificial Intelligence*, 4, 100131.
4. Adeshola, I. and Adepoju, A. P. (2024). The opportunities and challenges of ChatGPT in education. *Interactive Learning Environments*, 32(10), 6159-6172.
5. Afzal, F. and Crawford, L. (2022). Student's perception of engagement in online project management education and its impact on performance: The mediating role of self-motivation. *Project Leadership and Society*, 3, 100057.
6. Ahsan, K., Ho, M. and Khan, S. (2013). Recruiting project managers: A comparative analysis of competencies and recruitment signals from job advertisements. *Project management journal*. 44(5), 36-54.
7. Aliu, J., Oke, A. E., Kineber, A. F., Ebekozi, A., Aigbavboa, C. O., Alaboud, N. S. and Daoud, A. O. (2023). Towards a New Paradigm of Project Management: A Bibliometric Review. *Sustainability*, 15(13), 9967.
8. Alvarenga, J. C., Branco, R. R., Guedes, A. L. A., Soares, C. A. P. and da Silveira, W. (2019). The project manager core competencies to project success. *International journal of managing projects in Business*, 13(2), 277-292.
9. Berggren, C. and Söderlund, J. (2008). Rethinking project management education: Social twists and knowledge co-production. *International Journal of Project Management*, 26(3), 286-296.
10. Borg, J. and Scott-Young, C. M. (2020). Priming the project talent pipeline: Examining work readiness in undergraduate project management degree programs. *Project Management Journal*, 51(2), 165-180.

11. Boyatzis, R. E. (2008). Competencies in the 21st century. *Journal of management development*, 27(1), 5-12.
12. Cabot, C. and Gagnon, S. (2021). Understanding the career dynamics of IT professionals in digital transformation times: a systematic review of career anchors studies. *International Journal of Information Systems and Project Management*, 9(2), 44-60.
13. Carvalho, L., Martinez-Maldonado, R., Tsai, Y. S., Markauskaite, L. and De Laat, M. (2022). How can we design for learning in an AI world?. *Computers and Education: Artificial Intelligence*, 3, 100053.
14. Celik, I., Dindar, M., Muukkonen, H. and Järvelä, S. (2022). The promises and challenges of artificial intelligence for teachers: A systematic review of research. *TechTrends*, 66(4), 616-630.
15. Chen, L., Chen, P. and Lin, Z. (2020). Artificial intelligence in education: a review. *IEEE Access* 8, 75264–75278.
16. Chen, T., Fu, M., Liu, R., Xu, X., Zhou, S. and Liu, B. (2019). How do project management competencies change within the project management career model in large Chinese construction companies?. *International Journal of Project Management*, 37(3), 485-500.
17. Cicmil, S., Williams, T., Thomas, J., and Hodgson, D. (2006). Rethinking project management: researching the actuality of projects. *International journal of project management*, 24(8), 675 686.
18. Crawford L. and Pollack J. (2004). Hard and soft projects: a framework for analysis. *International Journal of Project Management*, 22(8), 645–653.
19. Crawford L, Morris P, Thomas J. and Winter M. (2006). Practitioner development: from trained technicians to reflective practitioners. *International Journal of Project Management*, 24(8), 722–733.
20. Crawford, L. (2005). Senior management perceptions of project management competence. *International Journal of Project Management*, 23(1), 7-16.
21. Daniels, M., Kelly, E., Flynn, S. and Kelly, J. (2025). Advancing project leadership education through AI-enhanced game-based learning. *Project Leadership and Society*, 100189.
22. Darrell, V., Baccarini, D. and Love, P. E. (2010). Demystifying the folklore of the accidental project manager in the public sector. *Project Management Journal*, 41(5), 56-63.
23. Delle-Vergini, S., Ally, M., Eacersall, D., Dann, C. and Chakraborty, S. (2023). Teaching project management to primary school children: Exploring the perspectives of project practitioners. *Issues in Educational Research*, 33(1), 41-70.
24. Divjak, B. and Kukec, S. K. (2008). Teaching methods for international R&D project management. *International Journal of Project Management*, 26(3), 251-257.
25. Egginton, B. (2012). Realising the benefits of investment in project management training: Evidence supporting the need for a more strategic approach. *International Journal of Managing Projects in Business*, 5(3), 508-527.
26. Ekrot, B., Kock, A. and Gemünden, H. G. (2016). Retaining project management competence - Antecedents and consequences. *International Journal of Project Management*, 34(2), 145-157.
27. Ewin, N., Luck, J., Chugh, R. and Jarvis, J. (2017). Rethinking project management education: a humanistic approach based on design thinking. *Procedia Computer Science*, 121, 503-510.
28. García, B. A. and García, C. A. (2025). Artificial Intelligence as a Tool in Project Management Education. In *2025 IEEE Global Engineering Education Conference (EDUCON)*, 1-10
29. Geist, D. B., and Myers, M. E. (2007). Pedagogy and project management: should you practice what you preach?. *Journal of Computing Sciences in Colleges*, 23(2), 202-208.

30. Gharouni Jafari, K. and Noorzai, E. (2021). Selecting the most appropriate project manager to improve the performance of the occupational groups in road construction projects in warm regions. *Journal of Construction Engineering and Management*, 147(10), 04021131.
31. Hashmi, N. and Bal, A. S. (2024). Generative AI in higher education and beyond. *Business Horizons*, 67(5), 607-614.
32. Holmes, W., Porayska-Pomsta, K., Holstein, K., Sutherland, E., Baker, T., Shum, S. B., Santos, O. C., Mercedes, T. R., Curkova, M., Bittencourt, I. and Koedinger, K. R. (2022). Ethics of AI in education: Towards a community-wide framework. *International Journal of Artificial Intelligence in Education*, 32(3), 504-526.
33. Hsieh, S. C., Lin, J. S. and Lee, H. C. (2012). Analysis on literature review of competency. *International Review of Business and Economics*, 2(1), 25-50.
34. Huang, L. (2023). Ethics of artificial intelligence in education: Student privacy and data protection. *Science Insights Education Frontiers*, 16(2), 2577-2587.
35. Hussein, B. (2015). A blended learning approach to teaching project management: A model for active participation and involvement: Insights from Norway. *Education Sciences*, 5(2), 104-125.
36. Ingason, H. T., Aaltonen, K., Asmundarson, A. S., Fridgeirsson, T. V., Huemann, D., Huemann, M., Kujala, J., Lempela, H., Mancini, M., Mariani, C. and Ringhofer, C. (2025). Personalised learning in project management education: Insights from an artificial intelligence-driven chatbot. *Project Leadership and Society*, 100193.
37. Irfan, M., Khan, S. Z., Hassan, N., Hassan, M., Habib, M., Khan, S. and Khan, H. H. (2021). Role of project planning and project manager competencies on public sector project success. *Sustainability*, 13(3), 1421.
38. Jaccard, D., Bonnier, K. E. and Hellström, M. (2022). How might serious games trigger a transformation in project management education? Lessons learned from 10 Years of experimentations. *Project Leadership and Society*, 3, 100047.
39. Jayasinghe, S., Arm, K. and Gamage, K. A. (2025). Designing Culturally Inclusive Case Studies with Generative AI: Strategies and Considerations. *Education Sciences*, 15(6), 645.
40. Karanja, E. and Malone, L. C. (2021). Improving project management curriculum by aligning course learning outcomes with Bloom's taxonomy framework. *Journal of International Education in Business*, 14(2), 197-218.
41. Kearney, J., Bond-Barnard, T. and Chugh, R. (2024). Soft skills and learning methods for 21st-century project management: a review. *International Journal of Information Systems and Project Management*, 12(4), 5-20.
42. Khan, I., Ahmad, A. R., Jabeur, N., and Mahdi, M. N. (2021). An artificial intelligence approach to monitor student performance and devise preventive measures. *Smart Learn Environ*, 8(1), 1-18.
43. Kim, J., Lee, H. and Cho, Y. H. (2022). Learning design to support student-AI collaboration: Perspectives of leading teachers for AI in education. *Education and information technologies*, 27(5), 6069-6104.
44. Konstantinou, E., Nachbagauer, A. and Wehnes, H. (2023). Digital learning and education in a project society. *Project Leadership and Society*, 4, 100083.
45. Kooli, C. (2023). Chatbots in education and research: a critical examination of ethical implications and solutions. *Sustainability*, 15(7), 5614.
46. Kostalova, J., Duskocil, R., Siranova, L. and Lacko, B. (2024). Project Management in the Time of VUCA: Threat or Opportunity?. *Proceedings of the international scientific conference Hradec Economic Days*, 14, 166-175.
47. Kumar, S., Rao, P., Singhania, S., Verma, S. and Kheterpal, M. (2024). Will artificial intelligence drive the advancements in higher education? A tri-phased exploration. *Technological Forecasting and Social Change*, 201, 123258.

48. Lin, C. J., Lee, H. Y., Wang, W. S., Huang, Y. M. and Wu, T. T. (2025). Enhancing reflective thinking in STEM education through experiential learning: The role of generative AI as a learning aid. *Education and Information Technologies*, 30(5), 6315-6337.
49. Lloyd-Walker, B., French, E. and Crawford, L. (2016). Rethinking researching project management: Understanding the reality of project management careers. *International Journal of Managing Projects in Business*, 9(4), 903-930.
50. Mariani, C. and Mancini, M. (2025). Harnessing AI for value: examining the impact of AI capabilities and the mediating role of organizational agility on project value proposition. *International Journal of Managing Projects in Business*, 18(8), 112-143.
51. Mariani, C., Aaltonen, K., Ingason, H., Mancini, M. and Huemann, M. (2025). The future of learning: how artificial intelligence and other new technologies revolutionize project management education and foster Project Learning Intelligence. *Project Leadership and Society*, 100199.
52. Mozhei, K. A., and Lukianov, D. V. (2019). Contemporary approaches in project management education in Belarus. *Proceedings of XVIII international scientific expert conference*, 166-171.
53. Naseer, F., Tariq, R., Alshahrani, H. M., Alruwais, N. and Al-Wesabi, F. N. (2025). Project based learning framework integrating industry collaboration to enhance student future readiness in higher education. *Scientific Reports*, 15(1), 24985.
54. Ng, D. T. K., Leung, J. K. L., Su, J., Ng, R. C. W. and Chu, S. K. W. (2023). Teachers' AI digital competencies and twenty-first century skills in the post-pandemic world. *Educational technology research and development*, 71(1), 137-161.
55. Nieto-Rodriguez (2021). The project economy has arrived. *Harvard Business Review*. Available at: <https://hbr.org/2021/11/the-project-economy-has-arrived>
56. Nijhuis, S., Vrijhoef, R. and Kessels, J. (2018). Tackling project management competence research. *Project Management Journal*, 49(3), 62-81.
57. Nikiforos, S., Tzanavaris, S. and Kermanidis, K. L. (2020). Virtual learning communities (VLCs) rethinking: influence on behavior modification—bullying detection through machine learning and natural language processing. *Journal of Computers in Education*, 7(4), 531-551.
58. Nimmo, L. and Usher, G. (2020). 'Job-ready' project managers: Are Australian Universities preparing managers for the impact of AI, ML and Bots?. *Project Management Research & Practice*, 6.
59. Oran, A. C., Montenegro, L. B., Schuster, H. A., Duarte, J. C., Silva, W. and Lima, R. R. (2024). Integrating chatgpt in project management education: Benefits and challenges in the academic environment. In *Proceedings of the XXIII Brazilian Symposium on Software Quality*, 596-604.
60. Özsoy, T. (2025). Unveiling the potential of metaverse in project management education. *International Journal of Information Systems and Project Management*, 13(4), 1-27.
61. Pant, I. and Baroudi, B. (2008). Project management education: The human skills imperative. *International Journal of Project Management*, 26(2), 124-128.
62. Pires, L. and Varajão, J. (2024). Creativity as a topic in project management - A scoping review and directions for research. *Thinking Skills and Creativity*, 101477.
63. PMI (2021). *Talent gap: Ten-year employment trends, costs, and global implications*. Project Management Institute.
64. Ramazani, J. and Jergeas, G. (2015). Project managers and the journey from good to great: The benefits of investment in project management training and education. *International Journal of Project Management*, 33(1), 41-52.

65. Rastovski, T. Vlahov Golomejic, R. D. and Vukomanovic, M. (2023). The role of competency-based certification in ensuring sustainable project delivery. *Organization, technology & management in construction: an international journal*, 15(1), 243-252.
66. Rohan, R., Roy, P., Vanijja, V., Funilkul, S., Mukherjee, S. and Pal, D. (2023). What Affects the Adoption of Metaverse in Education? A SEM-based Approach. In *2023 20th International Joint Conference on Computer Science and Software Engineering (JCSSE)*, 448-453.
67. Ruark, T. I. and Biazzin, C. (2025). Teaching project management with generative AI: A pedagogical model for responsible and sustainable practice. *The International Journal of Management Education*, 23(3), 101232.
68. Shaik, T., Tao, X., Li, Y., Dann, C., McDonald, J., Redmond, P. and Galligan, L. (2022). A review of the trends and challenges in adopting natural language processing methods for education feedback analysis. *IEEE Access*, 10, 56720-56739.
69. Struková, Z. and Bašková, R. (2017). Innovation of education for the development of key competencies of university graduates. *Organization, technology & management in construction: an international journal*, 9(1), 1565-1573.
70. Tumpa, R. J., Skaik, S., Ham, M. and Chaudhry, G. (2023). Enhancing project management graduates' employability through group assessment innovations: An empirical study. *Project Leadership and Society*, 4, 100084.
71. Turner, J. R. and Huemann, M. M. (2000). Current and future trends in the education in project managers. *Project Management*, 6, 20-26.
72. Umpleby, S. and Anbari, F. T. (2004). Strengthening the global university system and enhancing projects management education. *Review of Business Research*, 4(1), 237-244.
73. Verenych, O. and Bushuyev, S. (2018). Interaction researching mental spaces of movable context, stakeholders, and project manager. *Organization, technology & management in construction: an international journal*, 10(1), 1684-1695.
74. Vettori, O. and Warm, J. (2025). The race for AI skills as an obstacle course: Institutional challenges and low threshold suggestions. *Project Leadership and Society*, 100183.
75. Wang, T., Lund, B. D., Marengo, A., Pagano, A., Mannuru, N. R., Teel, Z. A. and Pange, J. (2023). Exploring the potential impact of artificial intelligence (AI) on international students in higher education: Generative AI, chatbots, analytics, and international student success. *Applied Sciences*, 13(11), 6716.
76. Winkler, R. and Söllner, M. (2018). Unleashing the potential of chatbots in education: A state-of-the-art analysis. *Academy of Management Proceedings*, 201(1), 15903.
77. Winter, M., Smith, C., Cooke-Davies, T. and Cicmil, S. (2006) The importance of process' in rethinking project management: The story of a UK government-funded research network. *International Journal of Project Management*, 24(8), 650–662.
78. Zakeri, N. N. b., Hidayat, R., Yaakub, N. F. b., Balachandran, K. S. and Azizan, N. I. b. (2023). Creative methods in STEM for secondary school students: Systematic literature review. *Contemporary Mathematics and Science Education*, 4(1), ep23003.
79. Zawacki-Richter, O., Marín, V. I., Bond, M. and Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education—where are the educators?. *International journal of educational technology in higher education*, 16(1), 1-27.
80. Zheng, J. and Qiang, M. (2022). Understanding the changes in construction project managers' competences through resume data mining. *Journal of Civil Engineering and Management*, 28(4), 305-319.

CRISIS COMMUNICATION IN THE AGE OF HYBRID THREATS: STRATEGIC RESPONSES TO DISINFORMATION AND DIGITAL MANIPULATION

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ABSTRACT

Hybrid threats have transformed crisis communication from a supportive function into a core component of contemporary security, governance and democratic resilience. Unlike conventional crises, hybrid threats operate through sustained and coordinated information pressure that combines disinformation, narrative framing, technological manipulation and strategic ambiguity. These practices aim not only at short-term disruption, but at long-term erosion of public trust, institutional legitimacy and social cohesion. In such conditions, crisis communication becomes a central arena in which political, technological and social vulnerabilities intersect. This paper examines the role of strategic crisis communication in addressing hybrid threats, with particular emphasis on disinformation practices, digital media environments and the role of artificial intelligence. The analysis integrates theoretical approaches to hybrid threats and crisis management with selected contemporary case studies, including US–China narrative competition in the digital sphere, the Israel–Gaza conflict as an example of emotionally driven and visually mediated information warfare, and Russia’s long-term information operations aimed at weakening democratic consensus. Special attention is given to internal hybrid threats within democratic societies, where polarization and declining institutional trust create conditions exploitable by external actors. The paper demonstrates that disinformation operates across multiple levels, ranging from low-intensity practices such as clickbait and misleading headlines to coordinated influence campaigns supported by algorithmic systems and platform logics. Artificial intelligence is analysed as a structurally ambivalent factor that can enhance crisis preparedness but also intensify manipulation, depending on governance and ethical oversight. The findings suggest that effective crisis communication under hybrid threat conditions requires a shift from reactive correction toward anticipatory, coherent and trust-oriented approaches. Rather than focusing solely on debunking false information, institutions must prioritise narrative coherence and engage in pre-bunking. Strategic crisis communication thus emerges as a structural prerequisite for democratic resilience in contested information environments.

Keywords: *Crisis communication; disinformation; hybrid threats; fake news*

1. INTRODUCTION

Contemporary crises unfold within information environments shaped by strategic disinformation, hybrid threats, and technologically accelerated communication. In such conditions, crisis communication cannot be reduced to a reactive managerial function, but must be understood as a constitutive element of crisis dynamics, in which meaning, responsibility, and legitimacy are actively contested. Disinformation has become a central instrument of hybrid crises. As an intentional practice aimed at manipulating perceptions and undermining trust, it operates not only through factual distortion but through the destabilisation of interpretative frameworks within which crises are understood.

Crisis communication, therefore, takes place in a competitive narrative space rather than within a stable informational order. Artificial intelligence further transforms this environment by increasing the speed, scale, and automation of both disinformation and institutional communication. AI-supported tools enable automated content production, adaptive dissemination, and the simulation of credibility, while simultaneously monitoring information flows and countering coordinated manipulation. This technological ambivalence challenges established models of crisis communication developed under different media conditions.

The aim of this paper is to analyse crisis communication in hybrid environments characterised by disinformation, with particular attention to the role of artificial intelligence in shaping crisis narratives. The paper addresses the following research question: How do disinformation practices and AI-driven communication tools influence crisis communication strategies in contemporary hybrid crises? Methodologically, the paper combines a qualitative review of relevant academic literature with a comparative analysis of selected crisis-related case studies involving major international actors. By integrating crisis communication theory with research on hybrid threats, disinformation, and artificial intelligence, the paper positions communication as a strategic arena of contemporary crises rather than a subsidiary tool of crisis management.

2. HYBRID THREATS AND CRISIS COMMUNICATION

The term hybrid is commonly used to describe phenomena that combine different methods or instruments in order to achieve a specific objective. In the context of contemporary security challenges, the concept of hybrid threats refers to forms of action that extend beyond conventional military and political confrontation. As Coldea defines them, hybrid threats represent an expanded mode of warfare that employs a set of techniques used by both state and non-state actors. He emphasises that “hybrid threats are long-term *modi operandi*, generally associated with information activities, and aimed at making the opponent vulnerable across all areas of human life – social, political, economic and institutional – as well as, in some cases, at generating financial or economic profit” (Coldea, 2022: 51). Within this framework, the term hybrid does not refer to a single domain of action, but to the coordinated targeting of multiple societal sectors. Hybrid threats exploit the interconnectedness of modern societies, where disruptions in one area can generate cascading effects in others. This multidimensional character makes such threats particularly difficult to identify and counter, especially in crisis situations where uncertainty and informational pressure are already high.

Bajarūnas notes that many NATO member states have responded to hybrid threats by developing comprehensive security concepts that emphasise coordination across different levels of governance and society. These approaches include effective cooperation among government institutions, strong links between the public sector, civil society and private actors, a coherent legal framework, civil–military cooperation, and continuous preparation through training, exercises and education (Bajarūnas, 2020: 63). The prominence given to hybrid threats within NATO policy frameworks indicates their potential to cause significant disruption even in highly developed and institutionally resilient environments. Further analytical precision is provided by Arcos and Smith, who refer to the work of the European Centre of Excellence for Countering Hybrid Threats and the Joint Research Centre of the European Commission. These institutions identify thirteen domains potentially affected by hybrid activities, including infrastructure, cyber, space, economy, military and defence, culture, social structures, public administration, legal systems, intelligence, diplomacy, politics and the information domain (Arcos & Smith, 2021: 5). While attacks on physical infrastructure tend to be visible and immediate, influence operations in social, cultural or informational domains are often less perceptible, yet no less consequential.

Arcos and Smith further conceptualise hybrid threats as a process unfolding through three phases (priming, destabilisation and coercion) and involving four types of activity: interference, influence, operations or campaigns, and warfare (Arcos & Smith, 2021: 6). From a crisis communication perspective, this processual nature is particularly relevant, as communication practices play a central role in the priming and destabilisation phases, shaping perceptions long before overt crisis escalation occurs. As a result, crisis communication must be understood not only as a response to hybrid threats, but as one of the key arenas in which such threats are enacted and contested.

2.1. Role of disinformation

Disinformation represents a central component of hybrid threats and should be understood as a structural rather than incidental feature of contemporary crisis environments. Selaković, Tarabasz and Ljepava argue that the phenomenon of misinformation has expanded alongside the development of civilisation and the growth of media systems. They emphasise that the emergence of print and electronic media created increasingly favourable conditions for audience deception by multiplying communication channels and accelerating information circulation (Selaković, Tarabasz, Ljepava, 2024: 115). In contemporary digital environments, this expansion has reached a point at which individuals may be exposed to large volumes of misleading or false content without being fully aware of its manipulative character. At a basic level, disinformation practices can be observed in widespread media phenomena such as clickbait. Coste and Bufnea describe clickbait as a form of misleading content driven primarily by economic incentives, particularly the pursuit of increased page views and advertising revenue (Coste & Bufnea, 2021: 270). They define clickbait as content promoted through headlines that are incomplete, exaggerated or deliberately confusing, often creating expectations that are not supported by the actual content of the article (Coste & Bufnea, 2021: 270). Although clickbait represents a relatively low-intensity form of information manipulation, its relevance lies in its normalisation of deceptive communication practices. By repeatedly exposing audiences to distorted or sensationalised representations of reality, such practices contribute to the erosion of trust in media and blur the boundaries between legitimate information, misinformation and deliberate disinformation. Within crisis contexts, these effects become particularly significant, as audiences are more dependent on mediated information and more vulnerable to narrative manipulation.

2.1.1. Polarization and fake news

The same event can be framed in fundamentally different ways across media platforms, depending on editorial orientation, political alignment, and communicative intent. Such divergences in framing become particularly visible in polarised media environments, where news content is frequently interpreted through ideological lenses. Political actors may further instrumentalise these divisions by publicly discrediting unfavourable media coverage, often by labelling it as fake news. These practices are typically politically motivated and contribute to the erosion of trust in journalism as an institution. Pan defines fake news as news content that intentionally produces, disseminates or promotes false information in order to mislead audiences. Such content may involve distortion, selective presentation or complete fabrication of facts, with the explicit aim of influencing readers, viewers or listeners (Pan, 2024: 1747). According to the same author, the societal consequences of fake news include the undermining of public trust, manipulation of public opinion and the destabilisation of social cohesion (Pan, 2024: 1747). One of the key effects of fake news in contemporary societies is political and social polarisation. As media ecosystems fragment and audiences increasingly consume ideologically aligned content, opposing interpretations of reality become more entrenched.

This dynamic complicates crisis communication, as institutional messages are filtered through polarised interpretative frameworks rather than assessed on the basis of shared factual premises. In such environments, trust in media and public authorities becomes increasingly fragile. Melro and Pereira identify several mechanisms for countering the spread of fake news, including automated detection systems, media regulation, and the involvement of third-party intermediaries. They also emphasise the importance of media literacy and critical thinking as long-term strategies for strengthening societal resilience against disinformation (Melro & Pereira, 2019: 50). While such measures are difficult to implement in closed or authoritarian media systems, they remain essential in pluralistic societies where multiple information sources coexist. From the perspective of crisis communication, polarisation and fake news represent structural challenges rather than isolated anomalies. They shape the conditions under which crisis narratives circulate and are interpreted, limiting the effectiveness of communicative interventions and reinforcing the strategic role of disinformation within hybrid threat environments. The dynamics of disinformation and polarisation outlined above demonstrate how hybrid threats reshape the communicative conditions under which crises unfold. Rather than emerging as isolated distortions, fake news and polarised media framings operate as interconnected mechanisms that influence how crises are interpreted, evaluated and responded to. For crisis communication, this means that effectiveness is increasingly determined by the ability to operate within contested narrative environments marked by fragmentation, distrust and strategic manipulation. These conditions form the backdrop against which the role of artificial intelligence in contemporary crisis communication must be examined.

2.2. Role of Artificial intelligence

Contemporary crisis communication increasingly unfolds within digital environments in which artificial intelligence plays a structurally ambivalent role. On the one hand, AI technologies are used to support preparedness, decision-making and strategic planning. On the other, they are embedded in communication infrastructures that enable targeted influence and large-scale manipulation. Generative AI (for simulation and content generation), algorithmic systems (for dissemination and targeting), and machine learning (for pattern detection) all shape AI's ambivalent role, requiring distinct regulatory responses for different AI functions. Labaš emphasises the potential of generative artificial intelligence in crisis management training, particularly through the creation of dynamic simulation scenarios that go beyond traditional, scripted role-play models. According to Labaš, generative AI enables crisis scenarios to evolve in real time in response to decisions made during training, allowing participants to explore alternative courses of action and their potential consequences (Labaš, 2025: 174). This capacity to model multiple decision paths supports anticipatory thinking and may enhance institutional preparedness by enabling actors to consider future developments before crises escalate. From a communication perspective, however, the application of artificial intelligence extends beyond internal training and decision support. Mlinac points out that AI systems deployed on social networks enable highly targeted forms of communication. In this context, target audiences may include states, political decision-makers, the general population, specific communities or individuals, particularly those expressing political, ideological or religious views, including tendencies related to radicalisation or violent extremism (Mlinac, 2025: 67). Such targeting capacities significantly increase the strategic relevance of AI in both crisis communication and disinformation practices. Aladawi and Ahmad identify several key areas of artificial intelligence research, including machine learning, deep learning, reinforcement learning, computer vision, natural language processing and Internet of Things technologies (Aladawi & Ahmad, 2023: 418). While these developments are often framed in terms of technological progress and learning efficiency, their relevance for crisis communication lies primarily in their application to decision-making processes.

The same authors note that AI can enhance crisis management by improving response times, supporting situational awareness and providing analytical insights during crises (Aladawi & Ahmad, 2023: 419). At the same time, they implicitly raise the issue of governance, as the effectiveness of AI-driven communication depends on transparency, accountability and ethical oversight. Finally, Eze and Zacky highlight the growing use of artificial intelligence in detecting disinformation. Machine learning algorithms and AI-based analytical tools have become central to identifying patterns of coordinated manipulation and analysing large volumes of content circulating during crises (Eze & Zacky, 2025: 14). While such applications illustrate the defensive potential of AI, they also reinforce the broader conclusion that artificial intelligence is not a neutral instrument. Its role in crisis communication is shaped by institutional frameworks, regulatory choices and strategic intent, making governance a key factor in determining whether AI mitigates or amplifies communicative risks in hybrid crisis environments.

3. STRATEGIC CRISIS COMMUNICATION

The concept of crisis resists a single, universally accepted definition due to the diversity of situations it encompasses and the analytical perspectives applied to it. Bevanda and Bijakšić emphasise that scholars largely agree only on the absence of a unified definition, resulting from both the variety of crisis types and differing disciplinary approaches (Bevanda & Bijakšić, 2020: 2). Nevertheless, crises are commonly understood as extraordinary situations that disrupt normal functioning and require coordinated institutional response. Research on crisis management consistently highlights that effective crisis response does not begin at the moment a crisis becomes visible. Mantzana et al. argue that planning and coordination must be conducted well in advance of any incident and conceptualise crisis management as a continuous cycle consisting of preparedness, response, recovery and mitigation (Mantzana et al., 2020: 2–6). This process-oriented perspective underscores the importance of anticipation and organisational learning. In hybrid threat environments, crisis communication can no longer be confined to message coordination or reputational management. It operates as a core element of crisis governance, aimed at sustaining institutional legitimacy, public trust and social cohesion under conditions of sustained informational pressure. Eze and Zacky identify transparency and openness as central practices for building trust during disinformation-driven crises, noting that immediate public clarifications and the strategic use of social media have been effective in limiting the spread of false narratives (Eze & Zacky, 2025: 15, 23). Beyond reactive measures, Eze and Zacky propose an integrated framework combining proactive and reactive strategies, including continuous monitoring, transparent communication, stakeholder collaboration, and rapid engagement with misleading content (Eze & Zacky, 2025: 57). Such approaches emphasise preparedness and early intervention in environments characterised by rapid information circulation. Bevanda and Bijakšić also identify strategic silence as a legitimate communication strategy in specific circumstances, particularly when crisis causes remain unclear or when premature communication could escalate uncertainty or panic (Bevanda & Bijakšić, 2020: 7). Strategic silence thus functions as a deliberate communicative choice rather than an absence of action. Sirbu situates strategic crisis communication within a normative framework defined by transparency, consistency, flexibility, neutrality, informational objectivity and public responsibility (Sirbu, 2020: 52, 54). These principles provide a stable reference point for communication strategies operating under conditions of uncertainty. Stray further demonstrates that merely labelling information as false is often less effective than offering alternative narratives that provide coherent explanations, reinforcing the importance of proactive narrative construction in crisis communication (Stray, 2019: 1023).

Strategic crisis communication therefore emerges as a central mechanism of crisis governance in hybrid threat environments, where maintaining trust and managing narrative vulnerability are as critical as operational response.

3.1. Communication strategy in use

Contemporary geopolitical crises demonstrate how communication functions simultaneously as an instrument of influence and a structural vulnerability. Effective propaganda operates by imposing narratives that appear coherent and self-evident, thereby marginalising alternative interpretations without requiring explicit persuasion. Under conditions of accelerated media consumption, such narrative dominance often goes unchallenged. Otmakhova and Frermann describe this process through the concept of narrative framing, which combines storytelling and framing to guide audience interpretation. Narrative framing directs attention to selected aspects of an issue and produces specific meanings that differ from those suggested by generic or issue-based frames (Otmakhova & Frermann, 2025: 9167–9168). In crisis contexts, this mechanism enables communication strategies to shape interpretative frameworks rather than merely transmit information, reinforcing the strategic role of communication in hybrid threat environments.

3.1.1. US-China: Narrative Competition

The rivalry between the United States and China illustrates hybrid threats primarily through competition over the interpretation of global events, technologies and governance models rather than through direct confrontation. In this context, digital platforms function as central arenas of narrative contestation. Chinese-owned platforms such as TikTok and WeChat have attracted regulatory and political scrutiny in the United States and the European Union due to concerns related to content moderation, recommendation algorithms and data governance frameworks that differ from those applied to Western platforms. Lozić, Fotova Čiković and Bačić describe TikTok as a social networking application designed for viewing, sharing and creating short video content, developed explicitly for the international market (Lozić, Fotova Čiković & Bačić, 2024: 264). Its global reach positions the platform as a significant actor within transnational communication environments. Fang and Liu note that WeChat represents the largest mobile social networking service in China, with over one billion active users, and demonstrate that higher levels of platform dependence are associated with increased trusting beliefs toward mobile social networks (Fang & Liu, 2019: 1104, 1108). These findings underline the communicative influence such platforms can exert on large user populations. Media framing plays a central role in the US–China narrative confrontation. Miao, Huang and Huang show that American and Indian media shifted their framing of TikTok from an ambitious Chinese digital platform to a potential threat to privacy and national security, following an interpretative logic that links the platform’s country of origin to assumptions about state control (Miao, Huang & Huang, 2023: 12, 14). In contrast, Chinese media responses emphasised regulatory compliance and content moderation efforts while avoiding direct engagement with questions of possible governmental interference (Miao, Huang & Huang, 2023: 11). This asymmetry contributed to the persistence and reinforcement of competing narratives. Narrative competition is also visible within user-generated content. Jareid’s analysis of the most-viewed TikTok videos under hashtags related to US–China relations demonstrates that content largely aligns with official governmental and media framings, with both sides relying on negative stereotypes and simplified characterisations of the other (Jareid, 2024: 147, 149). The same study shows that the United States is frequently framed in Chinese-oriented content as a hegemonic actor, while China is portrayed in Western-oriented narratives as inherently untrustworthy due to its political system (Jareid, 2024: 148, 149).

These mutually reinforcing frames illustrate how narrative competition functions as a core mechanism of hybrid threats within contemporary crisis communication.

3.1.2. Israel-Gaza: Emotion and Visuality

The Israel–Gaza conflict demonstrates how hybrid threats exploit emotional intensity and visual dominance in crisis communication. Disinformation in this context rarely relies on fabricated events, but rather on the selective use of images, decontextualised casualty figures and moral framing that rapidly polarise global audiences. Sharaf identifies three dominant global responses to the Hamas attack of 7 October 2023: condemnation of Hamas combined with support for Israel’s right to self-defence, rejection of the actions of both Hamas and Israel as morally unjustifiable, and positive framing of Hamas’s actions (Sharaf, 2024: 218). These positions emerged within a media environment saturated with emotionally charged visual material, including footage of the initial attack and subsequent images of destruction, civilian casualties and humanitarian deprivation in Gaza (Sharaf, 2024: 216). Such visual narratives were accompanied by official Israeli communication, including military briefings and political statements, which competed with alternative framings circulating through international and social media. Sharaf notes that this dynamic contributed to the spread of pro-Palestinian protests even in countries traditionally aligned with Israel (Sharaf, 2024: 222). Krkač further observes that some protests combined pro-Palestinian slogans with Hamas symbols, a communicatively problematic conflation given Hamas’s designation as a terrorist organisation by many states (Krkač, 2024: 93). From a crisis communication perspective, this case illustrates how emotion-driven visual narratives constrain interpretative space, intensify polarisation and complicate efforts to stabilise meaning in hybrid threat environments.

3.1.3. Russia's reassertion of influence

Russia’s information operations exemplify hybrid threats based on long-term narrative erosion rather than short-term persuasion. Coldea identifies several recurrent Russian narratives, including appeals to patriotism, Orthodox and pan-Slavic values, claims of moral superiority, portrayals of Russia as a peace-seeking power, and representations of the West as a colonising force. He emphasises that Russia’s strategic objective is not necessarily territorial expansion, but the weakening of consensus among neighbouring states and alliances such as NATO and the EU, thereby reinforcing its regional influence (Coldea, 2022: 62). White and Overdeer argue that Russian influence operations do not target only ethnic Russians, but also exploit existing ethnic and social cleavages when useful for strategic goals. They note, for example, that Abkhaz and South Ossetian minorities were instrumentalised in Georgia to advance Russian objectives (White & Overdeer, 2020: 33). Such practices illustrate how identity-based narratives function as adaptable tools within broader hybrid strategies. Language targeting represents an additional dimension of these operations. White and Overdeer observe that propaganda content is tailored linguistically to specific audiences, with messaging directed at Serbian audiences produced in Serbian and content aimed at Arab migrant communities disseminated in Arabic (White & Overdeer, 2020: 35). They further distinguish between “organic” narratives that emerge locally and “sponsored” narratives that are externally produced and strategically introduced into target populations for political purposes (White & Overdeer, 2020: 35). The broader implications of sustained information manipulation are evident in cases such as the Cambridge Analytica scandal, which demonstrated how large-scale data harvesting and microtargeted messaging could influence political processes, contributing to information fatigue and declining trust in institutions and media. At the institutional level, Stray notes that the EU East StratCom Task Force, established in 2015 to counter Russian disinformation, operates with significantly fewer resources than Russia’s Internet Research Agency, highlighting structural asymmetries in information confrontation (Stray, 2019: 1021).

From a crisis communication perspective, the Russian case illustrates how long-term narrative strategies undermine trust, fragment audiences and challenge the capacity of democratic institutions to maintain coherent and credible communication under sustained hybrid pressure.

3.2. Internal hybrid threats

Hybrid threats increasingly operate from within democratic societies, blurring the distinction between internal and external security. Arcos and Smith argue that contemporary security challenges often originate domestically but are initiated or amplified by external actors (Arcos & Smith, 2021: 5). Information is disseminated through multiple channels, particularly social media, with the aim of influencing political decision-making in ways that serve hostile interests. The integration of ICT, digital communication tools and artificial intelligence enables coordinated activities that exploit democratic vulnerabilities and target individuals, institutions and societies through information manipulation (Arcos & Smith, 2021: 7). Such dynamics are closely linked to polarisation, identity conflicts and declining institutional trust. Extremist movements, especially far-right groups, demonstrate a high capacity for coordinated disinformation, translating online narratives into offline mobilisation, including protests, harassment campaigns and, in some cases, violence. Ellingsen distinguishes between hybrid threats targeting electoral, liberal and deliberative democracy. Targeting deliberative democracy commonly involves exacerbating existing ethnic, religious, political or economic fault lines in order to undermine social cohesion (Ellingsen, 2024: 40, 45). Electoral democracy is targeted through direct or indirect interference with election processes, while liberal democracy is affected through pressure, intimidation, manipulation of diasporic identities and disinformation campaigns aimed at freedom of speech, minority rights, pluralism and media independence (Ellingsen, 2024: 40, 43). These processes generate normative dilemmas for democratic states. Krkač highlights the persistent challenge of balancing freedom of expression and the right to protest with restrictions on public support for organisations designated as terrorist, such as Hamas or ISIS (Krkač, 2024: 93). Internal hybrid threats thus operate at the intersection of security, communication and democratic governance, complicating both regulatory responses and strategic crisis communication.

4. CONCLUSION

Hybrid threats have fundamentally altered the relationship between security, communication and democratic governance. As demonstrated throughout this paper, contemporary crises are no longer defined solely by physical disruption or isolated events, but by sustained informational pressure that targets trust, identity and decision-making processes. In this context, both governments and private organisations must develop a level of communicative resilience that enables them not merely to respond to crises, but to function credibly within permanently contested information environments. Crisis communication therefore cannot remain a reactive practice focused on post hoc correction of falsehoods. It must evolve toward anticipatory engagement grounded in ethical consistency and narrative coherence, and engage in pre-bunking, therefor proactively inoculating the public by explaining manipulation techniques before they are deployed. In the age of hybrid threats, communication is not simply an auxiliary instrument of crisis management; it constitutes a structural condition of democratic resilience itself. When trust erodes and narratives fragment, institutional capacity to govern, coordinate and respond is directly weakened. Strategic responses to disinformation and digital manipulation can be summarised through three interrelated principles. First, anticipation over reaction: institutions must invest in continuous monitoring of narratives, vulnerabilities and emerging fault lines before crises escalate. Second, coherence over speed: effective communication depends less on rapid output than on alignment between institutional actions, values and messaging across platforms.

Third, trust over correction: long-term credibility, built through transparency and consistency, is more effective than repeated short-term rebuttals of false claims. Ultimately, the effectiveness of crisis communication under hybrid threat conditions rests not on technological superiority alone, but on the capacity of democratic systems to sustain legitimacy, pluralism and public trust. Strategic communication thus emerges not merely as a defensive response to disinformation, but as a core element of democratic stability in an increasingly complex and adversarial information landscape.

LITERATURE:

1. Aladawi, A. S. A. R., & Ahmad, A. N. A. (2023). A study of factors influencing the adoption of artificial intelligence in crisis management. *International Journal of Sustainable Construction Engineering and Technology*, 14(5), 416–425. Retrieved 12.02.2026 from <https://publisher.uthm.edu.my/ojs/index.php/IJSCET/article/view/16042>
2. Arcos, R., & Smith, H. (2021). Digital communication and hybrid threats. *Icono 14*, 19(1), 1–14. <https://doi.org/10.7195/ri14.v19i1.1662>
3. Bajarūnas, E. (2020). Addressing hybrid threats: Priorities for the EU in 2020 and beyond. *European View*, 19(1), 62–70. <https://doi.org/10.1177/1781685820912041>
4. Bevanda, A., & Bijakšić, S. (2020). Strategic silence in crisis communication: When is it better to remain silent? *South Eastern European Journal of Communication*, 2(1), 7–14. <https://doi.org/10.47960/2712-0457.2020.1.2.7>
5. Coldea, F. (2022). Intelligence challenges in countering hybrid threats. *National Security and the Future*, 23(1), 49–66. <https://doi.org/10.37458/nstf.23.1.2>
6. Coste, C. I., & Bufnea, D. (2021). Advances in clickbait and fake news detection using new language-independent strategies. *Journal of Communications Software and Systems*, 17(3), 270–280. <https://doi.org/10.24138/jcomss-2021-0038>
7. Ellingsen, T. (2024). Hybrid threats as a threat to democracy: Soft and smart tactics and three dimensions of democracy. In O. J. Borch & T. Heier (Eds.), *Preparing for Hybrid Threats to Security* (pp. 36–51). London & New York: Routledge. Retrieved 12.02.2026 from <https://library.oapen.org>
8. Eze, U. Z., & Zacky-Eze, C. J. (2025). Combatting disinformation: Analyzing effective communication strategies and tactics for organizational resilience. *Tripodos*, 57, 10–34. Retrieved 12.02.2026 from https://tripodos.com/index.php/Facultat_Comunicacio_Blanquerna/article/view/1629
9. Fang, L., & Liu, Q. (2019). Mobile SNS addiction and user continuance: An empirical investigation of WeChat. *Tehnički vjesnik*, 26(4), 1104–1111. <https://doi.org/10.17559/TV-20190315145418>
10. Gajdzik, B. (2014). Crisis management in metallurgical enterprises. *Metalurgija*, 53(3), 391–394. Retrieved 12.02.2026 from <https://hrcak.srce.hr/119560>
11. Jareid, M. S. (2024). Framing distrust: TikTok as a discursive arena for rivalry between the US and the People’s Republic of China. In F. Orban, E. S. Larsen, & S. Lindahl (Eds.), *Trust under Threat: Challenges in a Digital Society* (pp. 139–156). Münster & New York: Waxmann. Retrieved 12.02.2026 from <https://www.researchgate.net>
12. Krkač, K. (2024). Protester-shield model: Misuse of jihad by Muslim protesters and tolerance of this misuse by non-Muslim protesters in pro-Palestinian protests in the EU. *Međunarodne studije*, 24(1–2), 89–106. <https://doi.org/10.46672/ms.24.1-2.4>
13. Labaš, D. (2025). Evaluating modern technologies and practices for strengthening organizational crisis preparedness. *Notitia*, 11(1), 167–184. <https://doi.org/10.32676/n.11.1.11>

14. Lozić, J., Fotova Čiković, K., & Bačić, L. (2024). The impact of the COVID-19 pandemic on the business results of the TikTok platform. *Polytechnic & Design*, 12(4), 263–271. <https://doi.org/10.19279/TVZ.PD.2024-12-4-13>
15. Mantzana, V., Georgiou, E., Chasiotis, I., Gkotsis, I., Stelkens-Kobsch, T. H., Kazoukas, V., & Komninos, F. (2020). Airports' crisis management processes and stakeholders involved. *Annals of Disaster Risk Sciences*, 3(1), 1–8. Retrieved 12.02.2026 from <https://hrcak.srce.hr/362958>
16. Melro, A., & Pereira, S. (2019). Fake or not fake? Perceptions of undergraduates on (dis)information and critical thinking. *Medijske studije*, 10(19), 46–67. <https://doi.org/10.20901/ms.10.19.3>
17. Miao, W., Huang, D., & Huang, Y. (2023). More than business: The de-politicisation and re-politicisation of TikTok in the media discourses of China, America and India (2017–2020). *Media International Australia*, 1–18. Retrieved 12.02.2026 from <https://www.researchgate.net>
18. Mlinac, N. (2025). Hybrid intelligence as a carrier of disinformation and hybrid threats in cyberspace. *National Security and the Future*, 26(1), 65–98. Retrieved 12.02.2026 from <https://hrcak.srce.hr/331822>
19. Otmakhova, J., & Frermann, L. (2025). Narrative media framing in political discourse. *Findings of the Association for Computational Linguistics: ACL 2025*, 9167–9196. Retrieved 12.02.2026 from <https://aclanthology.org/2025.findings-acl.477/>
20. Pan, N. (2024). Fake news detection using deep neuro-fuzzy network. *Tehnički vjesnik*, 31(5), 1747–1755. <https://doi.org/10.17559/TV-20231126001151>
21. Selaković, M., Tarabasz, A., & Ljepava, N. (2024). The evolution of disinformation: A study of digital transformation of fake news. *Medijske studije*, 15(30), 114–131. <https://doi.org/10.20901/ms.15.30.6>
22. Sharaf, A. (2024). The significance of moral shock: The armed conflict in Palestine as a case study. *Synthesis philosophica*, 77(1), 211–231. <https://doi.org/10.21464/sp39111>
23. Sirbu, D. (2020). The role of strategic communication in times of modern disinformation: Best practices and recommendations. In D. C. Plescan et al. (Eds.), *Proceedings of the 16th International Scientific Conference "Strategii XXI"* (pp. 48–56). Bucharest. Retrieved 12.02.2026 from <https://www.strategii21.ro>
24. Stray, J. (2019). Institutional counter-disinformation strategies in a networked democracy. In *Companion Proceedings of the 2019 World Wide Web Conference* (pp. 1020–1025). <https://doi.org/10.1145/3308560.3316740>
25. White, D. J., & Overdeer, D. (2020). Exploiting ethnicity in Russian hybrid threats. *Strategos*, 4(1), 31–49. Retrieved 12.02.2026 from <https://hrcak.srce.hr/242087>

DIGITAL GAMES AS A FACTOR OF RESILIENCE IN YOUTH EDUCATION AND SOCIAL DEVELOPMENT: AN EMPIRICAL ANALYSIS OF KEMSAK DIMENSIONS

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ABSTRACT

This study examines the role of digital games in strengthening the educational resilience and social development of school-age children in senior grades in six dimensions: cognitization, emotionalization, motivation, socialization, axiologization and creativization (KEMSAK). The data were collected through an online questionnaire in primary schools in Slovakia. The results show that digital games represent an important channel for informal learning and social interaction, especially during the periods of disrupted education. Boys reported a higher intensity of gaming, while girls reported predominantly shorter time periods spent by gaming. The most popular games included Fortnite, Minecraft, PUBG, CS:GO, FIFA, and GTA, which points to the current risks of age-inappropriate content, but also to the potential of games in developing language skills, technical skills and strategic thinking. The KEMSAK dimension analysis confirmed the contribution of games to the development of language skills, problem solving, emotional regulation and internal motivational mechanisms. In the area of socialization, a higher level of communication and teamwork was identified, but it didn't result in the formation of new friendships. The hypotheses about age and gender differences were not statistically confirmed in most cases, but significant differences were found in motivation, emotionalization and creativity between boys and girls. The findings highlight the importance of digital games as a tool for resilient education and media literacy. They point to the need for a socially responsible marketing communication in the gaming industry and the possibilities of integrating the socialization and educational aspects of games into pedagogical strategies aimed at inclusive social development.

Keywords: *Digital games, Educational Resilience, Social Development, KEMSAK Dimensions, Media Literacy, Informal Learning*

1. INTRODUCTION

Digital games have become one of the most prominent leisure activities of the last decade among young people. The changes in technology and the wide availability of smartphones and online platforms have caused a deep and significant interference of digital games with the socialization and education processes in children. The COVID-19 pandemic deserves special attention in this respect: the children were thrown into distance learning and the digital environment became the main space not only for education but also social contact. This study builds on the need to understand not only the risks of excessive and inappropriate digital gaming, but also their positive potential in developing educational resilience, i.e. the ability of students to maintain and develop their educational competencies.

At the same time, we will examine the six dimensions of the KEMSAK model (cognitization, emotionalization, motivation, socialization, axiologization and creativization), which are key in analyzing the educational and socializing effects of digital games. As a complex medium, digital games are a combination of visual, audio and interactive components. According to Gee (2003), well-designed games can be used as a means to support learning through problem-solving and provide immediate feedback. Granic et al. (2014) point out the fact that gaming environments can improve spatial imagination, strategic thinking and adaptive decision-making, which is important for the development of cognition. Research studies also show that games can support the development of language competence, creativity and teamwork (Prensky, 2010). When used appropriately, games are a tool for informal learning and a means to develop media literacy. On the other hand, Anderson et al. (2010) issued a warning regarding the increased aggression in children when gaming, which emphasizes the fact that games should be selected correctly according to age and content. Educational resilience refers to the students' ability to continue to pursue learning despite the not-so-ideal circumstances, such as school closures during the pandemic. Digital games have shown to be a supportive element in the development of this ability, especially due to their interactive and motivational nature. Media literacy is therefore important for children to distinguish appropriate content, understand game mechanics and protect themselves from inappropriate elements. CSR in the gaming industry focuses on protecting underage players, transparent marketing communications and supporting educational content. According to Kotler and Lee (2005), CSR enhances brand credibility and contributes to social good. Carroll and Shabana (2010) emphasize that CSR in the gaming industry include parental controls, adherence to the PEGI rating and support for games that develop digital and media literacy.

2. SOCIALIZATION AND EDUCATIONAL IMPACT OF DIGITAL GAMES ON THE TARGET GROUP OF CHILDREN IN SENIOR PRIMARY GRADES

Our research is focused on the perception of individual levels of upbringing and education with an emphasis on the educational, informational and socialization function of media (hereinafter the "socialization and educational level" as an abbreviated term) in digital games by school-age children. This issue has a distinct transdisciplinary dimension because it deals not only with the characteristics of marketing communication of digital games, but it also has a significant impact on media education. Our hitherto research was focused on the socialization and educational framework of marketing communications; with a specific focus on digital games from among the many different ways in which media and marketing communications are connected. We emphasized the applied socialization and educational model of digital games and each level was based on the revised Bloom's taxonomy and Zelina's KEMSAK model. The main goal of our research was to determine and characterize the socialization and educational effects of digital games on the target group of children in senior primary grades depending on age and gender. From this perspective, we will focus on identifying the extent of use of cognitization, emotionalization, motivation, socialization, axiologization and creativity by children in senior primary grades. We have specified several partial goals in relation to the main aim of our research:

- Determine the rate of COGNITIVENESS of children in senior primary grades while gaming;
- Determine the rate of EMOTIONALIZATION of children in senior primary grades while gaming;
- Characterize the MOTIVATION of children in senior primary grades while gaming;
- Determine the rate of SOCIALIZATION of children in senior primary grades while gaming;

- Determine the rate of AXIOLOGIZATION of children in senior primary grades while gaming;
- Determine the rate of CREATIVIZATION of children in senior primary grades while gaming;

We used the questionnaire method with closed-ended questions, interval scales, the Likert scale and semantic differential. The population set of our research consisted of senior grade primary school students in the Slovak Republic. According to the 2020 Statistical Yearbook of Primary Schools published by the Center for Scientific and Technical Information of the Slovak Republic, the number of pupils in Slovak state-run educational institutions in Grade 5 - 9 totaled 211479, of which 102958 were girls. These included 25,628 pupils in the Nitra Region, of which 12,365 were girls, and 22,198 pupils in the Trnava Region, of which 10,812 were girls, with a total of 47,826 pupils, of which 23,177 were girls. Our research group was created according by the available selection, and consisted of 208 students (of which 91 were girls) in Grade 5 - 9 at primary schools in the Nitra and Trnava Region.

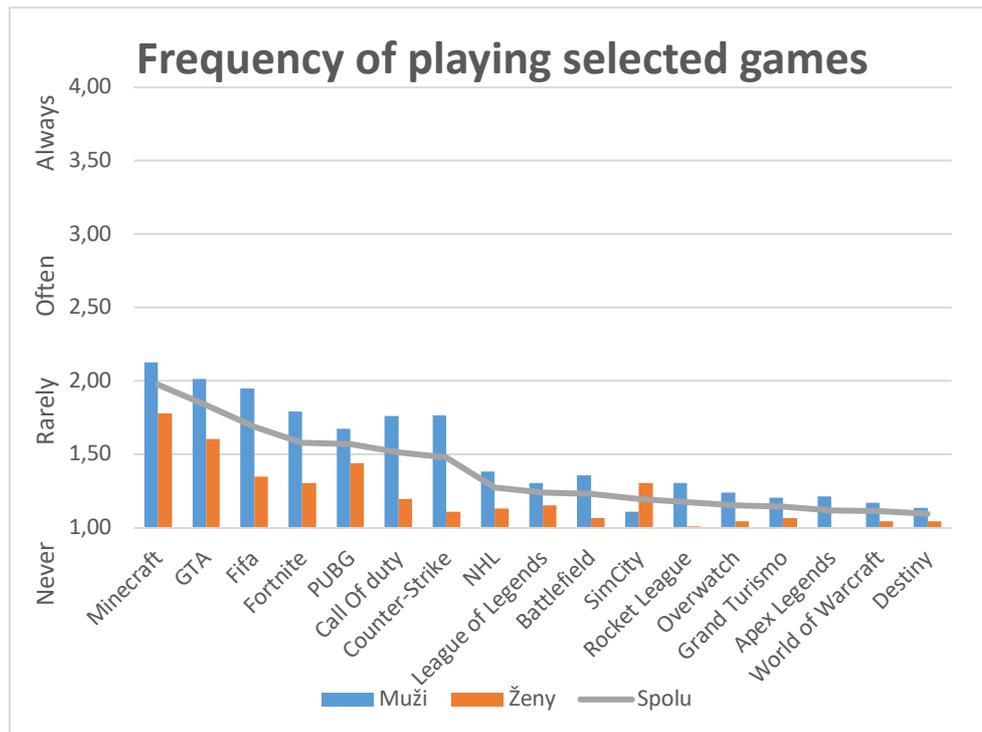
According to the calculations to determine a confidence level of 85%, upward of 207 measurements/surveys are required for the true value to be within $\pm 5\%$ of the measured/surveyed value.

2.1. Analysis of the preferred games and gaming time

The gaming time is also significantly influenced by specific house rules. In some families, children have a set screen time, yet in others, restrictions only apply to specific games, and there are also families where gaming time is not regulated at all. Various parental control applications are often used for this purpose. In our research, we did not focus on the specific forms of restriction, but only on the amount of time children spend playing video games each day. The results showed that 31% of respondents play video games up to 1 hour per day, 23% play 1 to 2 hours, 18% play 2 to 3 hours, 11% game 3 to 4 hours, and 17% of our respondents play more than 4 hours per day.

A clear gender difference was shown in the results – 55% of girls play video games only for up to an hour a day, with only a small minority playing for extended periods. Boys, on the other hand, spend more time gaming: 30% of the boys game 2 to 3 hours per day and 26% reported gaming for 4 or more hours per day. Gaming ranked fourth among leisure activities right after watching YouTube, listening to music and surfing the Internet. However, in boys, gaming has a similar intensity to surfing the Internet, while in girls it ranked last but one. These findings confirm the assumption that activities carried out in a virtual environment outperform those in the real world. In terms of the devices used, Android smartphones (60%) dominate, followed by computers (50%), PlayStation 4 (27%), tablets (22%), iPhones (19%), Xbox One (16%) and Xbox 360 (12%).

Other consoles such as PlayStation 3, PS Vita, PSP, Nintendo Switch, Wii and WiiU reached values below 10%. Console type is an important factor because each device offers different graphics options, speed, gameplay smoothness, but also different levels of parental control. Although smartphones are the most affordable, gaming quality is lower compared to gaming consoles. Their main advantage – and risk – is their boundless availability, as they allow the gamers to play anytime and anywhere.



Graph 1 Frequency of playing selected video games (Source: Own processing)

As regards the content of the games played, children most often mentioned Fortnite, Minecraft, PlayerUnknown's Battlegrounds (PUBG), Counter-Strike: Global Offensive (CS:GO), FIFA, Grand Theft Auto (GTA), Brawl Stars and Call of Duty. The order of frequency of playing was as follows: Minecraft, Grand Theft Auto, FIFA, Fortnite, PUBG, Call of Duty and Counter-Strike (Graph 1). Interestingly, the average frequency of playing the above games was "rarely", indicating that children tend to alternate between multiple games rather than focus on a single game for an extended period of time. A comparison by gender showed that girls play less often and prefer less demanding and less aggressive games, while boys are more likely to play action titles with elements of competition. The fact that the most popular games also include those intended for older gamers according to the PEGI classification, is worrying:

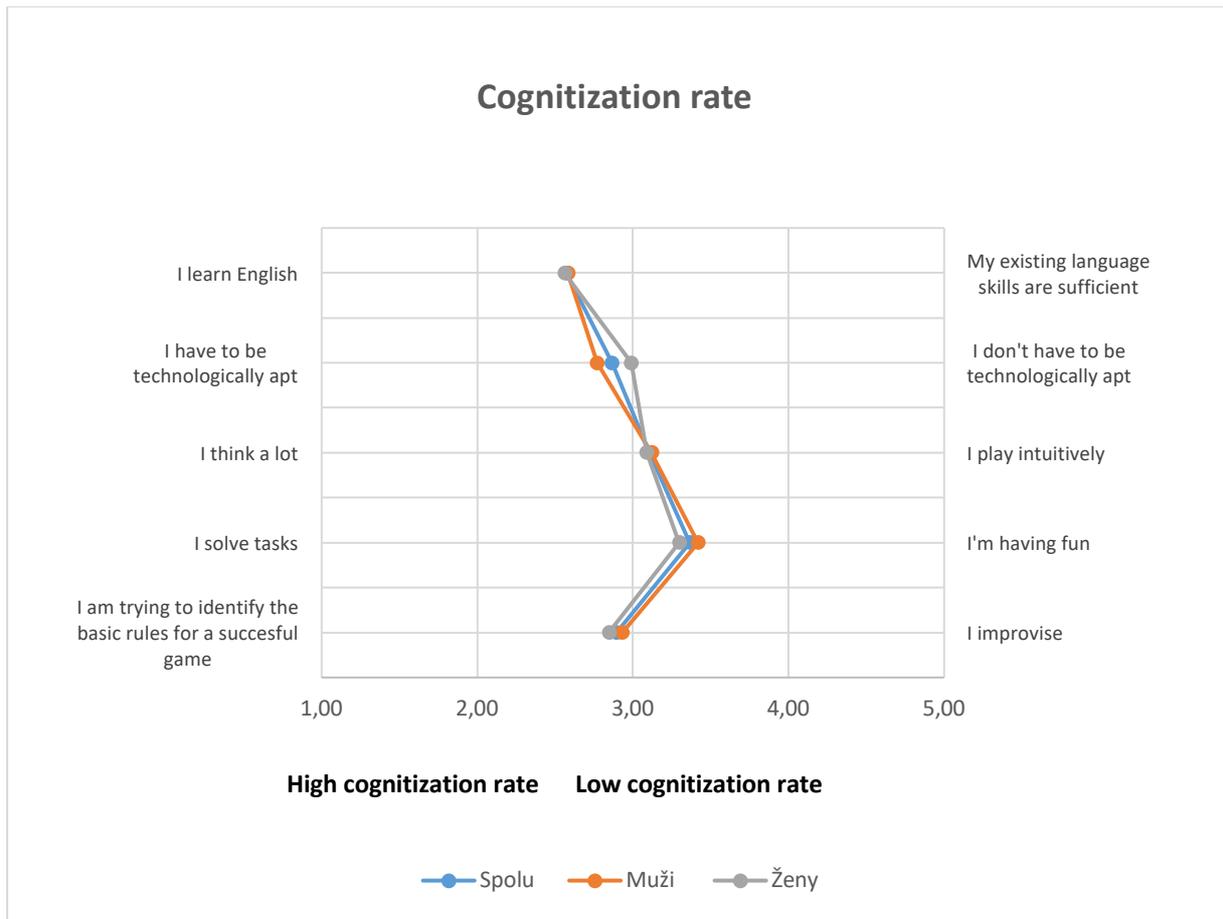
- Grand Theft Auto (GTA): 18+
- PlayerUnknown's Battlegrounds (PUBG): 16+
- Counter-Strike: Global Offensive (CS:GO): 18+
- Call of Duty (COD): 18+
- Fortnite: 12+
- Minecraft: 7+
- FIFA: 3+
- Brawl Stars: 9+

These findings confirm the need for a more rigorous adherence to age recommendations and active parental control. Many negative impacts of video games can be eliminated through parental responsibility and education about the age appropriateness of games. For this reason, we consider it important to support socially responsible marketing communication in the gaming industry and implement activities to raise the awareness within the framework of social marketing with the aim to inform both parents and children about the safe and balanced use of digital games.

2.2. Analysis of the individual categories of education according to the KEMSAK model

Cognitization

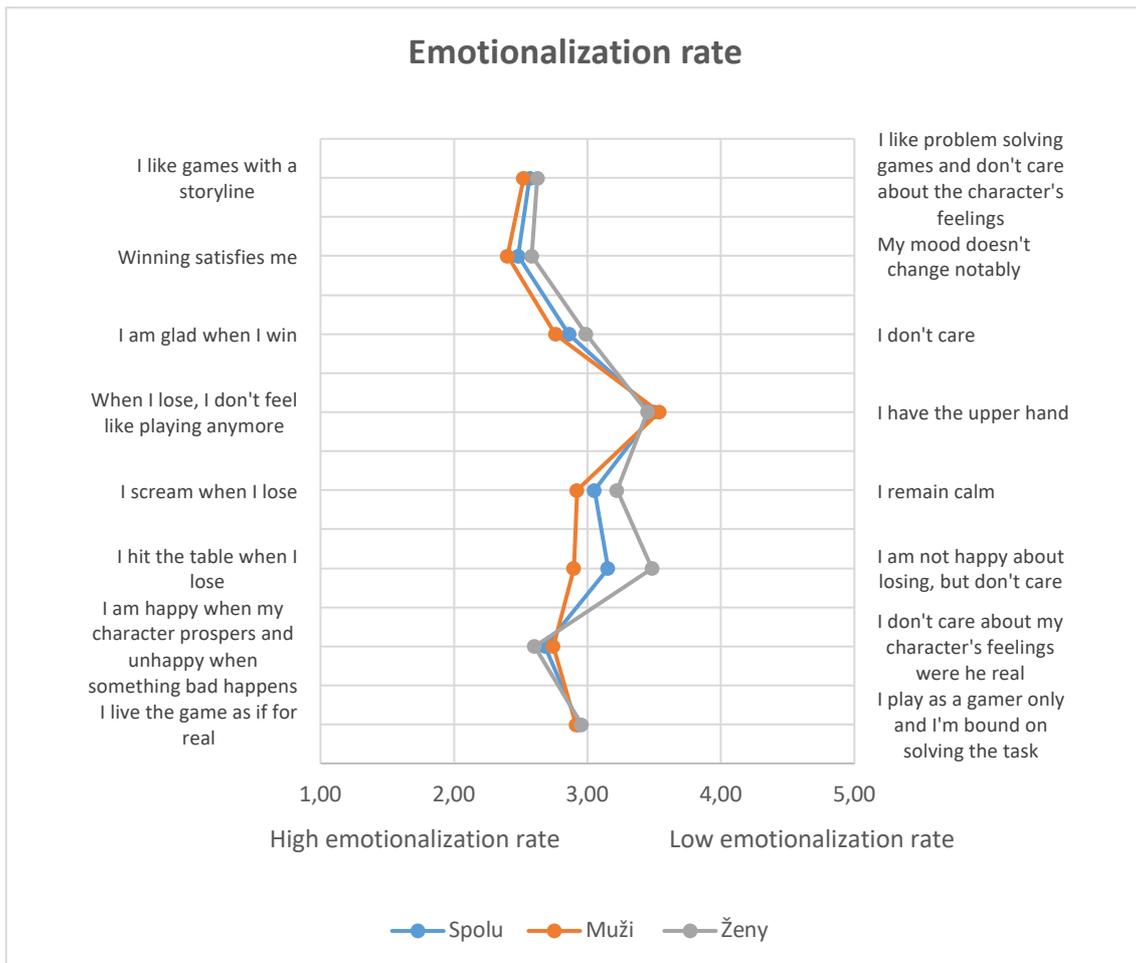
At the cognitization level, we noted an increased rate of development of language skills in English, improvement of technical skills and memorization and search for the rules for a successful game. We observed a lower rate of cognitization in comparison with intuitive games and fun. We also confirmed a higher rate of emotionalization, noting that the respondents tended to be more rational when exposed to significantly negative emotional expressions. When comparing the respondents by age (10-12 years old and 13-16 years old), we noted a statistically significant difference at a 0.05 significance level in Emotional Relationship to Hero.



Graph 2 Cognitization rate (Source: Own processing)

Emotionalization

We monitored the rate of emotionalization at the level of experiencing (Table 4), asking whether the gamers are more likely to experience the game or rather take a rational approach. The arithmetic mean was slightly biased towards experiencing even though the value is close to the middle. Regarding the type of emotion experienced during the game, we were curious to see how the gamers perceive the protagonist's experience of fate versus indifference; the value confirms a slight tendency towards emotionalization. For the level of involvement, we asked about the signs of aggression upon failure, emotional expressions upon failure, apathy upon loss, satisfaction after winning, and emotional connection to the characters in the game.

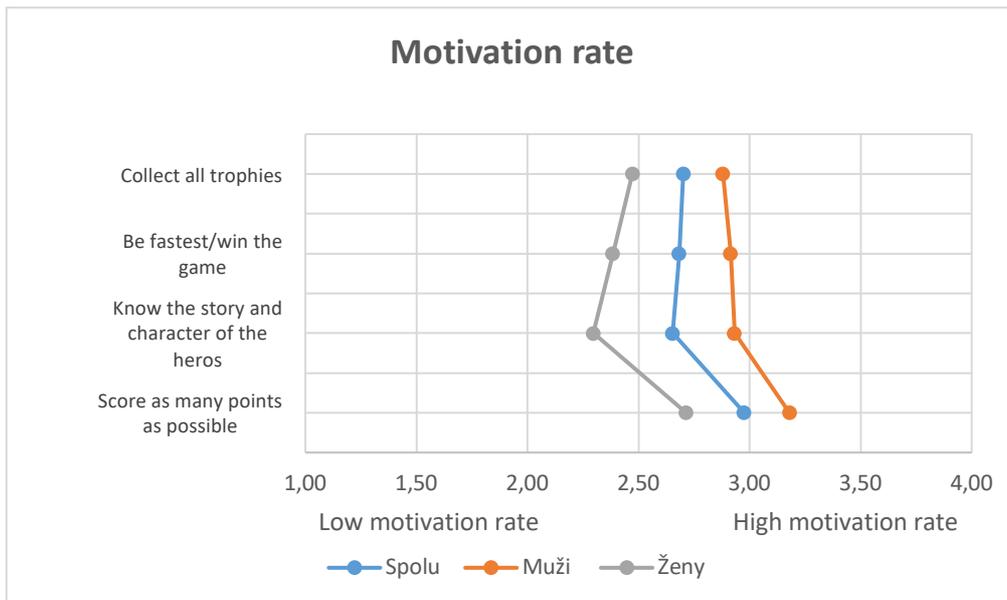


Graph 3 Emotionalization rate (Source: Own processing)

We noted a higher difference between boys and girls in the levels of emotional expressions and aggressive reactions when losing, with a statistically significant difference at the 0.05 significance level for aggressive reactions. Overall, we also confirmed a higher rate of emotionalization in this category, noting that the respondents tended to be more rational when exposed to significantly negative emotional expressions. When comparing the respondents by age (10-12 years old and 13-16 years old), we noted a statistically significant difference at a 0.05 significance level in the emotional relationship to the hero.

Motivation

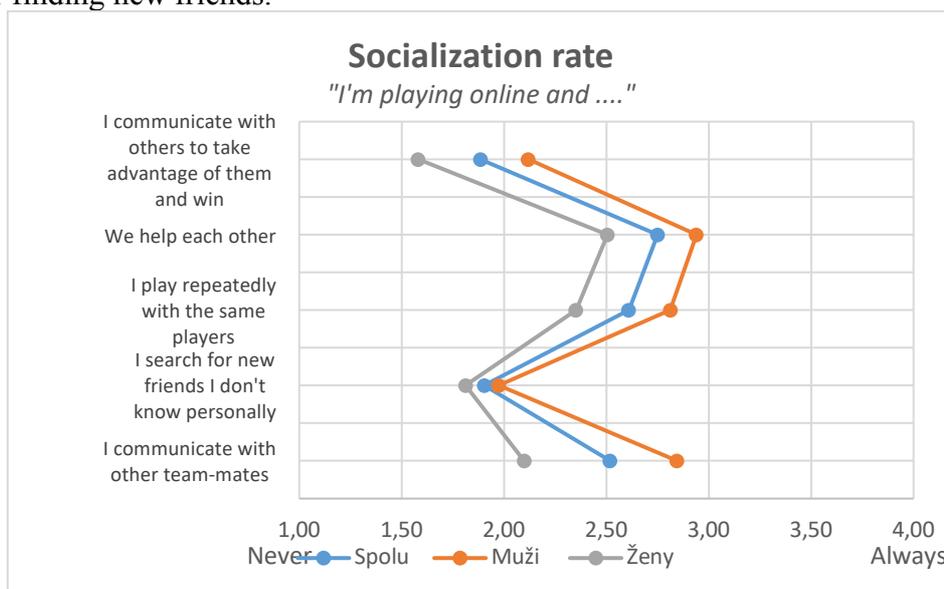
Boys are most motivated by scoring points, learning about the story and heroes, being the fastest and collecting all the trophies. We noted a slight difference among the girls where the story came last. We can conclude that while girls are more motivated by the game itself and being the best, boys are also interested in the context of the game. In terms of motivation, we noted a higher rate of motivation in all factors. Overall, girls exhibited a lower rate of motivation, and higher levels of motivation were only noted in scoring the highest possible points. We noted a statistically significant difference at a 0.05 significance level on all levels. When comparing the respondents by age (10-12 years old and 13-16 years old), we noted a statistically significant difference at a 0.05 significance level in scoring the highest score.



Graph 4 Motivation rate (Source: Own processing)

Socialization

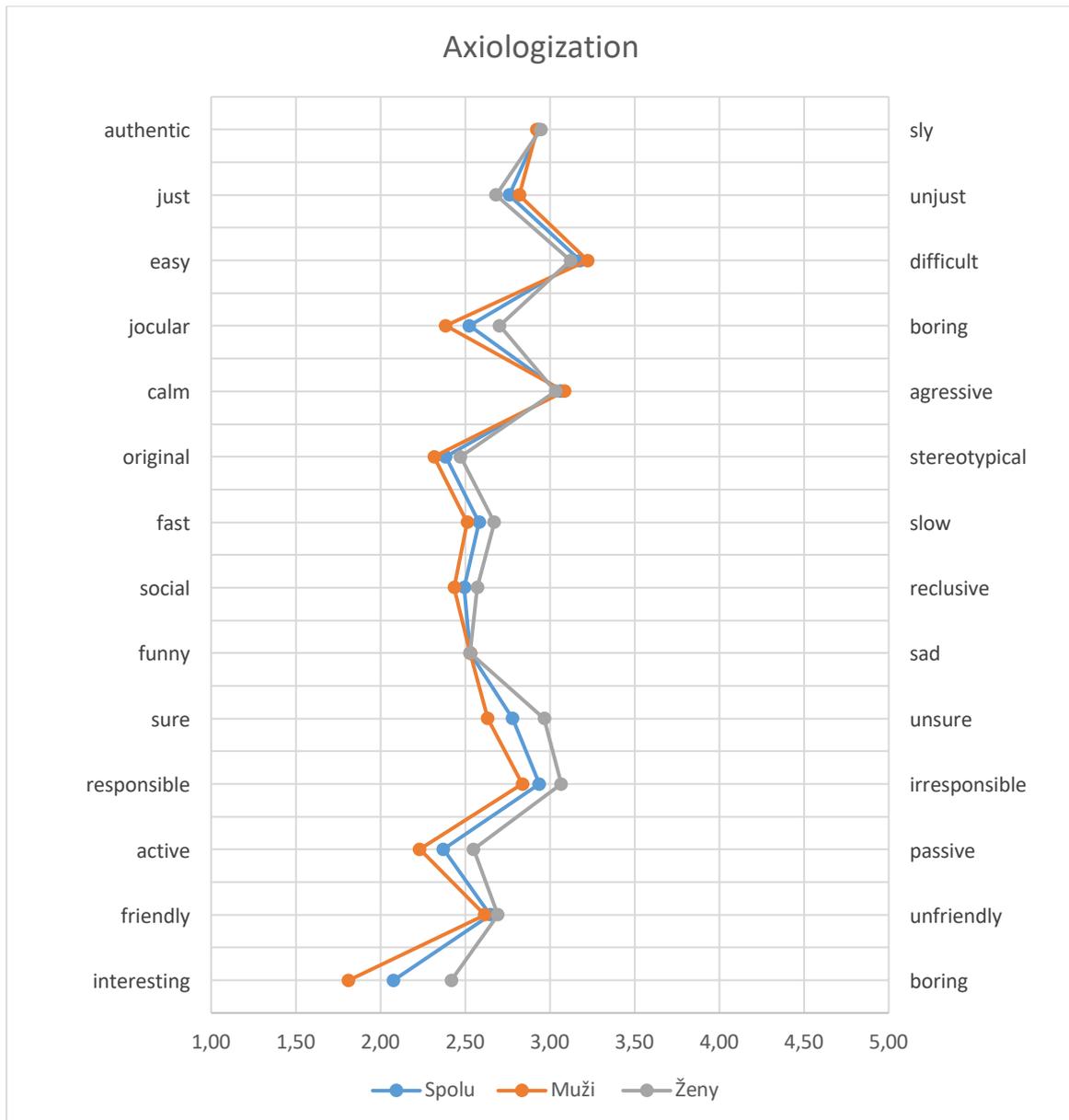
A higher rate of socialization was noted at the level of communication with teammates, repeated play with the same players and mutual in-game cooperation. Although the arithmetic mean of Abuse of Other Players for Selfish Goals was lower, we consider the result to be positive in relation to socialization. We only noted a low rate of socialization in the search for new friends. Exploiting these relationships to favor a player's own interests at the expense of others is at 1.88 (seldom). We also noted the boys' high interest in team play (2.85 – often) compared to girls (2.10 – seldom). During the game, it is also possible to search for and make new friends (teammates) who the player doesn't know personally. This item was much less attractive and the arithmetic mean was at 1.9 (seldom). Motivation through social competencies was investigated through repeated play with the same players, mutual assistance to other teammates and the use of communication with other teammates with motivation to win. We noted a statistically significant difference between boys and girls at a 0.05 significance level in all areas except for finding new friends.



Graph 5 Socialization rate (Source: Own processing)

Axiologization

The results of the analysis of axiologization rate indicate that the respondents perceive gaming as challenging, funny, original, fast, cheerful, confident, active, and interesting. The respondents showed some hesitation in the adjectives demanding – undemanding, aggressive – calm and confident – unsure. In response to the question of whether the respondent as a player considers himself/herself more of a social being rather than an uncompromising competitor, we recorded a tendency towards the adjectives fair, sociable and friendly. The respondents were undecided on honesty – deceitfulness and responsibility – irresponsibility. When comparing the results for boys and girls, we noted a statistically significant difference in interestingness – boredom, activity – passivity, certainty – uncertainty, fun – boredom.



Graph 6 Axiologization rate (Source: Own processing)

Creativization

Overall, we noted a higher rate of creativization in all items except for repeated playing with the purpose of improving in the game. After additional considerations, we consider this item to be slightly debatable in relation to fluency because although a high number of repetition evokes a high frequency and fluency, repeated playing can ultimately also be stereotypical, which is in conflict with creativity. We must conclude that the level of creativity among girls was significantly lower. Our first hypothesis was the following: The level of socialization will differ in children aged 10-12 and children aged 13-16 in the need for team play (H1A), need for the creation of new interpersonal relationships (H1B) and team cooperation (H1C). Although we noted a higher level of socialization at the individual levels, we did not notice a statistically significant difference at a 0.05 significance level at any application level when comparing the results with the T-test; we therefore rejected the hypothesis. Another hypothesis focused on comparing the responses of girls and boys, which showed significant differences in the impact of COGNITIVENESS when playing in game strategy (H2A), problem solving (H2B), type of gaming (H2C), technical skills (H2D) and development of language competences (H2E). At the same time, we also consider it important to define the limitations of our research, which primarily relate to the geographical criteria of our research sample and generalizability of the results. The research sample was selected through multi-stage random sampling, with teachers of school-age children being approached via the zborovna.sk app and through direct contacts in the Nitra and Trnava Region. Ideally, we should have included the opinions of children from all over Slovakia, which could be the subject of our further research.

4. CONCLUSION

Our research results pointed to the current trends and specificities of digital gaming among the children in senior primary grades. Gaming is significant part of their leisure activities, however, the intensity of gaming and gaming preferences differ significantly by gender. While girls spend less time playing games and prefer a less demanding or non-aggressive offering, boys exhibit longer playing times, higher levels of engagement and a preference for action games with elements of competition and aggression. In terms of the gaming devices used, Android smartphones dominate: they are affordable but also represent a risk of excessive gaming, as they are not tied to a specific space or time. This underlines the need for effective parental control and education of parents in the field of digital literacy and online child safety. From a cognitive perspective, the positive effects of gaming on the development of language competences, technical skills and problem-solving abilities were confirmed, and these aspects were observed more intensely in boys. On an emotional and motivational level, it has been shown that children approach gaming not only as entertainment, but also as a means of self-realization and competition. The results of socialization indicators suggest that gaming can contribute to the development of team cooperation and communication, but only within the existing relationships; the tendency to establish new friendships through gaming remains low. The analysis of axiological and creative aspects of gaming showed that children perceive digital games predominantly positively – as interesting, dynamic and inspiring. However, creativity was expressed to a lesser degree in girls, which may be related to lower gaming frequency and a preference for less complex gaming scenarios. No significant differences in the level of socialization between the younger and older age groups were confirmed in relation to the research hypotheses, however, statistically significant differences between the sexes were found in several cognitive, motivational and axiological dimensions. Overall, it can be concluded that digital games represent not only a form of entertainment for children, but they also provide a space for the development of multiple competencies – cognitive, social and creative.

However, they also carry risks associated with excessive gaming and exposure to inappropriate content. Therefore, it is essential to continue educating the children, parents and teachers about responsible approaches to gaming and support the socially responsible communication of the gaming industry.

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LITERATURE:

1. Anderson, C. A. et al. (2010). *Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries*. *Psychological Bulletin*, 136(2), 151–173.
2. Carroll, A. B. and Shabana, K. M. (2010). *The business case for corporate social responsibility*. *International Journal of Management Reviews*, 12(1), 85–105.
3. Gee, J. P. (2003). *What Video Games Have to Teach Us About Learning and Literacy*. New York: Palgrave Macmillan.
4. Granic, I., Lobel, A. and Engels, R. C. (2014). *The benefits of playing video games*. *American Psychologist*, 69(1), 66–78.
5. Kotler, P. and Lee, N. (2005). *Corporate Social Responsibility: Doing the Most Good for Your Company and Your Cause*. Hoboken, NJ: Wiley.
6. Kuss, D. J. and Griffiths, M. D. (2012). *Internet gaming addiction: A systematic review of empirical research*. *International Journal of Mental Health and Addiction*, 10(2), 278–296.
7. Matten, D. and Moon, J. (2008). *'Implicit' and 'explicit' CSR: A conceptual framework for a comparative understanding of corporate social responsibility*. *Academy of Management Review*, 33(2), 404–424.
8. Prensky, M. (2010). *Teaching Digital Natives: Partnering for Real Learning*. Thousand Oaks, CA: Corwin Press.

GREENLAND AS A POTENTIAL ELEMENT OF A NEW GEOPOLITICAL ORDER

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ABSTRACT

Dynamic changes taking place on a geopolitical scale in the modern world are driven by several fundamental factors. Among the most crucial of those are: the struggle between major powers for global leadership, an intensifying arms race, numerous military conflicts erupting across various regions of the world, countries striving to secure access to the raw materials they need—particularly rare earth elements—and the formation of new pacts and alliances within the international system. In this context, regions of the planet that have historically been sparsely exploited and largely underestimated are gaining in significance. The obstacles to their development have often included: peripheral location, harsh natural conditions, a shortage of labor and skilled personnel, limited industrialization, and finally, a lack of sufficient capital resources. However, the rapid and active technical and technological progress in our times, noticeable changes in climate, investment capacities, new norms and trends in behavior in international relations, as well as activity in the realm of geopolitical diplomacy, have transformed this existing reality. The statements and remarks made by the current 47th president of the United States regarding acquiring or even annexing Greenland have disrupted the preexisting order of things. Overnight this remote island long buried under eternal ice, until recently remaining on the sidelines of global events, became the center of attention and the focus for the mainstream media and the wider public. The main points of interest were neither the cultural uniqueness nor the natural beauty of this distant region. The issue that caught the attention of observers became Greenland's near future. This study will attempt to analyze the current situation, as well as the potential scenarios of events that may follow, and will address the issue of their likely implications and consequences for the existing geopolitical order of the world.

Keywords: *analysis, geopolitics, Greenland, United States of America, order, structure.*

1. INTRODUCTION

Greenland is the largest island in the world. Geographically, it is part of North America. Its closest neighbor is Canada, located to the west of Greenland's shore. With an immense area of 2,166,086 square kilometers, it is larger than the islands of New Guinea, Madagascar, Sumatra, Ireland, and Great Britain combined (Britannica, 2025). However, it is over three and a half times smaller than Australia, the smallest of the seven continents (Turner K., 2008). Considering these facts, it could be said that Greenland is both too large for an Island and too small to be considered a separate continent. Due to the severe climate, only the coastal areas are habitable. The remainder of the island, which accounts for over 84% of its area, is covered by an ice sheet and perennial snow.

2. NATURAL ENVIRONMENT

The natural environment of Greenland does not provide favorable conditions for human habitation or the sustenance of local fauna and flora. Both the human population and the diversity and abundance of life on the island are sparse and limited. In fact, the character of this land is better described as a “land of ice and snow” rather than a “green land.” Regardless, the island has been continuously inhabited by humans for at least 4,500 years. Its history includes several distinct chapters of the original prehistoric colonization by the Inuit, a group of indigenous peoples of the Arctic and sub-Arctic regions. It has also witnessed at least two waves of European settlement.

2.1. Climate Conditions

Greenland lies within two polar climate zones, both characterized by low temperatures and low precipitation. Conditions favorable to human life and to the presence of flora and fauna occur mainly along the coasts, which experience a subpolar climate. This climate is marked by frigid winters that persist through most of the year and by short, cool summers. The most favorable conditions occur in the southwestern part of the island, where the average temperature is approximately -7°C in January and around $+10^{\circ}\text{C}$ in July, the warmest month. Moving along the coasts toward the pole, one encounters an increasingly harsh natural environment. On average, the winter temperature at the northern ends of the island remains around -36°C , while during the brief summer it reaches only $+3^{\circ}\text{C}$. The central part of the island is subject to the harshest climate — polar. In this area, the environmental conditions are the most extreme. The average winter temperature reaches -47°C there, while in July, the warmest month, it never rises above -12°C .

The milder climate in Greenland is largely influenced by the warm North Atlantic Current, which flows along the coasts and is a branch and extension of the Gulf Stream. On the other hand, the polar climate in the center of the island is primarily determined by the ice sheet that covers most of the area, with an average thickness of about 2 km (Sandler M. W., 2008). Global warming, which has been observed in the past decades, has a dramatic effect on Greenland's climate. Due to the rise in average temperatures in recent years, at the southern part of the island, an extension of the frost-free period has been recorded. This has led farmers from the fewer than 50 existing farms to attempt successful barley cultivation and increase the intensity of sheep and cattle farming. (Folger T., 2019). In Greenland's warmest areas — in the east around Nuuk Fjord and in the far south, near the town of Narsarsuaq in the Kujalleq Municipality — on several dozen hectares of land, it has been possible to restore dense tree vegetation, creating small forested areas (Greenland Trees, 2025). The described actions are supported by funds from domestic sources and are financed with the participation of international organizations with an ecological focus.

2.2. Natural Resources

Looking at a map of North America from the turn of the 20th and 21st centuries, showing the continent's natural resources, paying attention to Greenland would reveal something peculiar. Geologists and cartographers did not mark any deposits of raw materials or mineral resources on the world's largest island. Indeed, according to the knowledge of the time, Greenland was viewed as a vast, ice-covered area, completely devoid of any known or extractable natural resources. No human activity related to the extraction of resources from beneath the earth took place there. Several factors contributed to this.

Among the most significant were: extremely difficult terrain, exceptionally low temperatures, a lack of appropriate technical equipment, the absence of specialized personnel and sufficient labor force, a shortage of investment capital, a lack of geological surveys, limited interest from both the local authorities in Nuuk and the central government in Copenhagen, Greenland's remote geographical location, the nonexistence of transportation infrastructure, and, finally, the potentially enormous scale of the necessary expenditures and concerns over the high costs of any construction or extraction projects. However, as early as the end of the first decade of this century, the situation changed drastically. Technical capabilities for the extraction and exploitation of raw materials had emerged — even under the extremely adverse Arctic conditions. Foreign financial capital, as well as specialists and the necessary labor force, also began to appear.

Today, it is already known that the island itself—just like the entire Arctic region within the broad zone surrounding the North Pole—contains vast deposits of natural resources. Among the key documented reserves are natural gas and crude oil, as well as diamonds, gold, uranium, and iron, lead, and zinc ores (Plewa E., 2021). Among the so-called “*critical raw materials*”, large deposits of titanium and phosphorus can be found here, as well as “*notable quantities*” of niobium, tantalum, vanadium, graphite, and platinum-group metals (Nowak K., 2025). However, the most valuable in the context of growing global demand are the rare earth elements.

They are an indispensable component of high-technology products. Their applications include industries such as electronics, automotive, aerospace, and space technology. Rare earth elements are also essential for renewable energy, optics, the production of specialty ceramics, the creation of ultra-strong metal alloys, as well as the manufacture of tools and medical equipment.

The production of technologically advanced products, such as mobile phones, wind turbines, batteries for electric vehicles, and various electronic devices, is today impossible without their use. In addition, they play a crucial role in the development of artificial intelligence (AI) and the latest generation of so-called “quantum computers” with immense computational power. As of now, no natural or man-made substitutes exist for rare earth elements. In this context, rare earth elements are regarded by the world's leading powers and most important countries as “strategic resources.” Ensuring access to them often serves as a key factor in both national and international policy. It should also be noted that, in research and the relevant literature, two terms are commonly used: “rare earth metals” and “rare earth elements.” Both concepts essentially refer to the same thing. The term “rare earth metals” is used more frequently and has a more colloquial character. In contrast, “rare earth elements” is more precise from a chemical perspective and is less commonly used by specialists.

Concerning the main topic, the “rare earth metals” consist of a total of 17 elements: two from the group of transition elements, namely scandium and yttrium, and fifteen from the lanthanide group. Both of the aforementioned groups are usually found together in common deposits. Their extraction and subsequent separation is technologically complex and results in relatively high costs. All 17 rare earth elements, divided by group, are shown in Table 1 below.

No.	GROUP IN THE PERIODIC TABLE OF ELEMENTS	NAME OF THE ELEMENT	CHEMICAL SYMBOL
1.	<i>Transitions elements</i> (No.: 1. – 2.)	<i>Scandium</i>	<i>Sc</i>
2.		<i>Yttrium</i>	<i>Y</i>
3.	<i>Lanthanides</i> (No.: 3. -17.)	<i>Lathanum</i>	<i>La</i>
4.		<i>Cerium</i>	<i>Ce</i>
5.		<i>Praseodymium</i>	<i>Pr</i>
6.		<i>Neodymium</i>	<i>Nd</i>
7.		<i>Promethium</i>	<i>Pm</i>
8.		<i>Samarium</i>	<i>Sm</i>
9.		<i>Europium</i>	<i>Eu</i>
10.		<i>Gadolinium</i>	<i>Gd</i>
11.		<i>Terbium</i>	<i>Tb</i>
12.		<i>Dysprosium</i>	<i>Dy</i>
13.		<i>Holmium</i>	<i>Ho</i>
14.		<i>Erbium</i>	<i>Er</i>
15.		<i>Thulium</i>	<i>Tm</i>
16.		<i>Ytterbium</i>	<i>Yb</i>
17.		<i>Lutetium</i>	<i>Lu</i>

Table 1: Rare Earth Elements (REE)

Source: American Chemical Society, 2025

from: https://www.acs.org/content/dam/acsorg/education/whatischemistry/periodic-table-of-elements/acs-periodic-table-poster_download.pdf

It is certain that in the near future, global demand for all natural resources—especially rare earth metals—will continue to grow steadily and dynamically. It is also important to remember that the Arctic region, and Greenland in particular, remain insufficiently explored, and that actual resource deposits may be considerably larger than current estimates suggest. According to available data (USGS, 2024), the largest known reserves of rare earth metals are located in the following ten countries (Statista, 2024), as shown in Table 2 below.

No.	COUNTRY	In millions tonnes of REE*	% of world reserves
1.	China	44,0	38,40
2.	Vietnam	22,0	19,20
3.	Brazil	21,0	18,33
4.	Russia	10,0	8,73
5.	India	6,9	6,03
6.	Australia	5,7	5,00
7.	Unied States	1,8	1,58
8.	Greenland	1,5	1,31
9.	Tanzania	0,9	0,72
10.	Canada	0,8	0,70
11.	Total	114,6	100,00

*REE = Rare Earth Elements

Table 2: Top 10 countries with the greatest known reserves of REE in 2023

Source: United States Geological Survey (usgs.gov)

from: <https://www.statista.com/topic/1744/rare-earth-elements/#topicOverview>

The data in Table 2 refer to those resources that can currently be extracted, taking into account mining conditions, existing technological capabilities, and the financial means required for such operations. On the list of the ten areas with the largest known reserves of rare earth metals, the world's largest island appears in eighth place, with 1.5 million tons of these resources. The United States ranks ahead of Greenland, with 1.8 million tons. China holds first place, surpassing Vietnam, which comes second on the list. It should be noted, however, that according to some forecasts, deposits of rare earth elements beneath Greenland's ice sheet may rival, in their richness, those identified in Siberia, Russia. If that is the case, this would amount to approximately 10 million tons of rare earth metals. Returning to China, the country not only possesses the largest documented reserves of rare earth metals in the world, but is also the absolute leader in their extraction. China is responsible for mining approximately 70% of all such resources. Another matter is production, understood as the complex process of extracting and processing these materials. In this field, China also takes the lead, with an annual production of 270,000 tons, while the United States ranks second, producing 45,000 tons per year. Beijing is responsible for 90 percent of global supply chains and controls between 90 and 95 percent of the world's rare earth **elements** processing capacity. The processing of rare earth elements is technologically complex, relatively costly, and environmentally harmful. For this reason, the United States, the European Union, and most other interested states avoid carrying out this activity on their own territory (onet.pl, 2025). The aforementioned conditions have contributed to China's domination in this field, giving it a position approaching a global monopoly.

3. POPULATION

It is currently estimated that there are 195 sovereign states in the world. Depending on their legal and administrative status, there are also considered to be between 70 and 90 dependent territories. This gives a total of 165 to 185 countries and territories. Greenland, as an autonomous dependent territory of the Kingdom of Denmark, with a population of 55,754, ranks 207th in the world in terms of population size. The population density is 0.03 persons per square kilometer (Worldometer, 2025). Most of the island's inhabitants live along its southwestern coast, where the climate is most favorable for human habitation. The indigenous inhabitants of the island, the Inuit (Kalaallit), comprise 89% of the total population. People of European descent are mainly Danes, who make up 11% of the population. Two official languages are in use: the first is Greenlandic, and the second is Danish. The Greenlandic language is polysynthetic and belongs to the Eskimo-Aleutic language family. This means it differs significantly from any European language. West Greenlandic is the official language, but distinct dialects are also spoken in the eastern and northern parts of the island. Danish is spoken as the first or only language by about 12% of the population. In official context both languages can be used (Naalakkersuisut, 2025). Genetic studies show that approximately 25% of the island's current population has European ancestry. This high proportion is the result of mixed unions, in which men from the Old Continent married local women of Inuit descent. European genes on the island mainly date from the last three centuries. There is no trace of older genes of Norman origin. Just over 90% of the population lives in 18 towns. The remainder of the population mostly lives in small villages, typically ranging from 50 to a maximum of 500 inhabitants. The largest concentration of Europeans is in the capital, Nuuk, where they make up nearly 40% of the population. In the other towns, the number of Europeans does not exceed 20%. The vast majority of the population in these settlements is of purely Inuit descent (Naalakkersuisut, 2025). Since 2023, Greenland's population has been slowly declining. Structurally, however, the greatest decrease each year is among people of European descent. The reason for this is the migration of young people from this group to Denmark, primarily driven by economic factors such as the search for better living conditions and the hope of finding well-paid employment.

4. POLITICAL SYSTEM

As a result of the Kalmar Union of 1397 between Denmark, Sweden, and Norway, a new great power emerged in Europe. The three kingdoms, united by a personal union, were ruled by a single monarch who resided in Copenhagen. After Sweden left the union in 1523, only a bilateral personal union remained. In 1534, a real union was formed between Denmark and Norway. As a result, the Kingdom of Denmark and Norway claimed sovereignty over all dependent territories that had once belonged to the states bound by the agreement signed at Kalmar Castle. Thus, the lands of Greenland, alongside Iceland, the Faroe Islands, the Shetlands, and the Orkneys, came under the authority of Copenhagen (Brunet-Jailly E., 2005). Starting in the 1720s, Denmark pursued a colonial policy toward its overseas possession. After Norway gained independence in 1905, the country claimed Greenland as its territory based on historical grounds dating back to the 10th century. The resulting dispute with Denmark lasted for many years. It was not until 1933 that the authorities in Oslo accepted the ruling of the Permanent Court of International Justice in The Hague in favor of their adversary (Jacobs F., 2015). After World War II, the authorities in Copenhagen changed their approach to the distant possession. Decisions were made to modernize the island and establish a social support system modeled on that of the metropole. At the same time, Inuit national consciousness became more pronounced. In 1953, the Danish Parliament passed a progressive constitution, under which Greenland became an integral part of this Scandinavian country. As a result of these measures, all inhabitants of the island acquired Danish citizenship. They also abolished Greenland's colonial status. In 1973, Greenland, as a constituent part of the Kingdom of Denmark, was automatically incorporated into the structures of the European Economic Community, the precursor of today's European Union. For political and procedural reasons related to joining this organization, the Danish government sought to obtain a special status for the island. In 1979, a referendum was held in Greenland, in which 63% of the population voted in favor of self-government. As a result, the island obtained limited autonomy. From that point on, Greenland was able to conduct an independent policy in areas such as employment, healthcare, science and education, and industrial development. Foreign policy and defense issues remained under Copenhagen's control. The Danish monarch continued to serve as the head of the entire state. The Greenland Home Rule Act, which granted Greenland new privileges (Sagan S., 2014), also provided for the possibility of leaving the EEC (Haastruo T., 2020). After 12 years in 1985, Greenland left the European Economic Community (EEC), as it did not agree with the EEC's commercial fishing regulations and an EEC ban on sealskin products (Stern P., 2004). Under the new circumstances, it became an overseas territory associated with the EEC, while retaining preferential access to the Common Market (Haastrup T., 2020). Over time, the activity of the indigenous population in advocating for the island's full independence became increasingly significant and visible. In May 2008, the Danish Parliament passed the Greenland Self-Government Act. It came into effect the following year in June, after 75% of Greenlanders supported it in a referendum (Naalakkersuisut, 2025). On 21 June 2009, Greenland gained self-rule with provisions for assuming responsibility for self-government of policing matters, education, taxes, public finances and natural resources. Also, Greenlanders were recognized as a separate people under international law. Denmark maintains control of the territory's foreign affairs, judicial affairs, constitution, monetary policy and defence. Copenhagen upholds an annual block grant of 3.2 billion Danish kroner. As Greenland begins to collect revenues from its natural resources, this grant will gradually be diminished; this is generally considered to be a step toward the territory's eventual full independence from Denmark (The Daily Tlrgraph, 2009). The first Greenlandic parliament (Dan. Landsting) and its own government (Dan. Landstyre) were established. The Self-Government Act also provides Greenland with the option of declaring full independence.

For this to occur, however, a referendum would have to be held on the island and the Danish Parliament would have to give its approval. In 2012, Greenlandic was declared the sole official language of Greenland. The Danish monarch continues to serve as the head of state in the territory.

4.1. The Authorities of Greenland

Due to its unique legal status within the Kingdom of Denmark, Greenland has a rather distinctive power structure. The solutions adopted on the island are the result of efforts to find a compromise between the ambitions of the island's Indigenous inhabitants and the interests of the metropole, whose capital is Copenhagen. Nevertheless, the entire system is essentially based on the classic tripartite division of powers into the legislative, executive, and judicial branches.

4.1.1 Legislative power

Legislative power is shared between the government and the legislature. The legislature consists of 31 members elected by direct popular vote for four-year terms through proportional representation. Greenland also has two representatives (2 seats) in the Danish Parliament (Statsministeriet, 2025).

4.1.2. Executive powers

- **The King.** The head of state, who performs primarily representative and ceremonial functions, is the reigning monarch of the Kingdom of Denmark, who simultaneously serves in that role in Greenland. The king does not exercise independent power. Any legislation of the Danish Parliament that he signs must be countersigned by the relevant minister. The king officially appoints members of the Danish government and appoints the High Commissioner of Greenland (Governor).
- **The Prime Minister of Greenland** also known as the premier. Is the head of government of Greenland. The prime minister is usually the person who leads the majority party in the Parliament. There are 10 ministers in Greenland's current cabinet. This number includes the Prime Minister. The Premier is elected indirectly by parliament elections results for four-year terms (Statsministeriet, 2025).
- **The High Commissioner of Greenland (Governor)** is the chief representative of the King of Denmark and Government of the Kingdom of Denmark in Greenland. Supported by his office is responsible for good relations and communication between Territorial Self Rule Government of Greenland and the Kingdom Government in Copenhagen. The High Commissioner falls under the Office of the Prime Minister of Denmark (Statsministeriet, 2025).

4.1.3. Judicial branch

Greenland's judicial branch is generally based on Danish civil law system. It operates independently of the legislature and the executive powers. It consists of two courts of first instance: the District Courts and the Court of Greenland depending on the type of case. As the second instance is proceeds the High Court of Greenland. It should be noted that all three branches of government in Greenland are dominated by Europeans. Primarily due to higher levels of education, Danes occupy the majority of responsible positions in the government and the judiciary at all levels.

5. GREENLAND AS A FACTOR IN GEOPOLITICAL CHANGE

Ongoing climate change associated with global warming has created new opportunities for the development of Arctic and subarctic regions and opened the possibility for their extensive use.

In terms of resource extraction, this primarily concerns resources for which demand is constant or steadily increasing. At the forefront are natural resources such as crude oil, natural gas, and—more recently in particular—rare earth metals. New alliances and political arrangements, as well as ambitions for dominance in a changing world, have directed the attention of state leaders toward areas that were previously overlooked or difficult to access. Because of its strategic geographic location and abundance of resources, Greenland has gained enormous significance. According to current forecasts, in the near future the largest island in the world may become a potential factor shaping a new geopolitical order. Several countries are looking to involve Greenland in advancing their own strategic interests. The most important of these are the United States, China, Russia, and Canada. The Kingdom of Denmark, where Greenland holds the status of an autonomous overseas territory, should also not be forgotten.

6. THE UNITED STATES

International public attention was drawn to the world's largest island following several statements made by the current 47th President of the United States. Donald Trump, even before assuming the highest office in the country, announced that he would demand that Denmark sell its overseas possession, which he considered crucial from the perspective of the United States. "We need Greenland for national and international security," declared the head of the U.S. administration. He also added that he was uncertain "whether Denmark has a right to it." Donald Trump already attempted to purchase Greenland during his first term, but his efforts at that time were ultimately fruitless (Onet.pl, 2025). This time, however, the President of the world's leading power went much further in his statements. "We'll get Greenland. Yeah. One hundred percent!" he declared in an interview with NBC News. Trump also suggested that he does not rule out any option when it comes to taking control of the island. "I never rule out the use of military force. But I think there is a good chance that we can achieve it without it," he said (King J., 2025). Considering that the United States acquired a large part of its current territory through purchase, the ideas of the current president are not without precedent. Among the most notable worth mentioning here are (Cipiur J., 2019):

- **The purchase of Louisiana from France.** Initially, Americans were interested only in acquiring the port of New Orleans. However, fearing that Louisiana might be seized by the British, the French preferred to sell the entire territory to the United States rather than just the city at the mouth of the Mississippi. The transaction was completed in 1803 for 15 million dollars. Today, on the vast territory (2.14 million km²) of the former French colony, which stretched from the Gulf of Mexico to Canada, there are 15 U.S. states. This corresponds to a price of 1 million dollars per state.
- **Florida was acquired from Spain in 1819 for 5 million dollars.** In reality, Americans did not pay Madrid a single cent. The transaction took the form of an exchange of obligations: the U.S. government settled claims of its own citizens residing in Florida against the Spanish crown.
- **The so-called "Gadsden Purchase."** The acquisition from Mexico in 1853 for 10 million dollars involved a strip of land in the southwestern United States, now part of the states of Arizona, New Mexico, and Texas. The main purpose was the construction of a railroad line. The area acquired was approximately 77,000 km², roughly equivalent to the size of the present-day Czech Republic.
- **The purchase of Alaska from the Russian Empire for 7.2 million dollars.** Alaska is the largest U.S. state. The transaction took place in 1867. The area acquired was 1.52 million km². The main reason was Russia's weakened position following its defeat in the Crimean War (1853–1856) and concerns that the territory might be lost to the British. The offer to sell came from the Russians. According to some accounts, the cash-strapped Russian Empire also considered selling Kamchatka, but this did not attract interest in Washington.

- **A successful purchase in 1917 — the Danish West Indies for 25 million dollars in gold.** They were subsequently renamed the United States Virgin Islands. Located in the Caribbean and part of the Lesser Antilles, the islands remain a dependent territory of the United States to this day. They also provide the clearest example that such a transaction is entirely feasible. This successful purchase can serve as a classic precedent for the potential acquisition of Greenland. It should also be noted that negotiations regarding the purchase of the Danish West Indies were initiated by U.S. diplomacy in 1867, a full half-century earlier.

A far less honorable chapter in the history of the United States is the acquisition of foreign territories through the use of military force. Examples include overseas possessions that were occupied for many years or even fully annexed, such as Puerto Rico, Cuba, the Philippines, Hawaii, Guam, and Navassa Island. A similar situation occurred on the American continent itself. As a result of the Mexican-American War (1846–1848), the territories of today's states of Arizona, California, Nevada, New Mexico, Utah, and parts of Colorado and Wyoming were seized and subsequently incorporated into the United States. This situation has been formally described by historians as a cession in which the United States paid Mexico 15 million dollars and assumed its debts. However, in reality, the transaction was a direct result of the U.S. military's use of force against its southern neighbor. Similarly, the territories of present-day Texas and Western Florida were occupied as a result of existing or provoked interstate conflicts. In these cases, the United States applied military force, taking advantage of its superiority on the battlefield.

6.1. U.S. Attempts to Acquire Greenland

The purchase of Alaska from Russia, as history has shown, was a major success for the authorities in Washington. The discovery of rich natural resources and the radical strengthening of the United States' strategic military position in the Arctic region testify to the profitability of this transaction. Based on the example of Alaska, the idea of acquiring Greenland has resurfaced. As it turns out, the concept of the U.S. obtaining the world's largest island for its own purposes has existed for well over a century and a half. Below are listed the most important U.S. initiatives in this regard over time (Zdziebłowski S.,2025):

- **1867** – Shortly after the successful purchase of Alaska, Secretary of State William H. Seward, who had been responsible for negotiating the transaction with Russia, suggested to the authorities in Washington that the United States should purchase Greenland. In a report he prepared and presented in 1868, he outlined the advantages of such a move. He drew attention to the island's wealth of natural resources, the abundance of its fisheries, and its strategic location. He also expressed the belief that Canada, surrounded on three sides by U.S. territory, might eventually choose to join the United States. However, Seward's idea found no support either in Congress or among the public. Purchasing another stretch of icy wasteland was considered yet another example of "Seward's Folly," similar to the reaction that greeted the acquisition of Alaska. The potential price of the transaction was set at 5.5 million dollars in gold. Nevertheless, in the face of firm Republican opposition in Congress, the project collapsed. It should be added that in addition to purchasing Greenland for the stated amount, the United States was also to acquire Iceland, which at that time remained under the rule of Copenhagen. As a result, no official proposal was ever submitted to the Kingdom of Denmark.

- **1891-1892** – The Arctic expedition of American Robert Peary, which demonstrated that Greenland is an island and that its northern regions are completely uninhabited with no Danish settlement, served as the basis for the United States government to assert territorial claims over these newly discovered, uninhabited areas. Denmark ignored these claims.
- **1910** – During the presidency of William Howard Taft, Ambassador Maurice F. Egan submitted to the authorities in Copenhagen an official proposal from the United States concerning the acquisition of Greenland and the Danish West Indies. In exchange, the U.S. government was prepared to transfer to Copenhagen the Philippine islands it controlled: Mindanao and Palawan. The royal government was strongly interested in the transaction, considering it advantageous for the country. In its long-term plans, it intended to transfer these islands to the German Empire in return for the Duchy of Northern Schleswig. In 1917, Ambassador Maurice Francis Egan, through his long-standing efforts, made it possible for the United States to purchase the Danish West Indies, which were subsequently renamed the United States Virgin Islands (Peck C., 2025). The takeover of the islands was preceded by the delivery of a diplomatic note by Secretary of State Robert Lansing, in which the U.S. government recognized Danish sovereignty over Greenland.
- **1924** – After the end of the First World War, General William Lendrum Mitchell, regarded as the father of the United States Air Force, expressed the conviction that it was necessary to acquire Greenland and Iceland in order to establish American air bases there.
- **1940** – On 9 April of that year, German forces entered Danish territory, encountering virtually no resistance. The country capitulated almost the same day, after less than two hours. The reigning monarch, Christian X, remained on the throne and, together with the government, decided to cooperate with the occupiers. The Danish collaborationist government, aligned with the Third Reich, did not consent to the installation of American military bases in Greenland, citing a desire to maintain neutrality.
- **1941** – On 7 June of that year, Henrik Kauffmann, the Danish ambassador to the United States, acting entirely on his own and against the interests of the Kingdom, signed in Washington a treaty permitting American forces to enter Greenland. The Danish government challenged the agreement, and Kauffmann was accused of treason. The Americans established a presence on the island, constructing bases, military installations, and airfields, and deploying numerous military units. This enabled American aircraft to make stopovers en route to Great Britain. An “air umbrella” was also established over the North Atlantic, crippling German operations in the region.
- **1945** – In May, the Second World War came to an end. After the country’s liberation, the Danish authorities expected American military forces to leave the island. However, this did not happen. In the face of a deteriorating international situation, which soon took the form of the Cold War, the authorities in Washington were unwilling to relinquish control over such a strategically important region.
- **1946** – In the face of ongoing protests from Copenhagen, the time had come to finally resolve the issue of the island occupied by American forces. The sitting 33rd President of the United States, Harry S. Truman, made a formal offer to Denmark to purchase Greenland. The proposed transaction amounted to 100 million U.S. dollars of the time and was to be paid in gold. The United States’ offer was rejected by the Danish parliament.

- **1951** – It was not until this year that the two countries signed a new treaty regarding the defense of Greenland, which regulated the presence of American forces on the island. The United States was granted permission to establish three military bases. To the present day, only one such facility has been maintained: the airbase at Thule, now more commonly known as the Pituffik Space Base.
- **1982** – A proposal from the 1970s by U.S. Vice President Nelson Rockefeller concerning Greenland was made public. It involved the purchase of the island for the purpose of **harnessing its natural resources**.
- **2019** – During his first term, President Donald Trump publicly expressed U.S. interest in purchasing Greenland. The idea was regarded by the Danes as “absurd.” The proposal was rejected by the government of the Kingdom of Denmark, as well as by the island’s autonomous authorities.
- **2024–2025** – The issue of Greenland resurfaced during Donald Trump’s second term. At the end of 2024 and the beginning of 2025, statements on the topic were made by the 47th President of the United States, as well as by Vice President JD Vance. These statements were supported by comments from White House staff and experts, who highlighted the strategic importance of the island for the national security of the United States and its NATO allies. This time, alongside the previously repeated idea of purchasing Greenland, a concept emerged of taking control of the island by military means in the event of a failure to reach an agreement with Denmark.

6.2. The Importance of Greenland for the United States

The island holds significant importance for the United States in three dimensions:

- strategic,
- economic,
- political.

Strategic dimension. In this context, Greenland represents a key link in the early warning and defense chain against potential attacks on the continental United States from the northern and eastern directions. It allows for the monitoring of Russian naval and, in the future, Chinese surface and submarine vessels within the northern waters of the Atlantic Ocean and the entire Arctic Ocean. It also enables the monitoring of the maritime route running along the northern coast of Russia. The significance of this route lies in its potential to shorten the distance between ports in Asia and Europe, eliminating the need for ships of various flags to transit the Suez Canal.

Economic dimension. If the reserves of key elements, including rare earth metals, are indeed comparable to those found in Siberia, they could provide the United States with far-reaching resource independence. This would facilitate the development of advanced technologies and significantly expand the country’s energy base with oil and natural gas. It could also lead to a gradual reduction of dependence on China, which currently dominates global critical-raw-material supply chains. The opening of Arctic sea routes, combined with close cooperation with the United States, could further stimulate the emergence of an important commercial hub on the island — a strategically pivotal location on the global map.

Political dimension. Political dimension. Deepening cooperation with the authorities of Greenland, or bringing the island more firmly into the orbit of American influence, would reduce the presence of Russia and China in the region. It could also prompt the Canadian government — which in such a scenario would find itself encircled by the United States from the east, south, and west — to take steps toward considering a federation between Ottawa and Washington.

There is no doubt that a close political and economic alignment of Greenland with the United States would, in effect, allow the United States to maintain its position as a global superpower for many decades to come. It would also contribute to a faster and more dynamic development of the areas discussed above.

7. CANADA

The Maple Leaf Country is the second-largest country in the world by land area. It possesses abundant natural resources, including oil, natural gas, and rare earth metals. Canada's economy is among the most developed in the world. Currently, its largest trading partner is the United States. Due to its centuries-long political and cultural ties with Great Britain and France, it is sometimes considered the most "European" country in North America. In light of the deteriorating relations with the United States following Donald Trump's rise to power, some experts have suggested the possibility of Canada joining the European Union. Its geographic location outside the Old Continent should not, in this case, be an obstacle. Examples supporting this idea include Cyprus, which is geographically in Asia but belongs to the EU, and Greenland, located in North America, which remained within the European Community between 1973 and 1985.

7.1. The Importance of Greenland for Canada

Canada cooperates with Greenland in four areas:

- military
- economic
- cultural
- environmental

Military dimension. In the field of defense, Canada cooperates with the United States and with the authorities in Nuuk. Through NORAD (North American Aerospace Defense Command), it monitors the airspace and waters around the island. Greenland is covered by the principle of collective security among the countries of the North Atlantic Treaty Organization. The island's status within NATO derives directly from its ties to the Kingdom of Denmark.

Cultural dimension. The government in Ottawa seeks to strengthen cultural ties among Inuit populations. Joint projects and initiatives are being implemented with the aim of preserving traditions, historical heritage, and the unique way of life of northern communities. The authorities are also working to reinstate visa-free travel and simplify travel regulations for Inuit communities in both countries.

Economic dimension. Greenland possesses abundant, untapped deposits of critical raw materials. Canada, in turn, has the expertise, equipment, experience, and capital necessary to exploit these resources under extremely harsh climatic conditions. The authorities in Nuuk are willing to grant Canadian companies concessions allowing them to operate on the island. This is facilitated by the perception that the government in Ottawa does not pursue hegemonistic policies. Economic cooperation enables Canada to reduce its current dependence on other countries in this sector, including the United States and China.

Environmental dimension. In response to ongoing climate changes in the Arctic, Canada cooperates closely with Greenland to **counteract adverse effects**. Governmental and non-governmental organizations conduct joint research and initiatives aimed at environmental protection, management of marine resources, and the promotion of sustainable development.

Through close and direct cooperation with Greenland, and indirectly with Denmark, the government in Ottawa hopes to maintain independence from the United States. **Growing political and economic pressures from Washington urge Canada to seek solutions that could help preserve its sovereignty in the future.** One such idea is the possibility of joining the European Union. Greenland and Denmark could act as advocates for Canada's interests in Europe.

8. THE RUSSIAN FEDERATION

Russia is currently entangled in a costly and protracted war in Ukraine. There is also a sharp conflict between Moscow and both the European Union and the United States in the economic sphere. This conflict manifests itself in successive packages of sanctions imposed on the Kremlin by the West. These factors mean that the Russian Federation does not presently possess the capabilities necessary to be considered a key player in the northern regions of our globe. However, Moscow, with quiet but significant support from China, aims to strengthen its position in this region. Russia possesses the longest coastline in the Arctic, and along this stretch of land runs the Northern Sea Route. This increasingly significant maritime corridor is of great importance to both China and Russia. It also serves as a strategic asset in the political and economic game played by the Beijing–Moscow tandem against the West. The Kremlin is attempting to counter the pull of Greenland into the orbit of U.S. and EU influence in several ways:

- by increasing its military presence in the Arctic. Russia is building new military bases in the north of the country. The one situated closest to the North Pole—the Nagurskoye airbase on Franz Josef Land—lies just over 900 km from Greenland (Staalesen A., 2025). Russia has also created the Northern Fleet Joint Strategic Command, which elevates the region's strategic importance. It integrates the operations of naval forces, aviation, air defense units, and Arctic coastal troops.
- through official statements by government representatives on the international stage and at the United Nations, aimed at drawing attention to U.S. expansion and thereby provoking an international public debate.
- **by supporting political groups that advocate for maintaining Greenland's current political arrangement while preserving its existing autonomy, as well as backing factions that oppose the exploitation of the island's natural resources and those engaged in radical pro-environmental activities.**
- through the activities of intelligence services and the use of influence agents in Denmark and Greenland, aimed at creating tensions and conflict between the authorities in Washington and Copenhagen.

In the cultural sphere, alongside Greenland, the United States, and Canada, the Russian Federation is active in the Inuit Circumpolar Council (ICC, 2025). This is the world's largest organization for multilateral cooperation among the Indigenous peoples of the North from the four countries mentioned. Economically, the Kremlin does not make direct capital investments in Greenland. However, it can be assumed that, should the United States lose an economic-political confrontation with China, the situation could change. Like other states, the Kremlin would then likely seek to establish its own sphere of influence in Greenland.

9. PEOPLE'S REPUBLIC OF CHINA

The authorities in Beijing are well aware of the strategic significance that Arctic territories hold for the future of the world. Therefore, although the northernmost tip of the country lies some 1,500 kilometers from the Arctic Circle, it officially declared itself in 2018 a “near-Arctic state.” In 2013, the People’s Republic of China obtained the status of official observer at the Arctic Council. This organization serves as a high-level international forum, bringing together the eight Arctic states and six Indigenous peoples’ organizations. It also includes 38 states from outside the polar region. The Council’s mandate is to promote close cooperation and to develop legal frameworks governing the Arctic (Arctic Council, 2025). The country consistently advocates the principle of equal access for all states to the region’s resources. Through its participation in the Arctic Council and its growing economic influence globally, it positions itself as a leader and spokesperson for the interests of non-Arctic states in the region (SCIO, 2018). The authorities in Beijing missed a major opportunity to establish a presence in Greenland when, after 2009, the new autonomous government sought Chinese investment. Postponed plans by Chinese companies to invest in resource extraction infrastructure, as well as the attempt to purchase what remained of the former Danish naval base in Grønneidal, were unsuccessful. After 2017, the United States, concerned about China’s growing presence in Greenland, significantly increased its engagement on the island. A trigger for U.S. action was the prospect that, in 2018, the state-owned China Communications Construction Company (CCCC) might be awarded the contract to expand two airports in Greenland. At that time, the Department of Defense exerted pressure on Denmark, which subsequently blocked the investments that had been supported by the authorities in Nuuk. Since then, a large-scale effort has been made to displace Chinese capital—and, consequently, Chinese presence—from Greenland by all available means. This strategy has proven effective enough that current Chinese activity on the island is now marginal. In 2020, the United States reopened the consulate in Nuuk, which had been closed since the early 1950s. Shortly thereafter, the Department of State appointed a U.S. Coordinator for the Arctic Region, whose responsibilities include the development of relations with Greenland (Szymański P., 2021). In 2022, the office was elevated to the position of U.S. Ambassador-at-Large for Arctic Affairs, reflecting the growing diplomatic importance of Arctic engagement. Blocked from the possibility of expansion on the world’s largest island, China has turned its attention to Russian Siberia. There, a Chinese economic and technological proliferation, as well as a large-scale settlement initiative, is currently underway. It is estimated that approximately 18.5 million Russian citizens currently reside in Siberia and the Far Eastern Federal District, the majority of whom are ethnic Russians (Radziwinowicz W., 2016). To this number must be added over 2 million Chinese citizens who conduct business and work in the region. Their numbers continue to grow year by year.

However, it would be a mistake to believe that Beijing has already abandoned its pursuit of bringing Greenland into its long-term strategic objectives. The Chinese government has designated the Arctic—including Greenland—as part of its strategy for expanding global influence. For China, the island therefore represents a potential area of political and economic expansion that would legitimize its status as both an Arctic state and a global power. As long as the People’s Republic of China must take the United States and the European Union into account, the status quo regarding Greenland will remain in place. Should this situation be disrupted in any way, the course of events would change, and with it the configuration of spheres of influence in the region.

10. KINGDOM OF DENMARK

Denmark, in its European part, without its dependent territories—Greenland and the Faroe Islands—is a small country located in the north of the Old Continent. To the south, on the Jutland Peninsula, it shares a land border with its only neighbor, Germany. The rest of its territory is surrounded by sea. The area of mainland Denmark is 42,430 km², which places it 130th in the world. The population of 6,011,786 (as of 14 November 2025) ranks the country 114th globally (Worldometer, 2025). Denmark is a constitutional monarchy with capital in Copenhagen. The country belongs to most major international organizations, including the United Nations and NATO, the Council of Europe, the World Trade Organization (WTO), the Organisation for Economic Co-operation and Development (OECD), the Organization for Security and Co-operation in Europe (OSCE), the International Red Cross and Red Crescent Movement, the Nordic Council, and the Arctic Council. Since 1973, Denmark has been a member of the Common Market (EEC), now the European Union. Denmark remains outside the eurozone. The currency in use is the Danish krone. According to the Corruption Perceptions Index of Transparency International, Denmark is ranked first (1) as a country free of corruption. Denmark is the only EU country that is self-sufficient in oil and gas supply. Half of its energy-resource production is exported. The Danish economy is among the most competitive in the world. According to the 2022 ranking of the International Institute for Management Development, Denmark held first (1) place in terms of economic competitiveness (MRiT, 2025). In Europe, this small country is also known for Hans Christian Andersen's fairy tales, LEGO bricks, the two excellent beer brands Tuborg and Carlsberg, the Tivoli amusement park in Copenhagen, and the Olsen Gang film series. Denmark's national football team also has devoted fans, having won the European Championship in 1992.

Greenland holds significance for the Kingdom of Denmark in several dimensions (Szymański P., 2025):

- ***Economic dimension.*** Denmark does not directly benefit economically from its sovereignty over Greenland. Issues related to the utilization of this overseas territory's greatest wealth—its natural resources—have, since 2008, been entirely in the hands of the autonomous authorities in Nuuk. As the revenues from these resources are insufficient to cover the island's needs, the royal government provides annual subsidies exceeding €500 million. However, it is hard to imagine that Danish companies face any restrictions in accessing the Greenlandic market. Likewise, the island's residents, who are subjects of King Frederik X, experience a year-on-year improvement in their standard of living.
- ***Cultural dimension.*** The historical awareness among Danes of their geographic expansion and responsibility for territories administered by the Kingdom is deeply rooted in the national consciousness. Danish exploratory and research expeditions to the polar regions, beginning in the Viking Age (from the late 9th century) and continuing to the present day, form part of the nation's cultural heritage. Pride in Denmark's centuries-long presence in Greenland and the Faroe Islands led the royal family to **change the coat of arms**. On the new heraldic shield (from January 1, 2025), the polar bear (Greenland) and the ram (Faroe Islands) were prominently displayed. On the occasion of presenting the redesigned coat of arms, King Frederik X also declared his opposition to **Denmark losing those territories** (Bryant M., 2025).
- ***Military dimension.*** Denmark is increasing the number of troops and equipment in Greenland to emphasize its presence on NATO's northern flank. It also cooperates closely with the Americans at Pituffik Space Base, located in the northern part of the island, and participates in regular naval and land exercises in the region.

- ***Geopolitical dimension.*** Through its sovereignty over Greenland, Denmark maintains its status as a northern state and can participate as a full member of the Arctic Council. This gives the Kingdom of Denmark the legitimacy to engage in Arctic affairs at the same table with major powers such as the United States, China, and Russia. It also enhances the country's prestige on the international stage. Through direct transatlantic contacts with Washington and Ottawa, Denmark enjoys stronger connections and greater influence than most European countries in this area.

It can be assumed that it is in the interest of the Kingdom of Denmark to maintain some form of control over Greenland. Unfortunately, the left-leaning authorities in Denmark for most of the past several decades have pursued policies that are entirely disadvantageous for the country. Under the banners of ecology, environmental protection, and the Greenlandic people's right to self-determination, they have consistently implemented policies aimed at dismantling the island's centuries-old ties with Copenhagen. By stirring anarchist sentiments and supporting sovereignty movements among the Inuit, they advocate for Greenland achieving full independence. It was under left-wing authorities that both referenda on the island's autonomy took place (in 1979 and 2008). The current Prime Minister of Denmark, Mette Frederiksen, represents the Social Democrats in the ruling coalition. In response to Donald Trump's statements about the United States' intentions to acquire Greenland, the Danish head of government has displayed profound helplessness, astonishing slowness, and a lack of a plan to resolve the conflictual situation.

11. CONCLUSION

In February 2024, the government in Nuuk released a policy document outlining the territory's goal of asserting greater autonomy in international affairs. In this paper, Greenland presented its *Foreign, Security, and Defense Strategy 2024–2033*, titled “*Greenland in the World – Nothing About Us Without Us.*” The strategy emphasizes the island's right to influence decisions that affect its future. Key objectives include strengthening relations with Arctic North America and holding a leading role in the Arctic Council, as well as promoting regional peace and enhancing security cooperation within the Kingdom of Denmark and NATO. Another priority is understanding and addressing the growing global interest in the Arctic from countries such as the United States, Canada, Russia, and China (Hansen B.A., 2024). However, the situation appears to be more complex than the autonomous authorities in Greenland perceive it to be. At the forefront is the unequivocal role of the United States, which will seek to bring the island under its influence for its own purposes no later than by the end of President Donald Trump's term, which expires on January 20, 2029. Through their active behavior, Beijing and Moscow are forcing Washington to adopt radical measures not only in the Arctic region but also on a global scale. Drawing Greenland into its own sphere of influence may allow the United States to remain a superpower for several more decades. A scenario in which China and Russia, supported by the BRICS countries, become the dominant force would mean a new division of the world and of spheres of influence. In none of the possible configurations of events would either the European Union or Denmark—its member—be able to influence the course of developments. Under current conditions, these actors possess far too limited political, economic, and military potential.

LITERATURE:

1. American Chemical Society (ACS), (2025), The periodic table of elements, from: https://www.acs.org/content/dam/acsorg/education/whatischemistry/periodic-table-of-elements/acs-periodic-table-poster_download.pdf
2. Arctic Council, (2025), Organization, Our Work, from: <https://arctic-council.org/>

3. Britannica, (2025), Largest islands in the world from: <https://www.britannica.com/list/the-largest-islands-in-the-world>
4. Brunet-Jailly E., (2005), Denmark-Norway: Eastern Greenland, Border Disputes, A Global Encyclopedia, edition: ABC-CLIO 2015, s. 143-153.
5. Bryant M.,(2025), Danish king changes coat of arms amid row with Trump over Greenland, The Guardian, Denmaek, News, 06.01.2025, from: <https://www.theguardian.com/world/2025/jan/06/danish-king-changes-coat-of-arms-in-apparent-rebuke-to-donald-trump>
6. Cipiur J., (2019), Jak Amerykanie kupowali i budowali kraj, Obserwator finansowy.pl, Analizy i badania, Makroekonomia, Trendy gospodarcze, from: <https://www.obserwatorfinansowy.pl/tematyka/makroekonomia/trendy-gospodarcze/jak-amerykanie-kupowali-i-budowali-kraj/>
7. Greenland Trees, (2025), Greenland Trees – climate awareness trough planting trees, from: greenlandtrees.org
8. Folger T., (2019), Nowe oblicze Grenlandii: pogoda dla wikinga [REPORTAŻ], National Geographic Polska, ludzie, from: <https://www.national-geographic.pl/ludzie/nowe-oblicze-grenlandii-pogoda-dla-wikinga/>
9. Haastrup T., McGowan L., Phinnenmore D., (2020), A Dictionary of the European Union, 9th edition, published 2020 by Routledge, Taylor & Francis Group, Boca Raton FL, USA.
10. Hansen B.A.,(2024), Greenland with New Arctic Strategy: Defence, Diplomacy and Peace, High North News, Home , Politics, from: [https://www.highnorthnews.com/en/greenland-new-arctic-strategy-defense-diplomacy-and-peace #:~:text=The%20Government%20of%20Greenland's%202024–2033 Foreign/](https://www.highnorthnews.com/en/greenland-new-arctic-strategy-defense-diplomacy-and-peace#:~:text=The%20Government%20of%20Greenland's%202024–2033 Foreign/)
11. Inuit Circumpolar Council, ICC., (2025), Organization, Our Work, Inuit, from: <https://arctic-council.org/about/permanent-participants/icc/>
12. Jacobs F.,(2015), The Cold War that Wasn't: Norway Annexes Greenland, Big Think, Strange Maps, from:<https://bigthink.com/strange-maps/the-cold-war-that-wasnt-norway-annexes-greenland/>
13. King Jordan, (2025), Trump chce Grenlandii i nie wyklucza użycia siły. Eksperci tłumaczą, dlaczego to „niedorzeczne”., Newsweek Polska, Świat, wydanie: 2 listopad 2025, from: <https://www.newsweek.pl/swiat/trump-chce-grenlandii-i-nie-wyklucza-uzycia-sily-eksperci-tlumacza/5shckx0>
14. MRiT (2025), Dania (Królestwo Danii), Informacja o sytuacji gospodarczej i stosunkach gospodarczych z Polską, Ministerstwo Rozwoju i Technologii, from: [Gov.pl](http://gov.pl)
15. Naalakkersuisut,(2025), About Greenland, Facts on Greenland, Government of Greenland, from:<http://naalakkersuisut.gl/en/About-government-of-greenland/About-Greenland/Facts-on-Greenland>
16. Nowak K., (2025), Gigantyczne złoża metali ziem rzadkich. Grenlandia może dać Europie potężny argument wobec Chin, Raporty specjalne: Świat, Unia Europejska, FORSAL.PL, from: <https://forsal.pl/swiat/unia-europejska/artykuly/9716788,gigantyczne-zloza-metali-ziem-rzadkich-grenlandia-moze-dac-europie-po.html>
17. Onet.pl, (2025), Jak metale ziem rzadkich stały się kluczową kartą przetargową Pekinu. Dominacja Chin nie jest przypadkiem, a wynikiem dziesięcioleci planowania,Świat, from: <https://wiadomosci.onet.pl/swiat/jak-metale-ziem-rzadkich-staly-sie-kluczowa-karta-przetargowa-pekiniu-dominacja>
18. Onet.pl, (2025), Donald Trump chce przejąć Grenlandię. Kraje NATO reagują, Świat, from: <https://wiadomosci.onet.pl/swiat/donald-trump-chce-przejac-grenlandie-kraje-nato-reaguja/g52g082>
19. Peck C., (2025), Maurice Francis Egan: Writer, Teacher, Diplomat, College of William & Mary Arts & Sciences, ScholarWorks, from: <https://scholarworks.wm.edu/home>

20. Plewa E., (2021), Grenlandia – najbardziej pożądana wyspa świata?, Analiza, Dania, Grenlandia, Polityka międzynarodowa, Publikacje, USA, Instytut Nowej Europy, from: <https://ine.org.pl/grenlandia-najbardziej-pozadana-wyspa-swiata/>
21. Radziwinowicz W.,(2016), Władze boją się wyludnienia Syberii. Oferują ziemię za darmo, wyborcza.pl, Świat, from: <https://wyborcza.pl/7,75399,19754768,wladze-boja-sie-wyludnienia-syberii-oferuja-ziemie-za-darmo.html>
22. Sagan S., Serzhanova V., Wapińska D., (2014), Charakterystyka aktów ustrojowych autonomii nordyckich, “Studia Iuridica Lublinensia”, #22, s. 121-133, Lublin 2014.
23. Sandler M. W., (2008), Atlantic Ocean: The Illustrated History of the Ocean that hat Changed the World. New York, London: Sterling Publishing. ISBN 978-1-4027-4724-3
24. SCIO, (2018), China’s Arctic Policy, The State Council Informations Office of the People’s Republic of China, 16.01.2018, from: English.www.gov.cn
25. Statista, (2024), Mining, Metals & Minerals, Rare Earth elements – statistic & facts from: <https://www.statista.com/topic/1744/rare-earth-elements/#topicOverview>
26. Staalesen A., (2025), At northernmost military base Nagurskoye, a show of new radar and Chinese anti-drone weapon, The Barents Observer, from: <https://www.thebarentsobserver.com/security/at-northernmost-military-base-nagurskoye-a-show-of-new-radar-and-chinese-antidrone-weapon/427909>
27. Statsministeriet, (2025), The Prime Minister Office, The Government, Greenland from: <https://english.stm.dk/the-prime-ministers-office/the-unity-of-the-realm/greenland/>
28. Stern P., (2004), Historical Dictionary of the Inuit, Inuit – Social life and customs, edition: Lanham Maryland 2004, Scarecrow Press.
29. Szymanski P., (2021), Przeciąganie Grenlandii. Dania, USA i Chiny na lodowej wyspie, Ośrodek Studiów Wschodnich (OSW), Publikacje, Komentarze, 2021.03.02, from: <https://www.osw.waw.pl/pl/publikacje/komentarze-osw/2021-03-02/przeciaganie-grenlandii-dania-usa-i-chiny-na-lodowej-wyspie>
30. The Daily Telegraph, (2009), Greenlands step toward Independence from Denmark, by TDT Foreign Staff and Agencies in Nuuk (21 June 2009), from <https://www.telegraph.co.uk/news/worldnews/europe/greenland/5594140/Greenland-takes-step-toward-independence-from-Denmark.html>
31. Turner K., (2008), National Geographic, Countries of the world: Australia, Paperback Edition, Tokyo: Horupu, page 8.
32. USGS, (2024), United States Geological Survey, Science for changing world from: <https://www.usgs.gov/programs/usgs-library>
33. Worldometer, (2025), Denmark, Info, world- population, Denmark population (live), from: <https://www.worldometers.info/world-population/denmark-population/>
34. Worldometer, (2025), Info dane, Liczna ludności, Populacja świata Populacja Grenlandii, from: <https://www.worldometers.info/pl/populacja-swiata/grenlandia-populja/>
35. Zdziebłowski S.,(2025), 100 milionów dolarów w złocie za Grenlandię. Oto, jak USA próbowały potajemnie wykupić wyspę, National Geographic Polska, Historia, from: <https://www.national-geographic.pl/historia/100-milionow-dolarow-w-zlocie-za-grenlandie-oto-jak-usa-probowaly-potajemnie-wykupic-wyspe/>

THE IMPORTANCE OF USING CONTROLLING IN SPORTS AS ONE OF THE MOST IMPORTANT FUNCTIONS OF MANAGEMENT

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ABSTRACT

Controlling has established itself in the modern world of business as an important management instrument aimed at the future of business. It does not deal with the past, it focuses on process improvement, economization and optimization, efficient use of resources and capacity while rationalizing costs. Controlling is a management concept aimed at managing results and includes the link between planning, information, analysis, control of all resources of the entity that lead to the achievement of the business entity's goal. At the same time, controlling has gone beyond the framework of control as a one-time procedure and is used only as a part of the instrumentalization that measures deviations from the given parameters and corrects them and directs them to a strategically determined goal. Controlling is broad knowledge and penetration into the essence; it encompasses the polyvalence of the environment and its character without using a template. Adapts to the environment, individually approaches, uses and derives all instruments and indicators of the business direction of its own entity, skilfully solving problems of bottlenecks,"deviations, political influences, economic disturbances, harmonizing them with legal regulations in constantly being a step ahead"of the competition, leading the management of its entity according to concrete, efficient decisions and procedures. In the world of sports, where sports results are one half of success and business is the other; controlling has taken on its importance in different areas of both halves. From the moment a sports organization establishes a mission, creates a vision and sets goals for sustainable development and sports success, controlling is a guide, a coordinator who subordinates the system of information, guidance and instructions to the goal, a future created according to the best advice.

Keywords: *controlling, management concept, sport, decision-making efficiency, importance*

1. INTRODUCTION

Growth, development and profit are taken as a clear goal of a business entity. In sports, sports results are added to this, then it is clear that a sports organization has a rather complex task of composing tasks and goals and coordinating them effectively. In the event that one of the goals falters, encountering difficulties and disruptions, the business entity stagnates and lags behind, and the goal is achieved with difficulty or not at all. Therefore, the pursuit of maximum efficiency and optimal productivity, the achievement of sports results with permanent growth becomes an imperative for the existence of a sports organization. Regardless of whether it is a profit or non-profit sports organization, goals must be achieved in order to achieve sustainability. The market is changing, even turbulent, it is not easy to achieve goals without hindrance because factors that make progress difficult and limit progress are constantly imposed. In the crowd of sports organizations on the market that want to succeed, a lot of skill is needed to achieve competitiveness. Otherwise, elimination follows. No one is looking for such an organization anymore and everyone turns to the one that has made a breakthrough, used resources in a different, more innovative way. Therefore, it is of utmost importance to ensure efficiency, effectiveness and optimize processes. To achieve this, controlling imposes itself as a partner to management that monitors all processes, supervises and improves procedures, optimizes all systems either in advance or during the process, harmonizing them with current changes. This is the only way to ensure the sustainability and competitiveness of a business sports entity, both in the economic part and in the sports part.

Controlling monitors, measures, evaluates performance. As such, it is a service to management, giving it clear guidelines for making decisions that will successfully lead the entity towards achieving its goal.

2. THE ROLE OF CONTROLLING AND CONTROLLER IN MANAGEMENT

Controlling is one of the five functions of modern management, according to the Encyclopaedia of Management¹. In European countries, and especially Germany, which has recently been the leader of European management, *controlling*, as the closest partner to management, is becoming the leading function that takes on the role of a link, a coordinator of all business processes in a harmonious relationship. *Controlling* serves management with all relevant information so that management can make the best possible decisions. The controller, like the co-pilot in an airplane (according to Luković and Lebefromm²), collects all information about the flight, takes care of safety and all key elements that will bring the airplane with passengers to its destination, and the manager - captain makes decisions that the co-pilot - controller has prepared for him. According to Luković³, *Controlling* is a process that arises as a result of coordinated joint efforts of management (individual or team) and the controller, for the purpose of achieving the set goal of the business entity. Furthermore, Luković⁴ interprets *Controlling* as a state of mental awareness that directs it purposefully, orients it in a planned manner, turns it towards the future and always strives for the better. *Controlling* is a concept of leadership, which is oriented towards a bottleneck⁵. Luković⁶ states that the coordination of all processes is particularly important for management, and this is the key task of controlling and the controller, and he further points out that every problem, which is most often a deviation from the plan, must be solved by the controller with an employee or one of the managers with knowledge and communication skills. As soon as possible. "If we go back to the plane of both the captain and the co-pilot, then the co-pilot (controller) is the navigator, and the captain (manager) decides and leads the plane to the destination."⁷

3. CONTROLLING IN SPORT

Sport is an area in which management occupies an important backbone of the activities of modern sports organizations if the mission, vision and goals of the organization are clearly defined. Thus, *controlling* becomes a management concept and operates at all levels of the navigation system towards achieving the goal. The path towards the goal is systematically and continuously monitored, plans, processes and events, causes and factors of various events in a very changeable and globally fast environment are monitored, as well as their consequences or impact on the achievement of goals. The changing environment in sports requires constant and prompt adjustments, careful monitoring, understanding and adequate use of information. In such a system, cooperation of all stakeholders is required, as well as their coordination, knowledge, skill and competence in order to maintain the path towards the goal.

¹ „Encyclopedia of Management“, 6th edition, GALE Cengage Learning, United States of America, 2009., page 517

² Luković, T. & Lebefromm, U.: „Controlling, planom do cilja“, druga knjiga, Sveučilište u Dubrovniku, Dubrovnik, 2014.

³ Luković T., Luković T., Lebefromm U., Jerkunica A., Controlling u sportskom menadžmentu, 2022., page 86

⁴ Luković T., Lebefromm U., Jerkunica A., Controlling u sportskom menadžmentu, 2022., page 9

⁵ Pojam „uskog grla“ predstavlja ograničene limite u procesu. Prof. Deyhle, A. ga naziva „Engpass“ a to su unaprijed dati točno ograničeni limiti proizvodnje. Unutar ograničenja *controller* traži rješenja i pokušava razviti proizvodnju

⁶ Luković T., Lebefromm U., Jerkunica A.. Controlling u sportskom menadžmentu, 2022., page 81

⁷ Luković T., Lebefromm U., Jerkunica A.. Controlling u sportskom menadžmentu, 2022., page 81

Without deviations, without losses, controlling as such, managed by the controller, is ready to remove all limitations that come its way. More importantly, in advance and before it gets on the way. According to Meter⁸ *Controlling* activities, for example according to the IGC "Process Model of Controlling", which is one of the international controlling standards, can be described through 10 main processes, which can be grouped into 4 groups, namely: planning, analysing, reporting and internal consulting. Each of them has certain challenges, and they are most often related to: management's understanding of the importance of *controlling*, the quality of processes and data in the company, the state of information technology, but also with experienced and well-educated controllers. A controller in *controlling* needs to connect all relevant details into a whole in all areas of business, and in sports this is an additional dimension: game, result, advantage, victory, placement. Today, both profit and non-profit organizations operate in sports. Profit organizations are focused on profit and their effectiveness is easy to measure, while non-profit organizations are focused on social welfare and strengthening the civil values of society, so there are a number of parameters for measuring effectiveness. However, non-profit organizations also need efficiency and management that will make them sustainable, successful, innovative, productive, and more competitively attractive. Every organization needs to know the path it is taking and where it is going and how to successfully and efficiently reach its goal. *Controlling* is certainly an important management function for large and small organizations, for profit and non-profit organizations for all those who need to organize resources in an efficient and effective manner. A significant number of professional sports organizations - clubs establish a *controlling* function with the aim of more efficient organization of work and the club. Especially in professional football clubs where large financial resources are involved, where the generated added value exceeded 7.9 billion euros. According to information from the consulting company McKinsey⁹, the value of goods and sports services produced in Germany amounted to as much as 114 billion euros in 2015. Since then, the trend has been on an upward trajectory, which confirms sport as an indispensable activity for GDP production in Germany, but increasingly in other developed countries of the world. In order for the sports club to achieve both sport and economic results, to achieve sustainability and long-term existence, management needs to establish *controlling*. Sport is a measurable area, both in the area of economic success and in the area of competition results and rankings.

4. SUBJECT OF CONTROLLING IN SPORT

If *controlling* includes the process of monitoring and measuring progress, noticing and identifying any deviations from the planned and continuing to take corrections in order to achieve the set goal, then *controlling* should be implemented in the main areas of measuring success in sports, sports results and long-term economic stability of the entity. In order to achieve a sports goal, the subject of *controlling* in sports is focused on managing the event or sports performance of an individual athlete or a sports team. It is extremely important to determine the time period for achieving goals when setting strategic planning, preferably from three to five years, when the resources needed to achieve sports goals need to be realistically and rationally calculated. According to Lebefromm¹⁰, the biggest challenge in long-term strategic planning of team sports is the forecast of sports success. Given the unpredictability of sports, matches, competitions, and results, once a plan has been established, it is difficult to follow, so such different scenarios require adjustment with appropriate different plans that will

⁸ <https://www.educentar.net/Article/13333/INTERVJU-MLADEN-METER-Zasto-je-kontrolingbitan-u-svakodnevnom-poslovanju/>

⁹ Konzultantska tvrtka McKinsey u ime DFL-a za nogometnu sezonu 2014/2015.

¹⁰ Luković T., Lebefromm U., Jerkunica A., *Controlling u sportskom menadžmentu*, 2022., page 170

be directed towards the goal. However, as Lebefromm states¹¹, the difficult predictability of sport success should not lead to giving up on strategic and operational planning. In sports performance planning, the task of controlling refers to managing the process of sports preparation and performance of athletes/teams, which is constantly compared with the plan, deviations are identified and corrective actions are taken. An athlete or a group of athletes, a team are exposed to managing their internal state, psychophysical abilities, focus on goals, which is dependent on various influences from infrastructural capabilities, psychological states, motivation, nutritional guidelines and generally human response to pressures and settings that lead to the goal. Therefore, setting performance standards also requires parameters for observing how activities are performed in relation to the set standards. *Controlling* helps to systematize the set parameters and their evaluation so that all factors in a series can monitor and react to anomalies and deviations. *Controlling* has a special task to prepare for options that will offer a solution to the problem before the deviation turns into a problem. In the preparation of athletes, there are a number of parameters that are monitored, evaluated, and corrected: motivation, emotional control and focus, regulating emotions, maintaining focus under stressful situations, avoiding impulsive reactions, maintaining discipline, adhering to the rhythm and training regimen to ensure excellence. Furthermore, conditioning, fitness, the possibility of injury, rehabilitation, and treatment. Of course, mental and physical health is one of the important parameters of the plan, implementation, evaluation, and correction, and this process includes a number of factors, internal and external, those that can be influenced and those that are different. All of these processes have their own cost, and controlling, by collecting data and information, helps to put together a strategic framework for development and the path to the goal. According to Leberfromm¹², "although sports success is difficult to predict, financial success is predictable. Investment in players, coaches, and officials must be assessed by continuously analysing the performance of each player. In addition to financial factors, mental inputs also play a major role. This includes the health and fitness of all players." The goal of sports success requires financial success. Based on short-term and long-term plans of sports goals, potential of athletes or teams, assessments and forecasts, management has the task of setting the sports specifications of the desired goal within its competitive opus: position at the national level, international level, the reach that it can and wants to achieve. In sports, revenue planning is largely related to sports results and success, marketing behind which in turn stands sports results and success. Because results and success lead to popularity, marketing expands the niche of clients based on success and results, the number of memberships increases because sports results and success form a role model to be followed. According to all of the above, in both individual and team sports, sports results and success are an attraction and an invitation to follow. According to Kasper¹³, "The availability of financial resources naturally arises from achieving the desired sports success." One of the important tasks of management and *controlling* as support for management is precisely enabling the creation and maintenance of cash flow, which will enable the sports organization to finance its entire path towards achieving sport success and results, especially at a time when sport success and results have not been achieved and it is to be expected that the income cannot be satisfied either. So, the basic goal of *controlling* in sports is establishing standards to measure performance, measuring actual performance, comparing performance with the standard, taking corrective action. Considering the great global competitiveness of sports, it is very important to maintain a position in the market and to maintain it in the long term.

¹¹ Ibidem

¹² Luković T., Lebefromm U., Jerkunica A., *Controlling u sportskom menadžmentu*, 2022., page 191

¹³ Kasper, CI, 2016, page 235

The management is responsible for the positioning of the sports entity on the market and has an undoubtedly double task: to achieve and maintain sports results and success in addition to profitability. Since *controlling* is related to information, fast, accurate, timely, clear and decisive, which contains relevant and accurate data it is evident that *controlling* is the job of collecting and analysing data in order to improvement of the implementation of the business entity's strategy. Therefore, the computer application SAP SPORT ONE was created on the sports market. "It enables club and association managers to manage information and data about their athletes in a structured way. SAP Sports One connects a wide variety of information, such as injury history, fitness values, match analyses or training data for the team or individual players in real time. This data is compiled into an individualized report that the club or association can use to draw valuable conclusions regarding training control and planning or possible player commitments. In addition to simplified player data management and insightful conclusions for improved training and scouting planning, SAP Sports One offers the possibility of individual analysis of each player's injury history, current health values and potential injury risks in order to prevent players from retiring in the future. For example, TSG Hoffenheim has managed to reduce the number of injury days per season by more than 50 percent since the 2012/2013 season. For SAP Sports One to function, it is essential that various pieces of information are entered into the software solution. The coach is responsible for ensuring that training plans for the team or individual players are entered into the platform. The doctor or physiotherapist must ensure that details of medical findings or diagnoses are recorded, and the player also contributes their part, eg by providing information after training or matches about well-being or possible injuries.¹⁴ SAP Sports One has so far been developed for football and is already being successfully used by many clubs and associations. SAP sees this success as an incentive to develop the Sports One solution for other team sports as well, as Sebastian Brunnert, an expert from SAP's Sports & Entertainment business unit, explains: "Besides football, the solution is also interesting for many other team sports. The reason is that sports such as ice hockey, basketball, baseball and soccer are very similar to football. Player fitness, injuries, scouting, tactical concepts: In all team sports, this is important."¹⁵ Looking at sports information and indicators for efficiency, success and sports results as a set goal, some sports and clubs can successfully use a computer application, because in this case, the most important thing is timely and accurate information and its further use. But in parallel with the creation of sports success and results, according to Borozan¹⁶, it is important that the *controlling* management gives inputs about the overall strategic success of the organization, measures the success of the business, improves the achievement of success and indicates the need to improve individual performances. At the same time, different tools can be used, of which the extremely light and effective Balanced scorecard (BSC) is linked to a strategic map with measures and goals. BSC is a *controlling* tool that serves as a report to the management of a sports organization in a way that measures achievements in relation to what was planned in a given time, showing a result that meets the goals or opens the possibility of correction to follow intervention and correction to meet the goals. BSC is focused on 4 aspects: the client aspect (how to act towards clients in order to realize the vision?), the aspect of internal processes (what are the business processes in which we must stand out in order for the result to satisfy our stakeholders and clients?), the aspect of learning and development (the ability to introduce changes and improve our processes how to achieve the vision) and the financial aspect (how to successfully operate financially based on orientation towards our clients?). All of the above aspects are interconnected and should be included in the achievement of the mission, realization of the vision and implementation of the strategy.

¹⁴ <https://www.gambit.de/en/wiki/what-is-sap-sports-one/>

¹⁵ Ibidem

¹⁶ Luković T., Lebefromm U., Jerkunica A., *Controlling u sportskom menadžmentu*, 2022., page 200

They must be measurable and defined by indicators. They are a roadmap for how to achieve the goal. *Controlling* collects them, analyses, evaluates, corrects and reports to management on what decision to make and how to further manage the sports organization.

5. CONCLUSION

Based on the above examples of the use of controlling procedures and processes that each sports organization can use and implement in its operations in order to give management guidelines for action and a path towards achieving goals, it is evident that it is necessary to expand managerial knowledge about the management of sports organizations, regardless of whether they are profit or non-profit organizations. Pragmatic definition of conditions and situations enables an open picture of the connection of the most logical business connections: mission with vision, goals with strategy and implementation. Communicating with all relevant aspects of the organization, controlling performs networking in parallel, leading the sports line and economic efficiency and effectiveness towards the goal. Through non-financial and financial indicators, it determines forms of monitoring, assigns measures to them, defines factors, offers clear interpretations, calls them by their proper name and evaluates them. It gives them the meaning of efficiency, success, achievement of results, achievement of the goal. Controlling defines each segment of a business entity, connects them in mutual dependence and communication, establishes profit centres, efficiency centres. The goal and task of *controlling* is to implement successful business strategies, to pave the way for a business entity to achieve its competitive advantage, to identify and solve problems before they become problems, to be value-oriented in the long term, while synthesizing all parameters of success and efficiency. The role of *controlling* in sports is very important in order to connect the interests of all stakeholders and stakeholders.¹⁷ Therefore, defining *controlling* in sports, Prof. Eduard Leonard Guta says: "Controlling represents a service function for sports management, and it is a function of sports management. Controllers are contact persons at all levels of sports management in strategic and operational issues. Controlling is a comprehensive management concept that operates at all levels of the navigation system in sports organizations." Today, sports management is rapidly developing as a necessity for survival in the sports market, and with it, *controlling* as a navigation system for management towards achieving its goals.

LITERATURE:

1. Encyclopedia of Management“, 6th edition, GALE Cengage Learning, United States of America, 2009., page 517
2. Luković, T. & Lebefromm, U.: „Controlling, planom do cilja“, druga knjiga, Sveučilište u Dubrovniku, Dubrovnik, 2014.
3. Kasper, Cl, 2016, page 235
4. Luković T., Luković T., Lebefromm U., Jerkunica A., Controlling u sportskom menadžmentu, 2022., page 86
5. Luković T., Lebefromm U., Jerkunica A., Controlling u sportskom menadžmentu, 2022., page 9
6. <https://www.educentar.net/Article/13333/INTERVJU-MLADEN-METER-Zasto-je-kontrolingbitan-u-svakodnevnom-poslovanju/>
7. <https://www.gambit.de/en/wiki/what-is-sap-sports-one/>

¹⁷ Luković T., Lebefromm U., Jerkunica A., Controlling u sportskom menadžmentu, 2022., page 137

SHOULD BRAND STAY OR SHOULD BRAND GO? DO CUSTOMERS REALLY CARE?

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ABSTRACT

Following the outbreak of the Russia-Ukraine conflict, many global companies withdrew from the Russian market to protect their reputation. This research delves into how Slovak and Czech consumers perceive brands that left versus those that stayed. Using a questionnaire with 175 respondents, the study found that consumers' political attitudes toward the conflict and their support for sanctions significantly impact their brand perception and preferences. The analysis of specific brands like McDonald's and Burger King confirmed that leaving the Russian market is viewed more positively, enhancing brand value and loyalty, especially among those who support Ukraine. Brands that left are seen as ethical and morally correct. These findings highlight a strong connection between political views and consumer behavior.

Keywords: *Brand Perception, Consumer Behavior, Corporate Activism, Responsible Business, Russia-Ukraine Conflict*

1. INTRODUCTION

On February 24, 2022, the armed forces of the Russian Federation (RF) entered the territory of Ukraine, which was immediately met across Europe with widespread opposition from both governments and the general public. The initial condemnation soon led to the gradual introduction of various economic measures at the governmental level, while private companies also began to respond. In 2022, it was expected that sanctions would have a weakening effect on Russia (Sonnenfeld et al., 2022). In 2023, Western sanctions became more stringent (Kantchev, Gershkovich, 2023), making it increasingly difficult for brands to maintain their presence in Russia (Chasseny, 2024). However, due to the rapid strengthening of relations between the RF, India, and China, the sanctions produced only a limited—or even counterproductive—impact, particularly in the energy sector (Saxena, 2023). By December 2024, the RF state budget revenues even reached record levels (Bloomberg, 2025). While European and American brands exited the Russian market swiftly, Indian and Chinese companies expanded rapidly to meet consumer demand. Notably, Russian oil exports to China and India became a crucial source of income for the Russian economy (Krauss et al., 2022). Public opinion surveys indicate that consumers have shown little concern over whether brands remain in Russia (Caliber, 2023). Nevertheless, many foreign firms faced the dilemma of how to act and how to communicate their position regarding the conflict. Numerous brands adopted so-called “self-regulatory sanctions,” prioritizing their reputation over potential business opportunities (Sonnenfeld et al., 2022). Others merely limited their operations, while some continued to operate in the Russian market. A considerable group of companies also relied on parallel imports via third countries (Chupilkin et al., 2023; Crozet et al., 2021). The aim of this article is to highlight the continuing relevance of the issue. The primary objective is not to make moral judgments, but rather to examine and compare the attitudes of Slovak and Czech consumers toward the withdrawal or persistence of foreign brands in the Russian market.

The importance of the topic is further reinforced by the fact that negative consumer–brand relationships have not been widely studied (Ninh et al., 2021; Fetscherin, 2019; Kucuk, 2019; Zarantonello et al., 2016). From our perspective, this represents a highly relevant and valuable subject for future research.

2. CONSUMER BEHAVIOR AND BRAND PERCEPTION

A brand is a key element of marketing communications (Vysekalová, 2011), and its importance can be analyzed from multiple perspectives. According to Kotler and Keller (2021), a brand includes a name, term, sign, symbol, design, or a combination thereof, while Keller and Swaminathan (2019) add elements such as words, images, spaces, and sounds. Building strong brands is a central objective for all firms. Various approaches in the literature interpret brand strength through brand knowledge and its impact on consumer behavior (Hoeffler & Keller, 2002). A brand integrates corporate efforts, leading to a unified and long-term value-creating approach, including the integration of marketing activities (Pelsmacker et al., 2003). The Customer-Based Brand Equity (CBBE) model defines brand value as the differential effect that reflects distinct perceptions and consumer responses to marketing activities (Keller & Swaminathan, 2019; Kotler & Keller, 2021). Petráčková and Průša (2009) further note that the brand phenomenon can enhance alignment with consumers through its image. A brand is not composed solely of a logo or visual identity, but also of services, communication, and the consistency of messages over time (Pelsmacker et al., 2003).

3. BRAND PERCEPTION AND IMAGE-BUILDING THROUGH CSR

A positive brand image is shaped by marketing programs as well as by factors outside marketers' direct control. It is fundamentally based on strong, favorable, and unique associations (Keller & Swaminathan, 2019). Brand image is defined by three dimensions: trust (the brand represents quality), emotional attachment (customers' relationship with the brand), and behavioral intentions (inclination toward the brand) (Binar et al., 2020). There are multiple ways to build brand image. Responsible business practices also positively influence brand image and foster emotional bonds between consumers and the brand (Meyer, 1999), which represent an important differentiating factor in today's competitive environment. Key benefits include enhancing brand image, increasing product awareness, and positively affecting sales (Hoeffler & Keller, 2002). A positive brand image rooted in responsible business reduces vulnerability to negative publicity (Dawar & Pillutla, 2000). Well-executed CSR strategies enrich brand image with favorable and unique associations (Hoeffler & Keller, 2002; Keller, 2003). CSR helps raise brand awareness, strengthens credibility, and generates positive emotions among consumers. It contributes to image-building through abstract associations that are difficult to imitate and transferable to other products or brand extensions. Moreover, CSR enhances brand credibility across dimensions such as expertise, trustworthiness, and likability (Keller & Swaminathan, 2019; Keller, 2003). It evokes positive feelings such as social acceptance and self-esteem, thereby strengthening brand equity. Responsible business practices also deepen customer relationships within brand communities, creating shared awareness and a sense of responsibility (Hoeffler & Keller, 2002; Muniz & O'Guinn, 2000). Finally, CSR increases consumer engagement, with customers becoming active advocates and spokespersons for the brand (Keller & Swaminathan, 2019). In the context of the present topic, however, a public opinion survey (Caliber, 2023) shows that consumers exhibit little interest in whether brands remain in Russia. By spring 2024, most foreign brands had ceased to worry about reputational risks, as they did not observe significant damage or backlash from stakeholders due to their continued presence in the RF market (Chasseny, 2024).

On the other hand, some scholars argue that media coverage could alter consumer perceptions of brands still operating in Russia, placing them under greater pressure and potentially increasing the likelihood of their withdrawal, if risks were clearly communicated rather than overshadowed by the complexities of the exit process (Popovych, 2024).

4. RESPONSIBILITY VS. IRRESPONSIBILITY AND CONSUMER REACTIONS ON A GLOBAL SCALE

Responsibility in marketing is expressed through Corporate Societal Marketing (CSM), which encompasses activities extending beyond economic goals to support societal welfare or other stakeholder interests. During the period in question, brands became increasingly politicized in their public statements, primarily for four reasons:

- meeting stakeholder expectations,
- political influence,
- creating a positive brand image, and
- gaining competitive advantage (Ekhlassi & Rahideh, 2023).

Consumers are increasingly expecting brands to act in accordance with ethical principles (Reshetnikova et al., 2024). Decisions by brands to remain in controversial markets can influence their perception as moral actors (Tsoungkou et al., 2025). However, brand responses cannot be generalized, as they depend on specific circumstances and the nature of the brand. Findings by Sologoud (2022), based on 60 statements from pharmaceutical and consumer brands, revealed that companies justified staying in Russia on humanitarian grounds, such as ensuring access to food, medicine, and hygiene. Nevertheless, Sologoud (2022) viewed these arguments as weak justifications, masking the fact that firms were in reality protecting their market positions. Other reasons included the financial stability provided by the Russian market and the relatively minor reputational damage observed despite the war in Ukraine (Kao, Abboud & Parkin, 2022). Research into the intensity of consumer love or hate toward brands has been addressed in several studies (e.g., Patwardhan & Balasubramanian, 2011; Romani et al., 2012). Typically, consumer–brand relationships are not accompanied by extreme emotions. Brand actions can be understood as a form of corporate activism, aimed at social, political, economic, or environmental issues with the goal of driving societal change by influencing attitudes (Eilert et al., 2020), sometimes even at the expense of reputation and financial performance (Corvellec & Stâl, 2019). When firms merely communicate socio-political stances without acting on them, they are perceived as inauthentic and hypocritical (Eilert et al., 2020; Vredenburg et al., 2020). Brands that chose to remain in Russia primarily belonged to the pharmaceutical, aviation, food, consumer goods, technology, energy, and oil sectors. Justifications ranged from financial stability and strong market demand to humanitarian reasons (Doherty, 2023). Geographical differences also play a role: companies from Germany, China, the USA, Japan, and France continued operating in Russia despite initial statements about withdrawal (Evenett & Pisani, 2023). Before the war in Ukraine, brands often engaged in “business as usual” (Rieper, 2013), refraining from responding to violent conflicts. Only subsequently did they adopt more responsible approaches (Asemah-Ibrahim et al., 2022). It is evident that brands with higher stakeholder engagement show greater resilience to geopolitical risks (Chowdhury et al., 2023). Directly labeling firms as deliberately irresponsible is problematic, as such situations often involve alternative options that companies nevertheless choose to disregard in favor of existing policies (Jones, 2013). Corporate irresponsibility—and the perception thereof—is highly subjective (Lange & Wilde, 2012). Intentional irresponsibility, however, is consistently viewed as unethical compared to unintentional irresponsibility (Zhang et al., 2023). Evaluating brands that remain in the Russian market is complex, since their true motives cannot be easily assessed.

On a global scale, significant differences exist in how companies interpret responsible business conduct (Baden & Wilkinson, 2024), which naturally influences what is, conversely, perceived as irresponsible.

5. RESEARCH METHODOLOGY

The research problem is based on the assumption that the losses of brands resulting from their decision to withdraw from the Russian market may potentially be offset by the favorable positioning of these brands in the minds of consumers. This topic has not received sufficient scholarly attention (Ninh et al., 2021; Fetscherin, 2019; Kucuk, 2019; Zarantonello et al., 2016), or it has been approached from a different perspective. From a methodological standpoint, the main tool of data collection was a questionnaire, where we focused on the use of attitudinal scales in order to examine how consumers perceive the entire situation. The questionnaire survey was chosen both in view of the article's topic and in consideration of other similarly oriented studies (Guliyev, 2023; Deheshti et al., 2016; Sidorchuk et al., 2018).

5.1. Objectives and Hypotheses

The main objective of the research is to identify how Slovak and Czech consumers perceive brands that remained in, and those that exited, the Russian market after the outbreak of the conflict. Partial objectives of the study include identifying consumer perceptions of the motives behind brand withdrawal from the Russian market, as well as attitudes towards such withdrawals. We analyzed how consumers perceive strong brands after their exit and whether such decisions can increase or decrease brand awareness. Furthermore, we sought to determine whether consumer loyalty to a brand may deepen or weaken as a consequence of a brand's withdrawal or continued presence on the Russian market.

5.1.1. Hypothesis – Customers who support Ukraine will perceive more positively a brand that decided to withdraw from the Russian market

We rely on the study by Sonnenfeld et al. (2022), which mapped companies leaving the Russian market and analyzed the impacts on the Russian economy. The results were picked up by major news agencies that continuously updated lists of global brands. Parella (2022) reports that 75% of respondents supported the withdrawal of brands, while only 4% were in favor of maintaining the previous status quo. Consumers criticized brands that chose to remain in the market. Therefore, we assume that respondents in our study who support Ukraine will perceive brand withdrawal positively, which may in turn influence their evaluation of these brands.

5.1.2. Hypothesis – Consumers who agree with sanctions on the Russian Federation will perceive a brand that left the Russian market as more preferable

We assume that consumers associating a brand's continued presence in Russia with support for the Russian regime will perceive such brands as less valuable. Some companies, such as Microsoft, could not immediately withdraw, but in this study we do not distinguish between the reasons for their continued presence. We focus instead on consumer perceptions of brands that remained for financial reasons and potential profit, where staying could lead to better positioning and higher earnings. We again draw on Sonnenfeld et al. (2022), who initially categorized brands into three groups (complete withdrawal, partial withdrawal, remaining) and later expanded this classification into five groups.

5.1.3. Hypothesis – Consumers with higher education will have a more positive attitude toward the sanctions on the Russian Federation

We assume that respondents with higher education hold more positive attitudes due to their greater understanding of the importance of sanctions.

At the time of data collection, nine sanction packages had been introduced, and we expect that more educated respondents recognize their necessity and support them.

6. ANALYSIS AND INTERPRETATION OF RESEARCH RESULTS

The survey was conducted in two stages. Part of the data was collected for the purposes of a rigorous thesis (Mihálik, 2023). The second part of the survey was conducted at Tomas Bata University in Zlín. In total, 175 respondents participated in the research. The structure of the sample is presented in the following table.

Country				
			Frequency	Percentage
Valid number	Slovenská republika		126	72,0
	Česká republika		49	28,0
Age				
			Frequency	Percentage
Valid number	18-25 rokov		54	30,9
	26-35 rokov		42	24,0
	36-45 rokov		44	25,1
	46-55 rokov		27	15,4
	56- 65 rokov		7	4,0
Missing Value			1	0,6
Gender				
			Frequency	Percentage
Valid number	muž		56	32,0
	žena		112	64,0
	Spolu		168	96,0
Missing Value			7	4,0
Level of education				
			Frequency	Percentage
Valid number	Secondary vocational education		4	2,3
	Secondary education		79	45,1
	Bachelor's degree		45	25,7
	Master's degree		40	22,9
	Doctoral degree		5	2,9
Missing Value			2	1,1
Total			175	100,0

*Table 1: Structure of the sample
(Source: Own researchsit)*

The collected data are largely valid, with the exception of a small number of missing values for age (0.6%) and gender (4%). The overall validity of the sample can be considered sufficient for basic analysis. On the other hand, the main limitation lies in the reliability and representativeness of the sample. The imbalance in the distribution of respondents may affect the generalizability of the results. The data presented in the table are not sufficiently representative in terms of geographical distribution, age groups, and gender. When interpreting the results, it is necessary to take into account the potential level of bias caused by the uneven representation of certain groups (e.g., a higher number of respondents from the Slovak Republic and fewer older respondents).

6.1. Respondents' Views on the Russia–Ukraine Conflict

The following table summarizes respondents' answers in three areas: the perception of responsibility for the conflict, opinions on the withdrawal of foreign companies from the Russian market, and agreement or disagreement with the sanctions imposed on the Russian Federation. It should be noted that the presented data were collected in 2024, and therefore, the information may differ today due to the evolving situation.

What is your perception of the Russia-Ukraine conflict?			
		Frequency	Percentage
Valid number	I am on the side of Ukraine	89	50,9
	I am on the side of the Russian Federation	27	15,4
	I hold a neutral position	59	33,7
What is your opinion on companies withdrawing from the Russian market?			
		Frequency	Percentage
Valid number	I have no opinion	28	16,0
	Strongly disagree	14	8,0
	Disagree	24	13,7
	Agree	39	22,3
	Strongly agree	69	39,4
Missing Value		1	0,6
To what extent do you agree with the sanctions imposed on the Russian Federation?			
		Frequency	Percentage
Valid number	I have no opinion	29	16,6
	Strongly disagree	17	9,7
	Disagree	28	16,0
	Agree	33	18,9
	Strongly agree	68	38,9
Total		175	100,0

*Table 2. Respondents' Views on the Russia–Ukraine Conflict
(Source: Own researchsit)*

The results show that regarding the question on the perception of the Russia–Ukraine conflict, the majority of respondents (50.9%) support Ukraine, while 15.4% side with the Russian Federation and 33.7% adopt a neutral stance. In the case of the question about the withdrawal of companies from the Russian market, most respondents expressed agreement, with 39.4% strongly agreeing and 22.3% somewhat agreeing. On the other hand, 21.7% disagreed (including partial disagreement), and 16% of respondents had no opinion on this issue. The data for this question include one missing value (0.6%), which does not significantly affect the results. Regarding the question on sanctions against the Russian Federation, the trend is similar – 38.9% of respondents strongly agree with them, and 18.9% somewhat agree, while 25.7% (a combination of disagreement and partial disagreement) are opposed. A neutral stance or no opinion on this question was reported by 16.6% of respondents. Overall, the results indicate prevailing support for Ukraine, the withdrawal of companies from the Russian market, and the imposition of sanctions. The data are largely complete and provide a solid basis for further analysis, although their representativeness may depend on the composition of the sample itself.

6.2 Respondents' Attitudes Towards Brands

In the following part of the survey, we focused on how respondents perceived selected brands. Considering the nature and scope of the research, we concentrated on four brands in total.

On one side, there were brands (Telegram, Burger King) that decided to continue operating in the Russian market, and on the other side, there were Facebook and McDonald's, which chose to withdraw.

Brand	Statement	Average	SD
McDonald's	After deciding to leave the Russian market, the brand will appear more valuable in my eyes.	2,63	1,41
	If the brand did not leave the Russian market, I would stop or limit my purchases.	3,29	1,26
	The brand's decision to leave the Russian market will ensure my greater loyalty.	2,99	1,43
Burger King	After deciding to leave the Russian market, the brand will appear more valuable in my eyes.	3,34	1,36
	If the brand did not leave the Russian market, I would stop or limit my purchases.	3,50	1,26
	The brand's decision to leave the Russian market will ensure my greater loyalty.	3,53	1,32
Facebook	After deciding to leave the Russian market, the brand will appear more valuable in my eyes.	2,80	1,38
	If the brand did not leave the Russian market, I would stop or limit my purchases.	3,43	1,24
	The brand's decision to leave the Russian market will ensure my greater loyalty.	3,14	1,37
Telegram	After deciding to leave the Russian market, the brand will appear more valuable in my eyes.	3,43	1,27
	If the brand did not leave the Russian market, I would stop or limit my purchases.	3,53	1,26
	The brand's decision to leave the Russian market will ensure my greater loyalty.	3,50	1,33

Table 3. Respondents' attitudes towards brands (1 – strongly agree, 5 – strongly disagree)

(Source: Source: Own researchsit)

The table shows the perception of brands (McDonald's, Burger King, Facebook, Telegram) after their decision to leave or remain on the Russian market. For McDonald's, respondents perceive the brand as more valuable if it decides to leave Russia (average rating 2.63), while the decision to remain on the Russian market leads to a slightly negative perception of brand value and lower loyalty (average rating 3.29). A similar trend can be observed with Facebook, where exiting the market results in a higher perceived brand value (2.80), whereas the decision to stay on the Russian market triggers a less positive reaction (3.43). Conversely, for brands like Burger King and Telegram, respondents expressed higher ratings if the company decides to remain on the Russian market (average rating around 3.5), suggesting that these brands did not gain as much support as McDonald's for exiting the market. In both cases, leaving Russia would result in a significant reduction in usage. Overall, the decision to leave the Russian market is perceived more positively in terms of brand value and loyalty; however, the reactions vary depending on the specific brand. The results of the statistical analysis of *Hypothesis 1* confirmed that individuals' attitudes toward the Russia–Ukraine conflict have a significant impact on their evaluation of brand exits from the Russian market ($p < 0.05$). Respondents supporting Ukraine had an average score of 1.871 (SD = 0.9124), indicating strong agreement with brand exits. Neutral respondents had an average score of 3.297 (SD = 1.1185), suggesting a balanced stance with slight disagreement or neutrality. Respondents siding with the Russian

Federation had the highest average score of 4.222 (SD = 0.8697), indicating strong disagreement with brand exits. These findings confirm that respondents' political attitudes toward the conflict significantly influence their perception of brand decisions. Those supporting Ukraine view brand exits as a positive and supportive action, reflecting their stance toward Russia and solidarity with Ukraine. On the other hand, respondents siding with the Russian Federation hold a negative view of brand exits, likely due to their support of the political regime and opposition to Western sanctions. Neutral respondents, who lack a clearly defined stance, show a more moderate attitude, with opinions spread between supporters and opponents of brand exits. This suggests that even neutral individuals are influenced by their political views, which may shape their perception of corporate decisions. When testing **Hypothesis 2**, we applied the Kruskal–Wallis test, which showed a statistically significant difference between groups ($H = 58.429$, $df = 4$, $p < 0.0001$). A p-value below 0.05 indicates a statistically significant difference between groups in their preference for brands that left the Russian market. These results confirm that respondents' attitudes toward sanctions against the Russian Federation affect their perception and preference for brands that decided to exit the Russian market. The results support the hypothesis that consumers who agree with the sanctions perceive brands that left Russia as more preferable. Respondents who fully support sanctions have the lowest mean rank, indicating the highest preference for brands that exited Russia. This trend can be interpreted as a reflection of their political stance, viewing brand exits as a form of support for sanctions and a morally correct decision. Conversely, respondents who disagree or rather disagree with sanctions show lower preferences for brands that exited the Russian market. Based on these results, we can conclude that political attitudes — specifically, agreement with sanctions against the Russian Federation — significantly affect the perception and preference of brands that left Russia. Respondents who oppose or only slightly support sanctions perceive these brands less positively, whereas those who fully support sanctions are strongly inclined to support brands that left the Russian market. This finding may be valuable for brands deciding whether to remain in or withdraw from Russia, as consumer preferences are inherently linked to their political attitudes. For **Hypothesis 3**, we also used a non-parametric Chi-square test. All p-values (Pearson Chi-square, likelihood ratio, and linear-by-linear association) are greater than 0.05, indicating no statistically significant relationship between respondents' educational level and their attitude toward sanctions against Russia at the 0.05 significance level. This result suggests that the respondents' education does not influence their attitude toward sanctions, at least within this specific sample.

6.3 Consumer attitudes toward brands that remained or exited the Russian market

The results obtained from the attitude scales demonstrate how respondents perceive brands that stayed on the Russian market and those that left. For brands that remained, a trend of less positive attitudes toward their purchase and preference is evident.

Decision	Statement	Average	SD
Stayed on the market	I will stop buying them.	3,14	1,32
	I will limit the purchase of this brand.	2,89	1,40
	My attitude towards buying will not change.	2,76	1,36
	I will prioritize this brand when making a selection.	3,64	1,31
	I will only buy such brands.	3,84	1,27
Left the market	Commitment to moral standards.	2,46	1,40
	Brand standing; Corporate image.	2,50	1,31
	Relevance for Western shoppers.	2,61	1,29
	Potential to capitalize on a "strong" narrative/theme.	2,52	1,31
	Brand timidity; Lack of courage.	3,05	1,33

Table 4. Consumer attitudes toward brands that remained or exited the Russian market (1 = agree, 5 = disagree) / (Source: Own research)

For the statement “Remained [I will no longer purchase them]”, the average rating reached 3.14, indicating that respondents are currently less willing to stop purchasing these brands. Similarly, the statement “Remained [I will reduce my purchases of such a brand]” had an average rating of 2.89, again suggesting a slightly negative attitude. However, the attitude towards the statement “Remained [my purchasing attitude will not change]” was significantly more positive (2.76), indicating that a large portion of respondents do not perceive the decision to remain on the Russian market as a significant barrier to purchasing these brands. On the other hand, for brands that left the Russian market, the scores related to moral and reputational factors were relatively low. For example, the statement “Brand exit [moral obligation and upholding moral values]” reached an average rating of 2.46, suggesting that leaving the market is perceived as the right action in line with moral principles. Likewise, responses to statements related to prestige (2.50) and attractiveness to Western consumers (2.61) indicate a positive attitude towards brand exits. Conversely, the statement “Brand exit [fear, brand cowardice]” received a higher average rating of 3.05, suggesting that not all respondents view this decision as a courageous one. Overall, it can be concluded that leaving the Russian market is perceived more positively in terms of moral and reputational reasons, whereas brands that remained face greater challenges in terms of consumer preference.

4. CONCLUSION

The results of this research provide valuable insights into respondents’ attitudes toward the Russia–Ukraine conflict and its impact on the perception of brands that either withdrew from or remained in the Russian market. The collected data are largely valid, although certain limitations regarding the representativeness of the sample should be acknowledged, as they may affect the generalizability of the findings. The research sample shows some imbalances in geographical distribution, age groups, and gender, which could lead to slight distortions in the results. Despite these limitations, the data may be considered a sufficiently robust basis for further analysis. The findings indicate that the majority of respondents support Ukraine and agree with the withdrawal of foreign companies from the Russian market, as well as with the imposition of sanctions on the Russian Federation. These attitudes correlate with strong support for brands that chose to exit the Russian market. Respondents who support Ukraine or the sanctions tend to perceive brand withdrawal as a positive step. Conversely, those who support the Russian Federation exhibit a more negative attitude toward such withdrawals. The analysis of respondents’ attitudes toward four selected brands – McDonald’s, Burger King, Facebook, and Telegram – revealed that withdrawal from the Russian market is perceived more positively in terms of brand value and loyalty. This trend was particularly evident for McDonald’s and Facebook, which, unlike Burger King and Telegram, received more favorable evaluations when they decided to leave the Russian market. In this regard, the hypothesis that attitudes toward the Russia–Ukraine conflict significantly influence brand perception was confirmed, with respondents siding with Ukraine strongly supporting the withdrawal of brands, while respondents siding with the Russian Federation rejected it. Statistical analyses, specifically the Kruskal–Wallis test and Chi-square test, confirmed significant differences between respondent groups in their preferences for brands that withdrew from the Russian market. Respondents who supported the sanctions expressed the highest preference for brands that left Russia. These results demonstrate that respondents’ political attitudes influence their brand preferences and decision-making. The research suggests that brand decisions concerning their presence in the Russian market can have a significant impact on consumer perception, with such decisions being closely intertwined with individuals’ political views and values. Brands that decided to exit Russia are perceived as morally right, while those that chose to remain face challenges in customer loyalty and preferences. These findings may serve as valuable insights for companies deciding on their business activities and their perception in international markets.

In conclusion, respondents' attitudes toward political events and their perception of brands are interconnected, highlighting the need for brands to adapt their strategies in line with the political and moral values of their consumers. At the same time, these findings open new avenues for further research that could focus on deeper analyses of consumer behavior in the context of geopolitical events.

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LITERATURE:

1. Asemah-Ibrahim, M. O., Nwaoboli, E. P., Asemah, E. S. (2022). *Corporate Social Responsibility in War Ridden-Zones of Russia-Ukraine from February to July 2022. SAU Journal of Management and Social Sciences*, 2022(1), 1-14.
2. Baden, D. Wilkinson, S. (2014). *Socially Responsible Enterprise in Cuba: A Positive Role Model for Corporate Social Responsibility? International Journal of Cuban Studies*, 2014(1), 55-86.
3. Binar, J., Mikeš, J., Vysekalová, J. (2020). *Image a firemní identita (2. aktualizované a rozšířené vydání)*. Praha: Grada.
4. Bloomberg. (21. 1 2025). *Russia's Budget Revenue Surges to Record in December Despite Sanctions*. Retrieved 5.2.2025. from <https://www.bloomberg.com/news/articles/2025-01-21/russia-s-budget-revenue-surges-to-record-in-december-despite-sanctions>
5. Busvine, D. (2023). Western firms say they're quitting Russia. Where's the proof? *Politico*, 2023. Retrieved 8.4.2024 from <https://www.politico.eu/article/western-firm-quit-russia-proof-sanctions-war-ukraine/>
6. Caliber. (2023). *Reputation roulette*. Retrieved 7.4.2024 from <https://www.groupcaliber.com/reputation-roulette/>
7. Corvellec, H., Stål, H. I. (2019). Qualification as corporate activism: How Swedish apparel retailers attach circular fashion qualities to take-back systems. *Scandinavian Journal of Management*, 2019(3), 101046.
8. Crozet, M. and Hinz, J. (2020). Friendly fire: The trade impact of the Russia sanctions and counter-sanctions. *Economic Policy*, 2020(101). 97-146.
9. Dawar, N., Pillutla, M. M. (2000). Impact of product-harm crises on brand equity: The moderating role of consumer. *Journal of Marketing Research*, 2000(37). 215-226.
10. De Pelsmacker, P. D., Bergh, J. V., Geuens, M. (2003). *Marketingová komunikace*. Praha: Grada Publishing.
11. Deheshti, M., Adabi Firouzjah, J., Alimohammadi, H. (2016). The relationship between brand image and brand trust in sporting goods consumers. *Annals of Applied Sport Science*, 2016(3), 27-34.
12. Doherty, B. (2023). Business in Russia: why some firms haven't left. *BBC*, 2023. Retrieved 8.4.2025 from <https://www.bbc.com/worklife/article/20230918-business-in-russia-why-some-firms-havent-left>
13. Eilert, M., Nappier Cherup, A. (2020). The activist company: Examining a company's pursuit of societal change through corporate activism using an institutional theoretical lens. *Journal of Public Policy & Marketing*, 2020(4), 461-476.
14. Evenett, S.J., Pisani, N. (2023). Geopolitics, conflict, and decoupling: evidence of Western divestment from Russia during 2022. *Journal of International Business Policy*, 2023(6), 511-540.
15. Fetscherin, M. (2019). The five types of brand hate: How they affect consumer behavior. *Journal of Business Research*, 2019(101), 116-127.

16. Guliyev, S. (2023). The impact of brand perception and brand image on consumer purchasing behavior in Azerbaijan. *Science, Education and Innovations in the context of modern problems*, 2023(1), 137-144.
17. Hoeffler, S., Keller, K. L. (2002). Building brand equity through corporate societal marketing. *Journal of Public Policy and Marketing*, 2002(1), 78-89.
18. Chowdhury, M., Shahedur R., Koussis, N., Makrominas, M., Trigeorgis, L. (2023). Geopolitical Risk, Uncertainty, Real Options, and Corporate Social Responsibility. *SSRN*, 2023. Retrieved 10.8.2025 from <https://ssrn.com/abstract=4615553>
19. Chupilkin M., Javorcik, B., and Plekhanov, A. (2023). The Eurasian roundabout: Trade flows into Russia through the Caucasus and Central Asia (Working Paper 276). EBRD, 2023. Retrieved 15.9.2025 from https://www.ebrd.com/content/dam/ebrd_dxp/assets/pdfs/office-of-the-chief-economist/working-papers/working-papers-2023/WP-276.pdf
20. Jones, B. (2013). Corporate Social Irresponsibility. In Idowu, S.O., Capaldi, N., Zu, L., Gupta, A.D. (eds), *Encyclopedia of Corporate Social Responsibility* (557-560). Berlin, Heidelberg: Springer.
21. Keller, K. L. (2003). Brand synthesis: The multidimensionality of brand knowledge. *Journal of Consumer Research*, 2003(29), 595-600.
22. Keller, K. L., Swaminathan, V. (2019). *Strategic Brand Management: Building, Measuring, and Managing Brand Equity – Global Edition (5th Ed.)*. Hoboken, NJ: Pearson.
23. Kotler, P., Keller, K. L. (2021). *Marketing Management – Global Edition (16th ed.)*. Hoboken, NJ: Pearson.
24. Kucuk, S.U. (2019). Consumer brand hate: Steam rolling whatever I see. *Psychology & Marketing*, 2019(5), 431-443.
25. Lange, D., Washburn, N. T. 2012. Understanding Attributions of Corporate Social Irresponsibility. *The Academy of Management Review*, 2012(2), 300-326.
26. Meyer, H. (1999). When the cause is just. *Journal of Business Strategy*, 1999(20), 27-31.
27. Mihálik, P. (2023). *Vnímanie rozhodnutia silných značiek na odchod z ruského trhu spotrebiteľmi* (Post-graduate thesis). Nitra: [Peter Mihálik].
28. Muniz, A. M., O'Guinn, T. C. (2000). Brand community. *Journal of Consumer Research*, 2000(27), 412-432.
29. Ninh Nguyen, H., Binh Nguyen, T. (2021). Sense of online betrayal, brand hate, and outrage customers' anti-brand activism. *Innovative Marketing*, 2021(4), 75-87.
30. Parella, K. (2022). Corporate Foreign Policy in War. *SSRN*, 2022. Retrieved 10.8.2025 from <https://doi.org/10.2139/ssrn.4223298>.
31. Patwardhan, H., Balasubramanian, S.K. (2011). Brand romance: A complementary approach to explain emotional attachment toward brands. *Journal of Product & Brand Management*, 2011(4), 297-308.
32. Petráčková, J, Průša, P. (2009). Měření osobnosti značky – nové trendy. *Marketing & komunikace*, 2009(4), 14-16
33. Reshetnikova, I., Sanak-Kosmowska, K., Wiktor, J. W. (2024). Differentiation of Polish and Ukrainian consumers' attitudes to Russian brands and international brands remaining on the Russian market. *Central European Management Journal*, 2024 (1), 152-175.
34. Rieper, S. (2013). Corporate social responsibility in zones of conflict. In *Papers on International Political Economy (PIPE)*, 2013(18), 1-61. Berlin: Freie Universität Berlin, Center for International Political Economy.
35. Romani, S., Grappi, S., Dall'Aglio, D. (2012). Emotions that drive consumers away from brands: Measuring negative emotions toward brands and their behavioral effects. *International Journal of Research in Marketing*, 2012(2)9, 55–67.

36. Saxena, V. (2023). Russia says sanctions helped to cement China, India energy ties. *Asia Financial*, 2023(December). Retrieved 7.4.2025 from <https://www.asiafinancial.com/russia-says-sanctions-helped-cement-china-india-energy-ties>
37. Sidorchuk, R., Mkhitarian, S. V., Musatov, B. V., Meshkov, A. A., Tultaev, T. A. (2018). The influence of high level values on brand preferences of student youth in Russia. *International Journal of Retail & Distribution Management*, 2018 (7), 638-656.
38. Sonnenfeld, J., Tian, S., Sokolowski, F., Wyrebkowski, M., and Kasprowicz, M. (2022). Business retreats and sanctions are crippling the Russian economy. *SSRN*, 2022. Retrieved 11.7.2025 from <https://ssrn.com/abstract=4167193>.
39. Strizhakova Y., Coulter R. A., Price, L.L., Branding in a global marketplace: The mediating effects of quality and self-identity brand signals. *International Journal of Research in Marketing*, 2011(18). Retrieved 18.07.2025 from <https://www.sciencedirect.com/science/article/abs/pii/S0167811611000711?via%3Dihub>
40. Tsoungkou, E., Sykora, M., Elayan, S., Ifie, K., Oliveira, J. S. (2025). Peace brand activism: global brand responses to the war in Ukraine. *Journal of Public Policy & Marketing*, 2025 (1), 100-121.
41. Vredenburg, J., Kapitan, S., Spry, A., Kemper, J. A. (2020). Brands taking a stand: Authentic brand activism or woke washing? *Journal of Public Policy & Marketing*, 2020 (4), 444-460.
42. Vysekalová, J. A kol. (2011). *Chování zákazníka. Jak odkrýt tajemství „černé skřínky“*. Praha: Grada.
43. Zarantonello, L., Romani, S., Grappi, S., Bagozzi, R.P. (2016). Brand hate. *Journal of Product & Brand Management*, 2016(1), 11-25.
44. Zhang, Z., Gong, M., Zhang, S. Jia, M. (2023). Buffering or Aggravating Effect? Examining the Effects of Prior Corporate Social Responsibility on Corporate Social Irresponsibility. *Journal of business ethics*, 2003 (1), 147–163.

WHEN THERE ARE GOOD EVENTS, THERE IS ALSO CULTURAL TOURISM

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ABSTRACT

We are starting a comprehensive exploration of event tourism, aiming to cover its definition, historical development, key research areas, methodologies, various event types, impacts, challenges, emerging trends, and underlying theoretical frameworks. Our initial focus will be on establishing a clear definition and understanding the core characteristics of event tourism, drawing primarily from our book, Event Management, academic and authoritative tourism sources.

Initial Focus: *In the book, Event Management our initial efforts where concentrate on establishing a clear understanding of what event tourism entails. Wer looking for definitions, key characteristics, and the overall breadth of the field to lay a solid foundation for the subsequent research of our.*

Metods: *Tourism research utilizes a diverse array of methodologies, encompassing both traditional geographical methods like observation, analysis, and synthesis, alongside specific quantitative and qualitative approaches. We are using also in our book, Interview Methods, Semistructured interviews, Focus Group, Qualitative Methods, Content Analysis of Documents, etc. For the purposes of this scientific work, we also used these methods: Big Data: Utilizing large datasets to uncover patterns and insights. Sentiment Analysis: Analyzing textual data to determine emotional tone or sentiment expressed by stakeholders. Ethnographic Approaches: In-depth qualitative methods involving observing and interacting with participants in their natural environment. Choice Modeling: Used to test new ideas and examine how people value festivals and events. Longitudinal Assessment: Needed for studying festival evolution to understand environmental influences over time. There is a strong call for greater interdisciplinarity and the avoidance of a single epistemological paradigm dominating the research. And we certainly tried to investigate the way in which education is carried out at universities, how programs for a specific field are developed and future career educators are trained. New research methods are also needed to address emerging event formats, such as virtual and hybrid events.*

Keywords: *Tourism, Culture, Event, Progress in Tourism Management, Education*

1. INTRODUCTION: REFINING UNDERSTANDING OF EVENT TOURISM

We've made good progress in defining event tourism, understanding its core characteristics, and identifying various event types. We 've learned that event tourism is a specialized sector focused on attracting visitors through planned events, aiming to maximize tourist-driven income and promote destinations. It involves collaboration among community, industry, and government, and distinguishes between 'event tourists' (overnight stays) and 'event visitors' (day-trippers).

The field is closely linked to event management, which focuses on the planning and execution of events, while event tourism leverages these events for broader tourism objectives. We've also gathered a solid list of event categories, including cultural, sports, business (MICE), music, and religious events.

2. EVENT TOURISM: DEFINITION, EVOLUTION, AND RESEARCH

This paper provides a comprehensive examination of event tourism, delineating its core definition, tracing its historical trajectory, analyzing its diverse impacts, and surveying key areas of academic inquiry. It establishes event tourism as a specialized and rapidly expanding sector within the broader tourism industry, strategically designed to attract visitors through planned events such as sporting tournaments, conventions, and cultural festivals. The sector's evolution from ancient gatherings to a formalized academic discipline in the late 20th century, and today 21st underscores its increasing strategic importance as a tool for economic development and holistic regional advancement. While offering substantial economic, sociocultural, and environmental benefits, event tourism also presents challenges that necessitate careful planning and ongoing research. The Thomson (Marko Perković) concert in Zagreb and in City of Sinj in 2025 is a good example of how events should be managed well. In Zagreb, because of the 500,000 sold tickets for the concert at the Hippodrome, the capital of Croatia, in Sinj, without exaggeration, part of Dalmatia, was paralyzed for several hours. The paper highlights the methodological maturation of event tourism studies, the shift towards human-centric and destination-centric research, and the growing recognition of sustainability and technology as intertwined, cross-cutting themes shaping its future. So why is it so difficult to master the demands of management and manage events well when we are aware of the great benefits of them?

2.1. Defining Event Tourism: Core Concepts and Characteristics

Event tourism is fundamentally a specialized sector of tourism, strategically focused on attracting visitors through meticulously planned events. These events encompass a wide array of activities, including major sporting tournaments, professional conventions, and vibrant cultural festivals. At its core, event tourism functions as a proactive promotional mechanism, centered on a singular, organized event, with the overarching aim of maximizing tourist-driven income in both immediate and long-term contexts. This sector is recognized as one of the most dynamic and high-income segments within the contemporary tourism industry. Its distinctiveness lies in its diverse content, multifaceted functions, and varied purposes, with events globally holding profound social, economic, cultural, historical, sports, and business significance. The consistent emphasis on event tourism's role in generating substantial revenue and its characterization as a "high-income direction" that can bring "colossal income to the region" illustrates its deliberate, proactive, and competitive nature in urban and regional economic development. This suggests that governments and destination management organizations (DMOs) are increasingly investing in the acquisition and creation of events, viewing them as critical infrastructure for sustained economic growth and competitive positioning in the global tourism market. Beyond direct financial gains, event tourism contributes significantly to the broader development of a region. It stimulates infrastructure improvements, enhances socio-economic conditions, promotes scientific and innovative achievements, creates direct economic opportunities for local artisans to sell goods, and helps cultivate a positive, creative image for host locations. The comprehensive nature of these benefits indicates that event tourism is not merely an economic activity but a powerful catalyst for holistic regional development, impacting social, cultural, and even intellectual capital.

Consequently, event tourism strategies should be integrated into wider urban planning, cultural policy, and economic diversification efforts, rather than being confined solely to the tourism sector, to unlock greater long-term value and foster more resilient communities. Furthermore, event tourism acts as a unifying force, drawing together individuals with diverse interests and motivations, thereby enriching the social fabric of host communities. A crucial distinction within this field is made between "event tourists" and "event visitors". Event tourists are defined as individuals who stay overnight in the host city for at least one night, while event visitors attend for only part of a day. Both categories represent valuable sources of tourist income, though the tactics required to promote events effectively to each group may differ significantly.

2.2. Distinction between Event Tourism and Event Management

Event tourism is intrinsically linked to event management, which is defined as the systematic process by which any event is meticulously planned and produced. Event management is, in essence, a prerequisite for the successful development and execution of tourist events. The operational aspects of event planning, a core component of event management, involve meticulous attention to budgeting, adherence to timelines, navigating legal considerations, and coordinating complex logistics. Academic programs in International Events Management typically cover a broad curriculum, including event concept development, production planning, client and stakeholder engagement, legal and financial aspects, hospitality integration, and creative direction. In contrast, International Tourism Management emphasizes strategic leadership within the broader tourism sector. Its curriculum encompasses tourism systems, economics, sustainability, policy, destination management, service excellence, digital transformation, and global traveler behavior. While both are vibrant and interconnected industries that drive global connectivity, cultural exchange, and economic growth, they demand distinct skill sets and cater to different professional aspirations. The clear delineation of "focus areas" and "career pathways" for each field demonstrates that these are not interchangeable domains. Event management represents the operational execution, while event tourism signifies the strategic leveraging of events for broader destination objectives. This distinction implies that effective event tourism necessitates a highly collaborative and integrated approach between event management professionals, who ensure operational excellence, and tourism strategists, who align events with destination branding and economic goals. A lack of synergy can result in well-executed events that fail to deliver significant tourism benefits, or ambitious tourism strategies that lack the operational capacity for successful event delivery.

Historically, the academic literature on events, particularly event management, has experienced an "explosion" since the 1990s, paralleling the global proliferation of diploma and degree programs in the field. The term 'event tourism' itself gained widespread recognition more recently, becoming inclusive of all planned events within an integrated development and marketing approach. The emergence of specialized research journals, such as *Festival Management and Event Tourism* (later renamed *Event Management*), beginning in 1993, further illustrates the growing formalization of this academic discipline. This indicates that event tourism, as a distinct academic field, is relatively young but rapidly maturing. As a nascent but growing academic discipline, event tourism research is still actively developing its theoretical frameworks and methodologies, presenting significant opportunities for interdisciplinary exploration and innovation. This also suggests a potential lag between rapid industry developments and comprehensive academic insights, highlighting the need for closer practitioner-researcher collaboration to bridge this gap. Notably, some academic texts, such as Getz (2005), have begun to explicitly combine both event management and event tourism within their scope, reflecting the increasing recognition of their interconnectedness.

3. THE HISTORICAL EVOLUTION OF EVENT TOURISM

3.1. Ancient Roots and Early Forms of Event-Driven Travel

The fundamental principles of event tourism can be traced back to antiquity, demonstrating a long-standing human inclination for event-driven travel. Historical records indicate that gatherings such as the original Olympic Games in ancient Greece served as powerful attractions, drawing people from diverse cultures into a shared social environment. These early iterations of large-scale events transcended mere competition, fostering cultural exchange and social interaction. Similarly, during the Middle Ages, festivals like jousting tournaments and various religious celebrations played a comparable role, motivating travel and facilitating communal interaction. A key characteristic of these early events was their inherent ability to generate additional income for local vendors and merchants, showcasing the economic benefits of event-driven gatherings even in ancient times. The ancient history of tourism also includes significant discussions of structures and events, as well as the widespread practice of religious tourism and pilgrimages across different cultures. During post-classical times (500–1500 AD), travelers frequently undertook long and arduous journeys specifically to visit religious shrines and sacred sites, underscoring the enduring human motivation for travel rooted in shared experiences and beliefs. The consistent presence of event-driven travel from ancient Olympic Games and medieval religious festivals to modern events suggests a fundamental and enduring human motivation for such journeys. This motivation extends beyond mere leisure, encompassing social interaction, cultural exchange, religious devotion, and competitive spirit. The economic benefits for local vendors also demonstrate a timeless symbiotic relationship between events and local commerce. Understanding these deep-seated, persistent human motivations can inform contemporary event design and marketing, emphasizing community, shared experiences, and cultural authenticity to ensure long-term appeal and resilience, transcending fleeting trends.

3.2. Emergence of Modern Event Tourism (19th and 21st Centuries)

The 19th century marked a significant turning point, as event tourism began to adopt a more international scope with the advent of large-scale international events. Notable examples include the World's Fair, which commenced in London in 1851, and the modern incarnation of the Olympic Games, which started in Athens in 1896. The World Fairs of the 1850s were particularly influential, attracting millions of visitors and playing a crucial role in promoting international travel and cultural exchange. These events also underscored the critical importance of robust infrastructure, such as transportation and accommodation, to support large-scale tourism. The foundation for the modern tourism industry was further solidified by pioneers like Thomas Cook, whose organized tours, beginning in 1841, revolutionized travel by making it more accessible to the general public. Cook's initiative laid the groundwork for the modern tourism industry, democratizing travel and setting standards for future travel agencies and tour operators. The formal conceptualization of tourism as a distinct economic driver began to emerge in discussions, such as a meeting in Austria in 1884, marking a pivotal moment in recognizing tourism as a field worthy of study and development. In the 20th and 21st centuries, tourism evolved into a major growth industry, significantly stimulating economies in communities of all sizes. The academic recognition and standardization of tourism were notably advanced by the AIEST's provision of the first official definition of tourism in 1942, which provided a framework for researchers, policymakers, and industry professionals. However, it was only in the late 20th century that the concept of event tourism gained recognition as a specific field of study. The International Special Events Society (ISES) was founded in 1987, signaling a growing professionalization of the sector, and the academic literature on events has expanded dramatically since the 1990s.

The rise of modern event tourism is inextricably linked to broader developments in the 19th and early 20th centuries, such as Thomas Cook's organized tours and the impact of the automobile on travel dynamics. These innovations facilitated mass travel, making events accessible to a wider demographic. Despite its ancient roots, the formal recognition of "event tourism as a specific field of study" only occurred in the "late twentieth century," with an "explosion" in literature since the 1990s. This delayed formalization, compared to the earlier formal definition of general tourism in 1942, suggests that the strategic leveraging of events for destination development, and its complex multi-sectoral implications, only became sufficiently apparent and distinct to warrant dedicated academic inquiry relatively recently. As a younger academic discipline, event tourism offers significant opportunities for novel research and theoretical development. This also implies that industry practice might sometimes outpace academic understanding, necessitating continuous dialogue and collaboration between practitioners and researchers to address emerging challenges and opportunities.

4. TYPOLOGIES AND SCOPE OF EVENT TOURISM

4.1. Classification of Events in Tourism

Events within event tourism are broadly classified based on their form, content, and scale. Common content-based classifications include cultural celebrations, arts and entertainment, business and trade events, sports competitions, recreational activities, educational and scientific gatherings, political and state events, and private events. These categories reflect the diverse purposes and programs of planned events, ranging from public celebration to competition, entertainment, or business networking. From a scale perspective, events are often categorized as occasional mega-events, periodic hallmark events, regional events, and local events. Mega-events, such as the Olympic Games, FIFA World Cup, and World Fairs, are characterized by high levels of tourism, extensive media coverage, significant prestige, and substantial economic impact for the host destination. They often involve a bidding process and can have major positive and negative effects due to their immense scale. Special events are typically one-time or infrequent occurrences, planned to mark a specific ritual, presentation, performance, or celebration, such as national days or royal weddings. Hallmark events possess significant tradition, attractiveness, quality, or publicity, providing a competitive advantage and becoming synonymous with their host location, like the Carnival of Brazil or Oktoberfest. Festivals are public celebrations that convey specific meanings through a kaleidoscope of activities, often featuring music, dance, and drama. The city of Varaždin is also famous for the Špancir Fest and the Varaždin Baroque Evenings, but the Dubrovnik Summer Festival, Dubrovnik Summer Games, certainly stand out for their uniqueness and world-class establishment. Local community events are generated primarily for and by locals, though they may also attract visitors. Specific types of tourism events also include Cultural or Festival Event Tourism Fairs, Sports Event Tourism, Business Events (MICE – Meetings, Incentives, Conferences, Exhibitions), Music and Entertainment Events, Spiritual and Religious Tourism, and Travel Trade Shows. Business Events (MICE) are a more focused subset, often attracting wealthier attendees who spend more, and are typically held in corporate-developed urban areas. The existence of multiple classification systems (by content and by scale) indicates that destinations do not simply host isolated events but strategically manage an "event portfolio." Different event types serve distinct strategic objectives: mega-events for global branding and large-scale economic impact, hallmark events for recurring identity and sustained visitation, and local events for community engagement and niche tourism. This suggests a sophisticated, multi-tiered approach to event development. Effective destination management requires a nuanced understanding of how each event typology contributes to overarching tourism goals.

This necessitates a coordinated strategy for event bidding, creation, and promotion, balancing high-profile, high-impact events with smaller, more localized ones to achieve diverse benefits and manage potential negative externalities. The specific economic characteristics of Business Events (MICE) are particularly noteworthy. These events are highlighted as a "more limited and focused subset" where attendees are "wealthier than a typical leisure visitor and are anticipated to spend more money". They are also more likely to be held in "heavily developed for corporate purposes (cities, industrial regions, etc.)". This distinction suggests that MICE tourism is not merely another event type but a strategically distinct and highly lucrative segment that warrants specialized infrastructure, marketing, and policy attention. Destinations aiming for high-yield tourism should prioritize developing infrastructure and services tailored to the MICE sector. This segment offers significant economic returns per visitor, even if the overall volume of visitors is lower than, for example, a major cultural festival, thus requiring distinct development and marketing strategies.

4.2. Factors Contributing to Event Tourism Growth

The growth of event tourism is driven by a confluence of interconnected factors. Strong economic conditions serve as a significant underlying driver, influencing both the capacity of destinations to host events and the propensity of individuals to travel for them. The inherent attractiveness of a destination, characterized by unique natural landscapes, rich cultural heritage, historical sites, and modern infrastructure, is crucial for drawing visitors. Events organized in popular tourist destinations or those with distinctive appeal tend to attract more attendees, leading to increased demand for event tourism experiences. Effective marketing and promotion strategies are vital for stimulating growth. These encompass creative advertising campaigns, targeted online marketing, robust social media presence, and strategic collaborations with influencers to generate buzz and awareness, thereby attracting larger audiences. Strategic partnerships with travel agencies, airlines, and hotels further aid in promoting events and boosting attendance. The interplay between the inherent "pull" factors of a destination or event and these strategic "push" factors is critical. While the uniqueness, reputation, and cultural significance of an event or location naturally attract visitors, deliberate and sophisticated strategic efforts are essential to amplify interest, convert it into visitation, and sustain growth. This demonstrates that destinations cannot rely solely on the intrinsic appeal of their events or locations; proactive and innovative marketing, robust infrastructure development, and strategic collaborations are crucial to compete effectively in the global event tourism market and ensure sustained growth. Shifts in consumer preferences play a critical role in driving market expansion. Contemporary travelers increasingly seek unique and immersive experiences, such as music festivals, sports competitions, cultural celebrations, and culinary events, that align with their specific interests. This indicates a fundamental evolution in tourist motivations, moving beyond passive consumption to active, personalized, and ethically conscious engagement. Furthermore, the growing consciousness regarding environmental impact means that sustainability practices have become a significant market driver, attracting environmentally conscious attendees who prioritize eco-friendly initiatives, local culture promotion, and waste minimization. Event organizers and destinations must adapt their offerings to meet these evolving demands; events that prioritize authenticity, immersion, and demonstrably sustainable practices will gain a competitive advantage, driving innovation in event design and responsible tourism development. This suggests a move towards more niche, values-driven event offerings. Hosting high-profile events significantly enhances destination promotion and branding, attracting media attention and providing an opportunity for the destination to showcase its attractions, culture, and hospitality. Positive exposure through event coverage can lead to increased tourism beyond the event period, as attendees may be inspired to return for future visits or recommend the destination to others.

Events also stimulate local spending across various sectors, including accommodation, food and beverage, transportation, and retail services, and can extend the average length of visitor stays. They contribute to job creation, both short-term and long-term, and generate tax revenue for local and national governments. Community engagement and pride, and the development of infrastructure are also key contributors to growth. The reputation and prestige associated with an event, along with the accessibility and existing infrastructure of the destination, act as powerful pull factors for event tourists. Political stability and safety are also crucial, as instability and security concerns can deter attendance. Emerging trends include increased attention to small-scale and cultural events, and a growing focus on marketing, consumer behavior, tourist experience, and the role of technology. The importance of human resources in event management is also gaining recognition as a critical factor for successful event tourism.

5. IMPACTS OF EVENT TOURISM

Event tourism, while a powerful driver of visitation and economic activity, exerts multifaceted impacts across economic, sociocultural, and environmental domains. These impacts are often dual-sided, presenting both significant benefits and considerable challenges for host destinations and their communities.

5.1. Economic Impacts

Event tourism serves as a potent economic engine, generating substantial revenue for local businesses such as hotels, restaurants, transportation services, and vendors, while also creating numerous job opportunities for residents. It is strategically designed to maximize tourist-driven income in both the short and long term. The sector has demonstrated stable growth in income, with figures rising significantly; for instance, income increased from \$920 million to \$1.27 billion between 2019 and 2023. Large-scale events, in particular, have the potential to bring colossal income to host regions and cities. Specific economic benefits include increased foot traffic boosting local retail sales, elevated hotel occupancy rates (particularly in cities hosting popular festivals), and enhanced local tax revenue, which can be reinvested into the community for public services. Economic impacts are categorized into direct effects, which occur from visitor spending on accommodation, food, entertainment, and retail items; indirect effects, which are seen in increased demand within supply chains and investment in tourism offerings; and induced spending, which refers to the re-circulation of tourist money within the community as locals spend their tourism-derived income on other local goods and services. This multiplier effect demonstrates a positive ripple throughout the local economy. Direct income from the concert of M. Perković Thomson in the city of Zagreb, was confirmed by tax administration data - caterers issued more than 480 thousand invoices on the day of the concert in the metropolis. They collected almost 9,620,000 euros. That is 203% more than on the same day a week before. The singer's team has not yet provided the total cost of the organization. It is estimated that they earned around 16 million euros from tickets alone. But that is not the only source of income. They previously stated that they stopped adding up the costs after the figure of 12 million.

However, event tourism also carries negative economic consequences. Events can lead to increased living costs for local residents and heightened business competition, potentially making goods and services unaffordable during peak seasons. Tourism-related jobs are often seasonal and may be low-paying, offering limited long-term stability for the local workforce. There is also a significant risk of "leakage," where a substantial portion of revenues generated by tourism leaves the host community due to foreign ownership of businesses or the hiring of non-resident seasonal workers.

While the potential for economic benefit is high, the actual distribution and retention of that benefit within the local community are not guaranteed and can be undermined by these structural issues. Sustainable event tourism strategies must actively implement measures to minimize leakage, such as promoting local sourcing, supporting local entrepreneurship, and ensuring fair wages for local workers. Proactive policies are also needed to manage rising living costs to prevent negative impacts on residents and ensure equitable distribution of benefits. The clear presentation of both positive and negative economic impacts highlights a critical paradox: the very success of event tourism in generating economic growth can simultaneously create adverse conditions for the local population. This includes price increases for tourist items and conflicts of interest among investors. This indicates that if not managed carefully, economic growth can lead to resentment or displacement among residents. Therefore, event tourism planning requires a balanced approach that goes beyond maximizing revenue. It must prioritize inclusive economic development, ensuring that the benefits are widely shared within the community and that negative externalities on local residents are actively mitigated through thoughtful policy and community engagement.

5.2. Sociocultural Impacts

The sociocultural impacts of event tourism are complex and multifaceted, affecting both visitors and host communities. On the positive side, events foster cultural exchange and social interaction, promoting community development, particularly in rural areas. They contribute to a heightened sense of community pride, allowing locals to showcase their heritage and fostering a shared sense of identity. Events also provide valuable opportunities for local merchants and artists to showcase and sell their products and culture, stimulating interest in local crafts and traditions. Event tourism can provide financial incentives for the preservation of cultural histories, heritage sites, and customs, thereby contributing to cultural revitalization. Conversely, event tourism can lead to the "commodification of culture," where cultural traditions and artifacts are utilized for commercial profit. While this can create jobs for local craftsmen and generate tourist interest in traditional arts, critics argue it may lead to the destruction or dilution of pre-tourist cultures and contribute to social problems such as drug abuse, crime, prostitution, and the growth of capitalist and consumer values. This highlights a fundamental tension: the economic incentive to preserve and promote culture for tourism can inadvertently lead to its alteration or dilution, transforming authentic practices into marketable products. Event tourism strategies must navigate this delicate balance by prioritizing authentic cultural experiences, ensuring that local communities retain control over their cultural narratives, and implementing policies that prevent over-commercialization. Strong community participation is essential to safeguard cultural integrity and ensure that tourism serves as a vehicle for preservation rather than erosion. The "demonstration effect" suggests that local inhabitants may imitate the behavioral patterns of tourists, often driven by a desire to improve social status by adopting consumption patterns of those perceived as higher on the social scale. However, this theory is criticized for implying cultural weakness and overlooking other influences like advertising and media, and for failing to acknowledge that all cultures are in a continuous state of change. "Community participation," involving collaboration among local members to achieve common goals and improve their local area, is crucial for strengthening communities, fostering a sense of belonging, and making tourism more authentic. Active local involvement can maximize positive impacts and minimize negative ones by ensuring that local voices are heard in planning processes. "Acculturation," the process by which a local culture modifies itself by borrowing from more dominant (often tourist) cultures, can lead to dramatic shifts in social structure and worldview. This process is sometimes criticized for contributing to the "homogenization of cultural differences" and the decline of traditional societies.

Other negative impacts include potential friction between local groups due to differing social and moral values, a correlation with rising delinquent behaviors and crime rates (e.g., rowdy behavior, alcohol/drug use, loud noise), disruption from crowding and increased traffic, and the emergence of "tourism fatigue" or "anti-tourism sentiment" among residents. The importance of resident satisfaction for long-term sustainability is paramount, as demonstrated by the potential for negative social friction if residents perceive more burdens than benefits. Event tourism planning must therefore adopt a community-centric approach, prioritizing the well-being and active involvement of local residents, including effective visitor management strategies, transparent communication about impacts, and equitable distribution of benefits to ensure that events contribute positively to the quality of life for all stakeholders.

5.3. Environmental Impacts

Event tourism presents a complex environmental profile, capable of both positive and negative effects. On the positive side, it can raise environmental awareness among attendees and locals, encourage sustainable behaviors, and support local conservation initiatives through funding or direct engagement. Our previous research was related to the establishment of cultural and national identity, both Croatian and European, and the thesis of its negation. The main findings of our research show that Croatia does not have a recognizable identity in the world, and that Croats themselves do not know for sure what the elements of national identity are. Although the value of the Croatian brand has been growing over the years, it still lags significantly behind the strongest brands of countries such as the United Kingdom or Germany. What two recent concerts have highlighted for us, is this actually an expression of the negation of identity? However, the overall impact is generally negative. Increased tourist numbers, particularly for large events, lead to higher demands for resources such as water and electricity, and can exacerbate waste output, energy consumption, and emissions. The construction of tourism infrastructure, including hotels, restaurants, and roads, also contributes to direct and indirect environmental impacts. Specific case studies illustrate these challenges: Wat Phra That Doi Suthep, a historical site, showed the highest environmental impact (e.g., CO₂ emissions, ecotoxicity) due to its significantly larger number of visitors, leading to increased resource consumption and waste generation. Noise and light pollution from events can disturb local wildlife and alter their behavior, impacting delicate ecosystems. The tourism sector as a whole accounts for approximately 5% of global CO₂ emissions, with air travel contributing a substantial 40% of tourism-related CO₂. Cruise ships, a fast-growing segment, further contribute to ocean pollution through wastewater and sewage dumping, anchor damage to seabeds and coral reefs, and smokestack emissions. Environmental challenges like extreme weather events and pollution also pose direct dangers to natural resources and infrastructure vital for tourism, highlighting the vulnerability of the sector to climate change. These observations reveal an inherent conflict between growth and sustainability. A direct correlation exists between increased tourist numbers, a sign of growth, and heightened environmental burdens such as higher CO₂ emissions, increased waste, and resource consumption. This implies a trade-off, where the imperative for economic growth in event tourism often directly conflicts with environmental sustainability goals, particularly for large-scale events. Achieving truly sustainable event tourism therefore requires more than superficial "greenwashing"; it necessitates fundamental shifts in event design, infrastructure, and visitor behavior, potentially including limits on visitor numbers, promoting low-carbon transport, and investing heavily in circular economy principles. The industry faces significant pressure to contribute to net-zero transformations. Recognizing these challenges, sustainability practices have emerged as a significant market driver, attracting environmentally conscious attendees. This indicates that sustainability is no longer just an ethical consideration or a regulatory burden, but a strategic imperative that directly influences consumer choice and market competitiveness.

Event organizers and destinations that proactively adopt and transparently communicate their sustainable practices will gain a competitive edge in attracting a growing segment of environmentally conscious travelers. This will drive innovation in green event technologies, waste management solutions, and sustainable supply chains, pushing the entire industry towards more responsible development. There is a growing focus in research on Net Zero transformation and decarbonization of event operations , emphasizing the need for event tourism to be integrated into a comprehensive sustainable development plan to ensure its long-term viability and positive impact.

Table 1: Summary of Economic, Sociocultural, and Environmental Impacts of Event Tourism

<i>Impact Category</i>	<i>Positive Impacts</i>	<i>Negative Impacts</i>
Economic	Revenue Generation, Job Creation, Local Spending, Infrastructure Development, Tax Revenue, Stable Growth	Increased Living Costs for Locals, Business Competition, Seasonal/Low-Paying Jobs, Leakage of Revenue
Sociocultural	Cultural Exchange, Community Pride, Opportunities for Local Artisans, Heritage Preservation, Intercultural Interaction	Commodification of Culture, Potential for Social Problems (crime, drug abuse), Demonstration Effect, Acculturation, Friction Between Locals/Tourists, Crowding, Tourism Fatigue
Environmental	Increased Environmental Awareness, Promotion of Sustainable Behaviors, Support for Local Conservation	Increased Waste Output, Higher Energy Consumption, Increased Emissions (CO2), Pollution (Air, Water, Soil), Resource Depletion, Infrastructure-related Impacts (habitat disruption)

6. ACADEMIC RESEARCH IN EVENT TOURISM

6.1. Common Research Methodologies and Approaches

Event tourism remains a relatively young field of study, offering significant opportunities for in-depth exploration and methodological innovation. Academic research in this domain employs a diverse array of methodologies, encompassing both qualitative and quantitative approaches to gather and analyze data. Common quantitative methods include surveys, which are widely used for collecting numerical data from a large number of respondents to understand preferences and behaviors, and to test hypotheses. Qualitative methods, such as in-depth interviews, provide rich insights from tourism stakeholders, while focus groups facilitate group discussions to generate detailed data on tourist experiences or new service concepts. Observational studies involve systematically noting tourist behaviors and interactions to understand patterns and themes. Case studies offer in-depth analysis of specific events or locations, providing detailed examinations of unique impacts.

Ethnographic research provides detailed insights into cultural aspects that influence tourism through extensive fieldwork, often involving researchers immersing themselves in the cultural setting. There is a clear trend towards the increasing use of mixed-methods designs, combining both qualitative and quantitative approaches, to provide a more comprehensive understanding of complex phenomena. Advanced analytical techniques, such as Structural Equation Modelling (SEM) and Multiple Correspondence Analysis (MCA), are also becoming more prevalent, reflecting the growing sophistication of the field. This methodological maturation reflects the growing complexity of the subject. The increasing adoption of varied research approaches and advanced analytical techniques indicates a maturation of the field, moving beyond simple metrics to capture the nuanced, contextual meanings of experiences. This suggests that future event tourism research will increasingly demand interdisciplinary collaboration and proficiency in a wider array of analytical tools to provide deeper, more holistic understandings of human behavior, social dynamics, and the intricate impacts of events, moving beyond basic economic assessments. In the era of technology and big data, innovative research strategies are emerging. These include analyzing archival materials, leveraging online databases, employing text mining, and conducting scientific qualitative analysis of social media historical data. Research also increasingly explores the spatial footprint of events using passive mobile location data from smartphones, Wi-Fi sensors, and laser sensors, allowing for detailed analysis of visitor numbers across various spatial and temporal dimensions before, during, and after an event. Studies comparing digital and physical cultural festival experiences also utilize a combination of qualitative and quantitative methods to understand audience engagement in the post-pandemic era. The mention of leveraging digital footprints and big data highlights a significant digital transformation in research. This move from traditional survey-based methods to utilizing digital data offers unprecedented opportunities for real-time, large-scale, and unobtrusive data collection, providing new avenues for understanding visitor flows and behaviors. Researchers in event tourism need to develop new ethical guidelines and robust analytical frameworks to manage and interpret vast amounts of digital data. This shift enables more dynamic and granular understandings of visitor behavior, spatial impacts, and real-time sentiment, which can inform more agile and data-driven event management and policy decisions.

6.2. Prevalent Themes and Focus Areas in Event Tourism Studies

Historically, event studies primarily focused on large-scale events such as festivals, mega-events, and sporting events, alongside a broad exploration of sustainability's three pillars. However, as a young and evolving field, research has expanded into a plethora of topics, reflecting the growing recognition of the sector's complexity and diverse implications. Emerging areas of inquiry include examining a wider range of events and their connections to identities, particularly collective identities. There is also a deeper dive into sustainability concepts, resource management, security considerations, the roles of various stakeholders, the effects of events on residential populations and their legacies, and the implications of technological advancements, notably Artificial Intelligence (AI). Research increasingly focuses on the impacts of events on individuals, including attendee motivations, satisfaction, and subsequent loyalty. There is an increased attention to small-scale and cultural events, alongside a continued focus on marketing, consumer behavior, tourist experience, and the role of technology. The importance of human resources in event management is also gaining more attention as a critical area for investigation. Key themes in event experience research, as highlighted by the ATLAS Event Group, include the social dimension of events (e.g., the impact of group size on enjoyment and memories, the links between community events and social capital, and the development of scales like the Event Social Interaction Scale - ESIS to measure social interaction's effect on experiences).

Research our aims have shifted beyond basic marketing to understanding the deeper meaning and significance of event experiences, including niche areas like co-creation, gender, sexual orientation, generational differences, racism, and spectatorship. The shift from event-centric to human-centric and destination-centric research is a notable progression. This signifies a profound shift from merely studying the event as an isolated entity to understanding its broader human dimensions (attendees, residents) and its long-term, holistic effects on the destination's identity and well-being. Future research will increasingly adopt a holistic, human-centered approach, recognizing that the success of event tourism is not solely about visitor numbers or economic metrics but also about creating meaningful experiences, fostering positive resident perceptions, and contributing to sustainable community development. This necessitates greater interdisciplinary collaboration with fields such as psychology, sociology, and urban planning. In terms of event planning research, our key interests are identified through systematic reviews include strategic planning, stakeholder participation and cooperation, resource and risk planning, and sustainability principles. Popular event themes, such as cultural, seasonal, futuristic, and historical, are also studied for their impact on marketing appeal and audience engagement. Sustainability and technology are consistently highlighted as intertwined, cross-cutting themes. Sustainability is a past focus, an area for "deeper dive," and a key principle in modern planning models. Simultaneously, "technological advancements" and the "impacts of artificial intelligence" are identified as crucial future research areas. Current industry trends also underscore AI's role in personalization and productivity, and technology's support for accessibility. This demonstrates that sustainability and technology are not isolated themes but are increasingly synergistic; technology can enable more sustainable practices (e.g., smart destination management, waste reduction), while sustainable events can leverage technology for greater reach and impact. Research needs to explore this complex, synergistic relationship between technology and sustainability in event tourism, investigating how AI can optimize resource use and reduce carbon footprints, and how virtual or hybrid events can contribute to environmental goals. This interdisciplinary focus is crucial for developing innovative, responsible solutions to complex challenges facing the industry.

6. 3. Key Findings from Academic Research on Event Experiences and Planning

Academic research on event experiences has evolved significantly, moving from implicit studies to more explicit and nuanced investigations of measurement and meaning, often employing diverse approaches. Methodologies have progressed from predominantly quantitative to incorporate qualitative and mixed methods, recognizing their value in revealing contextual meanings related to individual well-being and *communitas*. A key finding is the centrality of the social dimension of events. Studies have examined the impact of group size on enjoyment and memories, explored links between community events and social capital, and developed scales like the Event Social Interaction Scale (ESIS) to measure social interaction's effect on experiences. Authenticity and immersion are strong influencers of overall event experiences, alongside a sense of belonging, place, and atmosphere. Research also indicates that experiences are strongly influenced by both the personal characteristics of visitors and the contextual elements of the event, including place, design, and programming. While novelty and entertainment elements often score highest in immersive experiences, the high cost of such experiences can be a limiting factor. Interestingly, socialisation was not always found to be a primary element in immersive experiences, suggesting that visitors might be deeply engaged in their personal experience rather than seeking social interaction. The literature shows a broad consensus on the basic components of theoretical models in tourism event planning, including strategic planning, stakeholder engagement, resource management, and sustainability principles. These elements are consistently emphasized due to their role in aligning events with long-term tourism strategies and optimizing economic impacts.

Stakeholder theory is a central framework for managing and evaluating stakeholder roles and relationships in event tourism. Effective frameworks integrate risk management components to address potential threats and ensure safety and successful allocation of resources. Modern theoretical models increasingly incorporate sustainability practices, focusing on minimizing environmental impacts and maximizing social benefits. The evolving nature of research aims is also evident, moving beyond basic marketing and service quality objectives to analyzing the deeper meaning and significance of event experiences. There is a growing interest in understanding how experiences can stimulate transformations in people and event design, with concepts like "Organic Festivity Theory" exploring immersion in collaborative activities and cyclically aroused emotions to create transformative, liminal, and social capital-increasing optimal experiences. This discussion on the nature of event experiences has added complexity, opening opportunities for niche research on co-creation, gender, sexual orientation, generational differences, racism, economics, and spectatorship.

7. CONCLUSIONS

Event tourism stands as a dynamic and increasingly vital sector within the global tourism industry, characterized by its strategic intent to attract visitors through meticulously planned events. Its evolution from ancient communal gatherings to a sophisticated, formalized academic and professional field in the late 20th century underscores its growing recognition as a powerful tool for economic development and broader regional advancement. The distinction between event tourism, as a strategic leveraging of events for destination goals, and event management, as the operational execution, highlights the necessity of integrated and collaborative approaches for sustained success. The enduring human motivation for event-driven travel, evident since antiquity, continues to fuel the sector's growth. However, the modern scale and complexity of event tourism are deeply intertwined with the industrialization and democratization of travel that began in the 19th century. This historical trajectory reveals that the sector's future growth remains highly dependent on advancements in transportation, digital connectivity, and travel affordability. Event typologies, ranging from mega-events to local community gatherings, serve diverse strategic objectives for destinations, necessitating a nuanced approach to event portfolio development. The specific economic characteristics of segments like Business Events (MICE) further underscore the need for tailored infrastructure and marketing strategies to maximize high-yield tourism. The growth of event tourism is driven by a complex interplay of destination attractiveness, effective marketing, evolving consumer preferences for immersive and sustainable experiences, and robust infrastructure. This indicates that proactive and innovative strategies are essential to amplify inherent appeal and ensure sustained market competitiveness. The impacts of event tourism are profoundly dual-sided. Economically, while it generates substantial revenue, creates jobs, and stimulates local spending, it also poses risks of increased living costs, business competition, and revenue leakage, necessitating policies that ensure equitable distribution of benefits. Socioculturally, events foster community pride and cultural exchange but can also lead to the commodification of culture, social friction, and tourism fatigue if not managed with strong community participation and respect for local integrity. Environmentally, despite potential for awareness, the sector contributes significantly to resource consumption, waste, and emissions, presenting an inherent conflict between growth and sustainability. This tension, however, also positions sustainability as a critical competitive differentiator, driving innovation towards responsible practices. Academic research in event tourism reflects the field's maturation, moving towards more sophisticated methodologies, including mixed methods and big data analytics, to capture the complexity of event experiences. A notable shift is observed from event-centric studies to human-centric and destination-centric inquiries, focusing on individual motivations, resident perceptions, and long-term community well-being.

Furthermore, sustainability and technology are emerging as intertwined, cross-cutting themes, signaling a future where innovation must actively contribute to responsible and resilient event tourism development. The continued evolution of research in these areas is crucial for navigating the challenges and unlocking the full potential of event tourism for global prosperity and cultural exchange. Therefore, creating ever greater opportunities for learning about event management will allow us to boldly and confidently put ourselves on the world map as good event organizers and participants.

LITERATURE:

1. Boes K, Buhalis D, Inversini A. Conceptualising smart tourism destination dimensions. In: Tussyadiah I, Inversini A, editors. *Information and communication technologies in tourism*. Cham: Springer; 2015. p. 391–403. https://doi.org/10.1007/978-3-319-14343-9_29
2. Getz, D. “Event tourism: Definition, evolution, and research,” *Tourism Management*, vol. 29, no. 3, pp. 403–428, 2008.
3. Greg, R., Robert, P., *Eventful Cities: Cultural Management and Urban Revitalisation*. 2010.
4. Laing, J. “Festival and event tourism research: Current and future perspectives,” *Tourism Management Perspectives*, vol. 25, pp. 165–168, 2018.
5. Mair and M. Whitford, J. “An exploration of events research: event topics, themes and emerging trends,” *International Journal of Event and Festival Management*, vol. 4, no. 1, pp. 6–30, 2013.
6. Wagner and M. Peters, O. “Can association methods reveal the effects of internal branding on tourism destination stakeholders?,” *Journal of Place Management and Development*, vol. 2, no. 1, pp. 52–69, 2009.
7. Antchak, V., Ziakas, V., Getz, D. *Event Portfolio Management: Theory and Methods for Event Management and Tourism*. Goodfellow Publishers Ltd., 2019.
8. Getz, D., Page, S. J. *Event Studies: Theory, Research and Policy for Planned Events*. Routledge, 2019.
9. Valčić, M., Breslauer, N. *Menadžment događanja, Školska knjiga*, 2024.

ATTRACTIVENESS OF THE ELECTRIC CAR MARKET: ANALYSIS OF THE TESLA BRAND

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ABSTRACT

The purpose of the paper is to investigate the attractiveness of electric cars in the eyes of consumers in the Croatian market and to examine the possible purchase intention for electric cars. A review of the academic literature found that there is a lack of research on consumer attitudes towards buying an electric car. Research has largely focused on the technical features and availability of service networks and charging stations, so this paper seeks to fill the gap in the field of research on consumer attitudes. Quantitative survey of Croatian consumers was conducted to investigate attitudes towards Tesla electric cars. A survey questionnaire was used to measure the constructs of Tesla brand attractiveness, perception of environmental benefits, perception of electric car promotion, and purchase intention of Tesla brand electric cars. The results of the study show that Croatian consumers are familiar with the features of Tesla electric cars, but are not yet interested enough to drive or buy one. The environmental benefits have a positive effect on the attractiveness of Tesla-branded electric cars, which, together with promotion has a positive effect on the intention to buy an electric car. Research limitations include a relatively small sample in the Republic of Croatia, so future research should include a larger number of electric car owners in a wider geographic area. This primary research provides useful data on consumer attitudes and contributes to a better understanding of consumer behaviour regarding electric vehicles in the region.

Keywords: *Sustainable Consumers, Environment, Electric Cars, Tesla Brand*

1. INTRODUCTION

The beginnings of the development of electric cars go back more than a hundred years, but the infrastructure was not yet sufficient and there was a lack of financial resources to give these products a significant place on the market. Nevertheless, the public was interested in electric cars because they recognized the positive impact they would bring. With the entry into the digital age and the greater purchasing power of consumers on the one hand, and the increasing concern for the environment and the new knowledge of manufacturers on the other, electric cars are becoming popular again. Various models of electric cars have been developed, from those with modest equipment and low range to cars that can compete with the world's best brands with a single charge and their characteristics. Electric cars have proven to be a promising solution to address environmental concerns and reduce dependence on fossil fuels.

There is a lack of research in the academic literature on consumer perceptions of the attractiveness of electric cars. Most of the academic literature focuses on production technology (Larminie & Lowry, 2012; Zhang et al., 2018; Sanguesa et al., 2021; Ma et al., 2022; Kumar et al., 2023), environmental and sustainability impacts (Hawkins et al., 2012; Shafique et al., 2022; Wu et al., 2023), economic aspects (Mazali et al., 2022; Fayyazi et al., 2023) and regulatory frameworks (Xue et al., 2021; Martin et al., 2023). From a consumer perspective, the elements of satisfaction with battery range and available service network are the most researched (Sovacool, 2017; Kim et al., 2017; Higuera-Castillo et al., 2021). The research problem of this paper is to evaluate the attractiveness of electric cars among consumers and analyze their purchase intentions. The aim of the research is to understand the attitudes, preferences and factors that influence the decisions of potential electric car buyers in order to better understand the market acceptance of these cars and identify possible approaches to stimulate their purchase. The aim of the research was to determine respondents' views on the attractiveness of electric cars with a focus on the Tesla brand, their motivation and desire to use and buy electric cars. The research followed the research questions: How attractive are Tesla-branded electric cars in the eyes of consumers? How does the promotion of electric cars affect the desire to buy electric cars? How does prior knowledge about electric cars affect the intention to buy electric cars? How do electric cars affect the perception of possible environmental benefits? Quantitative research was conducted using a questionnaire to obtain answers to the previously asked questions and to determine how familiar and interested respondents are as drivers in using Tesla electric cars. Furthermore, this paper provides an overview of the relevant academic literature, research methodology, empirical research findings, discussion and research conclusions, as well as limitations and recommendations for future research.

2. THEORETICAL BACKGROUND

This literature review aims to explore the current state of knowledge regarding electric cars, focusing on their technology, environmental benefits, purchase intentions, attractiveness and promotion.

2.1. Electric cars technology

Electric car technology has evolved significantly in recent years, driven by the growing need for sustainable transportation solutions (Larminie & Lowry, 2012). The technological advances in the development and manufacture of electric cars have been the subject of extensive research. Key areas include battery technology, charging infrastructure and powertrain efficiency (Sanguesa et al., 2021; Ma et al., 2022; Kumar et al., 2023). Researchers have focused on improving the energy density, durability and safety of these batteries. Advances in cathode and anode materials, electrolyte composition and battery management systems have played a crucial role in improving the overall performance of the batteries (Scrosati et al., 2015; Ntombela et al., 2023). The development of a robust charging infrastructure is essential for the widespread adoption of electric cars. Researchers and industry players are working to increase charging speed, efficiency and accessibility (Thangavel et al., 2023). Efficiency improvements in electric car powertrains have been central to maximizing the range and performance (Mazali et al., 2022). Research efforts also explore the integration of artificial intelligence and machine learning algorithms to optimize powertrain performance based on driving conditions and user behavior (Fayyazi et al., 2023). The concept of car-to-grid technology enables electric cars to not only consume energy, but also contribute back to the grid during periods of high demand. This bidirectional energy flow has the potential to improve grid stability and support the integration of renewable energies. Research is currently underway to clarify the technical challenges and policy considerations for widespread adoption of these new systems (Alsharif et al., 2021).

2.2. Environmental benefits

Several studies have examined the environmental impact of electric cars compared to conventional cars with internal combustion engines (Hawkins et al., 2012; Pipitone et al., 2021). Life cycle assessments and carbon footprint analyses have been conducted to assess the overall sustainability of electric cars (Hawkins et al., 2013; Shafique et al., 2022). As the global community intensifies its efforts to combat climate change, the environmental impact of transportation, a major contributor to greenhouse gas emissions, is under closer scrutiny. Electric cars have emerged as a promising alternative that has the potential to reduce the environmental footprint associated with traditional internal combustion engine cars (Guzman et al., 2022). Carbon footprint analyses specifically focus on quantifying the amount of greenhouse gas emissions associated with a product or activity. In the context of electric cars, researchers have conducted analyses to compare the carbon footprint of electric cars and conventional cars (Ghosh, 2020). This takes into account factors such as power sources, manufacturing processes and the lifespan of the vehicle (Xia et al., 2022). The production of electric car components, especially batteries, requires the extraction of rare metals and minerals. Efforts are being made to develop sustainable practises, such as improving battery recycling technologies and exploring alternatives to resource-intensive materials (Zhang et al., 2018; Rajaeifar et al., 2022; Wu et al., 2023).

2.3. Purchase intentions

The adoption of electric cars is influenced by a complex interplay of technological advancements, consumer preferences, government policies, and economic factors. Understanding market trends and purchase intent is crucial for predicting the trajectory of the electric car industry (Al-Alawi & Bradley, 2013; Archsmith et al., 2022). Consumer attitudes and preferences play a pivotal role in the adoption of electric cars (Sovacool, 2017). Studies have explored the factors influencing consumer decision-making, including perceptions of electric cars technology, concerns about driving range, and the availability of charging infrastructure. Consumer education, awareness campaigns, and positive experiences with electric cars are identified as essential elements in shaping favorable attitudes and purchase intentions (Kim et al., 2017; Higuera-Castillo et al., 2021; Corradi et al., 2023). Government policies and incentives have a significant impact on the electric car market (Sierzchula et al., 2014). Many countries have implemented measures such as tax credits, subsidies, and regulatory frameworks to encourage purchase of electric cars. Research indicates a positive correlation between supportive government policies and increased electric car sales (Xue et al., 2021). The economic aspects of electric car adoption are multifaceted. Initial purchase costs, total cost of ownership, and the availability of financial incentives are critical factors influencing consumer decisions. Martins et al. (2023) emphasizes the importance of achieving cost parity with traditional cars for widespread adoption. The future direction of electric cars involves greater integration with smart technologies and advancements in connectivity. Mwasilu et al. (2014) explore the integration of autonomous driving features, car-to-grid technology, and smart grid compatibility. These innovations aim to enhance the overall efficiency, safety, and user experience of electric cars, positioning them as key components of smart and sustainable mobility ecosystems. Despite the positive trends, electric cars face challenges such as limited charging infrastructure, range anxiety, and higher upfront costs (Corradi et al., 2023).

2.4. Attractiveness of Electric Cars

Electric cars have gained significant traction in recent years due to a combination of factors that make them increasingly attractive to consumers, policy makers and industry stakeholders. One of the main reasons for the attractiveness of electric cars is their potential to reduce greenhouse

gas emissions and mitigate environmental impact. Electric cars produce zero tailpipe emissions during operation, which leads to an improvement in air quality and public health, especially in urban areas. Growing awareness of climate change and the need for sustainable transportation solutions has increased the appeal of electric cars among environmentally conscious consumers (Choi et al., 2018; Kumar et al., 2021). Features such as regenerative braking, energy-efficient heating and cooling systems and over-the-air software updates contribute to improve the driving experience and overall appeal of electric cars. With fewer moving parts and a simplified powertrain, electric cars require less maintenance and have a longer lifespan, resulting in lower maintenance and repair costs over time. In addition, government incentives, tax credits and subsidies further improve the cost-effectiveness of electric cars, making them an attractive option for consumers (Larson et al., 2014). Electric cars offer a unique and enjoyable driving experience characterized by smooth and quiet operation, as well as brisk acceleration and responsive handling, which enhances driving dynamics. Advances in battery technology have significantly improved the range of electric cars. Many electric cars now offer ranges comparable to or even exceeding those of conventional vehicles on a single charge. The increasing availability of charging stations and shorter charging times further increase the attractiveness of electric cars (Egbue & Long, 2012; Alanazi, 2023).

2.5. Promotion of the electric cars

One of the primary challenges in promoting electric cars is the lack of consumer awareness and understanding. Lane and Potter (2007) highlighted that consumer often have misconceptions about electric cars, including range anxiety, charging infrastructure, and overall performance. Educational campaigns that provide accurate information about the benefits and capabilities of electric cars can significantly enhance consumer interest and acceptance (Archsmith et al., 2022). Economic incentives play a pivotal role in promoting electric cars. Governments worldwide have implemented various subsidies, tax rebates, and grants to lower the upfront cost (Xue et al., 2021). Mersky et al. (2016) found that financial incentives are highly effective in increasing sales, particularly when combined with public awareness campaigns. Promoting the environmental benefits is effective strategy. Research by Egbue and Long (2012) indicates that highlighting the reduction in carbon emissions and the positive impact on air quality can appeal to environmentally conscious consumers. Mangram (2012) investigated the promotional activities of Tesla's electric cars. Sales promotion involves some type of incentive offer or interest-generating activity that is usually a short-term marketing activity, as opposed to direct marketing, advertising, publicity or personal selling. Tesla's promotional activities primarily include events where the company's vehicles are prominently displayed and demonstrated. Branding efforts that emphasize innovation, luxury, and sustainability can differentiate electric cars from traditional and appeal to diverse consumer segments (Hardman et al., 2018). An interesting study was also conducted on how various factors such as income level, fuel price, age, CO₂ emissions, purchase price, vehicle range, policy policies and environmental concerns affect consumer preferences (Balcioglu et al., 2024).

3. METHODOLOGY

The methodology of this research is based on quantitative research using a questionnaire in order to examine the attitudes of respondents and their intention to buy electric cars. A carefully designed questionnaire was used to measure the constructs of Tesla brand attractiveness, perception of environmental benefits, perception of electric car promotion and intention to buy Tesla brand electric cars. The Tesla brand was chosen because it plays a major role in the production of electric cars and is also the most popular company producing electric cars. The research hypothesizes the following: H1: The attractiveness of Tesla brand electric cars has a positive influence on the intention to buy electric car. H2: The promotion of electric cars has a

positive impact on electric car buy intention. H3: The perception of potential environmental benefits has a positive effect on the attractiveness of Tesla-branded electric cars. In order to achieve the research objectives, an empirical study was conducted with a sample of citizens of the Republic of Croatia who hold a driving license. Respondents were asked questions in written form, and the research instrument was a questionnaire based on parts of previous research (Liao et al., 2017; Franke et al., 2012; Verma et al., 2020; Hardman et al., 2018; Goel et al., 2023). The questionnaires were distributed via social networks (WhatsApp, Viber, Facebook and Instagram). The level of structure of the questions offered is dichotomous and multiple choice, and structured questions with undisguised objectives were used. The questionnaire was anonymous and the data was collected from a deliberate random sample between April 3, 2023 and April 13, 2023. The respondents are of different ages, have different levels of education and have different personal monthly incomes. In addition, the snowball technique was used, in which respondents were asked to pass the survey on to their acquaintances after they had completed the survey. The questionnaire began with an elimination question: "Do you drive, i.e. do you have a driver's license?". If the respondent answered "no" to this question, they were not given the opportunity to complete the survey further. The total number of correctly completed surveys is 222.

4. EMPIRICAL DATA ANALYSIS

The sample of respondents included 222 completed questionnaires. The elimination question "Do you drive a car / do you have a driving license?" was answered in the affirmative by 207 respondents (93.2 %) and in the negative by 15 (6.8 %), who were unable to complete the questionnaire and were excluded from further research. This confirmed 207 correctly completed questionnaires were confirmed and included in the further analysis. The questionnaire was completed by 136 women (65.7%) and 71 men (34.3%). Most questionnaires were completed by respondents aged 18 to 24 years (29.47%), followed by respondents aged 45 to 54 years (22.2%). Only one respondent was older than 65 (0.48%). The majority of respondents indicated completed graduate studies as their level of education (32.37%), while the fewest respondents indicated a postgraduate study as their level of education, namely 19 of them (9.18%). In this research, 144 respondents are employed (69.56%), while 5 respondents are unemployed (2.42%). 95 of the 44 respondents stated that their personal monthly income was over €2000 (21.26%), while 7 respondents stated that they earned less than €800 per month (3.38%). When asked "Do you drive an electric car?", 197 respondents (95.2%) answered that they do not drive an electric car, while 10 of them (4.83%) answered yes. The respondents who answered yes could indicate which electric car they drive in the next question, and the answers were: Enyaq iV, Honda Accord, Mitsubishi Eclipse Cross PHEV, Opel Mokka, Renault Twingo, Renault Clio, Tesla Y, Toyota C-HR, Škoda Citigo iV and BMW i3. In order to find out how interested respondents were in electric cars, they were asked to rate their own interest in electric cars. It turns out that most respondents have a low (37.2%) and medium (36.7%) interest in electric cars. The smallest number of respondents, 25 of them (12.1%), have a great interest in electric cars. Also, when asked whether the respondents had any experience with electric cars or whether they had ever driven one, 161 of them (77.8%) answered that they had not yet had the opportunity to do so, while the rest of the respondents (22.2%) answered in the affirmative. As many factors influence the purchase of a classic or electric car, respondents were asked to name the most important factor in their opinion. Most respondents said that fuel consumption/range was the most important factor for them when buying a new car (37.2), followed by price (31.9), appearance (13), the opinion of specialist magazines (4.3), the opinion of family and friends (3.9%) and the opinion of people in the showroom (0.5%). Respondents also had the opportunity to give an open response, with the most common responses being price/quality ratio, the possibility of a test ride, personal experience with the brand,

functionality, performance, speed and safety. When asked about the biggest drawback of electric cars, 59 respondents (28.5%) mentioned the price, followed by the lack of charging stations (28%) and range (24.6%). Charging time is the biggest drawback for 21 respondents (10.1%), and 1.4% of respondents see safety and reliability as the biggest disadvantages. Twelve respondents (6%) cited the following as further disadvantages: the driving experience, environmental degradation caused by the use of lithium and electric car batteries, inadequate storage of used batteries and more expensive insurance. Descriptive statistics of the arithmetic mean and standard deviation for the constructs: Promotion of electric cars, purchase intention, perception of potential environmental benefits and attractiveness of electric cars are presented in Table 1.

Table 1: Arithmetic mean and standard deviation of constructs

	Arithmetic mean	Standard deviation
Promotion		
I don't think there's enough talk about electric cars.	2,952	1,046
I think my interest in electric cars would be greater if they were promoted in the way that classic cars are promoted.	3	1,246
Car promotion in general (via television, radio, digital channels, etc.) significantly influences my decision when buying a car.	2,628	1,179
Intent to purchase		
I think electric cars will replace classic cars in the near future.	3,266	1,204
There is an electric car on the market that you would like to own.	3,261	1,358
When buying your next car, I will consider buying an electric car.	2,645	1,328
I'm willing to pay a higher price for an electric car model.	2,411	1,231
The "Design/Style" feature is important to me in electric cars.	3,560	1,151
The "Comfort" feature is important to me in electric cars.	3,826	1,083
The "Safety" feature is important to me in electric cars.	4,382	1,081
The "Reach" feature is important to me in electric cars.	4,329	1,092
The "Lower Maintenance Cost" feature is important to me with electric cars.	4,179	1,150
A perception of potential environmental benefits		
I generally take care of preserving the environment and save energy.	3,657	1,063
By using electric cars, we can contribute to the preservation of the environment.	3,773	1,270
I am familiar with the incentive measures of the project "We drive economically" initiated by the Ministry of Environmental and Nature Protection and the Environmental Protection and Energy Efficiency Fund.	2,896	1,381
If there is a government incentive to buy electric cars, I would use the incentive and buy an electric car.	3,333	1,296
Electric cars are environmentally sustainable in the long run.	3,333	1,231
Attractiveness		
I have a desire to drive or buy electric cars "Tesla".	2,928	1,411
I am familiar with the characteristics and price of electric cars "Tesla".	3,227	1,282
I find electric cars "Tesla" attractive.	3,408	1,277

*Table 1: Arithmetic mean and standard deviation of constructs
(Source: author's calculation)*

The average score for the construct "Promotion of electric cars" ranges from 2.628 to 3. The highest scoring statement is that respondents believe that their interest in electric cars would be greater if they were promoted in the same way as classic cars. The standard deviation values for all variables are greater than 1 and show no significant dispersion of the data from the arithmetic mean. For the construct "Intent to buy electric cars", it can be seen that the best-rated statement "Characteristic Safety is important to me" is rated best with an average value of 4.382, while the worst-rated statement, with an average value of 2.411, is: "I'm willing to pay a higher price for an electric car model". The standard deviation for all variables is greater than 1, but they show a dispersion of the data from the arithmetic mean. The following construct related to the perception of potential environmental benefits is the highest scoring statement in this construct: "By using electric cars, we can contribute to the preservation of the environment" with an average score of 3.773. The average score for the variable: "I am familiar with the incentive measures of the project "We drive economically" initiated by the Ministry of Environment and Nature Protection and the Fund for Environmental Protection and Energy Efficiency" with 2.896 and is therefore also the lowest scoring statement in this construct. The value of the standard deviation for all variables is greater than 1 and shows the dispersion of the data from the arithmetic mean. The main part of the questionnaire related to the construct "Attractiveness of electric cars on the example of the "Tesla" brand". 204 respondents (98.6%) stated that they had heard of the electric car brand "Tesla". Of these, 165 respondents (80.9%) had a positive opinion of the Tesla brand. The highest rated statement in the construct presented is "Electric cars "Tesla" I find attractive" with an average rating of 3.408. The lowest rated statement was "I have a desire to drive or buy electric cars" Tesla" with an average rating of 2.928. The standard deviation values for all variables are greater than 1 and show a moderate dispersion of the data from the arithmetic mean.

5. RESULTS AND DISCUSSION

Descriptive analysis is followed by a presentation of correlation analysis, through correlation matrices, which shows the connection of individual variables with the dependent variable.

	<i>Attractiveness</i>	<i>Promotion</i>	<i>Intention</i>
<i>Attractiveness</i>	1		
<i>Promotion</i>	0,19939881	1	
<i>Intention</i>	0,58019306	0,380261	1

*Table 2: Correlation analysis (1)
(Source: author's calculation)*

Table 2 shows that there is a strong and positive correlation between the 'Attractiveness of electric cars of the "Tesla" brand and the 'Intention to buy electric cars' ($r=0.580193$; $p<0.05$). In addition, a moderate and positive correlation was found between "Promotion of electric cars" and "Intention to buy electric cars" ($r=0.380261$; $p<0.05$), which confirms the H1 and H2 hypothesis.

	<i>Perception</i>	<i>Attractiveness</i>
<i>Perception</i>	1	
<i>Attractiveness</i>	0,530828	1

*Table 3: Correlation analysis (2)
(Source: author's calculation)*

The correlation analysis (Table 3) revealed a strong and positive correlation between the "Perceptions of potential environmental benefits" and the "Attractiveness of electric cars brand "Tesla" ($r=0.540828$; $p<0.05$), which is predicted by the H3 hypothesis. To determine whether the "Attractiveness of electric cars of the brand "Tesla" and "Promotion of electric cars" can predict "Intention to buy electric cars", a multiple regression analysis was conducted, which is shown in Table 4.

Indicators			
Coefficient of multiple correlation R	0,640		
Coefficient of determination R ²	0,401		
Customized R ²	0,404		
Standard error	5,499		
F-ratio	70,741		
Moment	0,000		
Independent variables	β	t	Say.
Konstanta	14,427	9,252	0,000
The attractiveness of tesla electric cars	1,196	9,567	0,000
Promotion of electric cars	0,699	5,018	0,000

*Table 4: Multiple regression analysis
(Source: author's calculation)*

In the observed regression model, it was found that a combination of independent variables statistically significantly predicts a dependent variable ($F=70.74$; $p<0.05$). In doing so, "Attractiveness of the electric cars brand "Tesla" ($\beta=1.196$; $p<0.05$) explains the 40.95% variation in "Intent to buy electric cars". In order to determine whether the future attractiveness of electric cars can be predicted using the example of the Tesla brand based on the perception of potential environmental benefits, a simple regression analysis was conducted, as shown in Table 5.

Indicators			
Coefficient of multiple correlation R	0,531		
Coefficient of determination R ²	0,282		
Customized R ²	0,278		
Standard error	2,657		
F-ratio	80,427		
Moment	0,000		
Independent variables	β	t	Say.
Konstanta	3,235	4,437	0,000
A perception of potential environmental benefits	0,372	8,968	0,000

*Table 5: Simple regression analysis
(Source: author's own creation according to research results)*

The results of the regression analysis are statistically significant ($F = 80.42714795$; $p < 0.05$). The coefficient of determination shows that the 28.18% variation in the dependent variable "attractiveness of Tesla electric cars" is the result of variations in the independent variable "perception of potential environmental benefits". This means that 28.18% of the variation in the "attractiveness of electric cars" can be predicted by the variable "perception of potential environmental benefits". Furthermore, it can be concluded from the regression coefficient that the increase in perception values by one rating is associated with an average increase of 0.372 ratings in the results of the "attractiveness of electric cars using the example of the Tesla brand". Therefore, it is to be expected that the potential growth of the population's environmental awareness will play a significant role in the electric car market in the future.

5.1. Limitations of the research carried out and recommendations for future research

The research has certain limitations, starting with the sample. The number of respondents is not sufficient for such a research topic and in future studies it is necessary to expand the sample and include respondents from abroad, where electric cars are a more popular topic and a larger number of respondents own an electric car. In addition to the geographical restriction, there is also a gender-specific one, as the proportion of female respondents in this survey was 65.7%. Furthermore, most of the respondents were aged 18-24 (29.5%), which is also a limitation considering that it is assumed that respondents in Croatia at this age cannot afford an electric car without government subsidies. In addition, according to the feedback from the respondents after completing the questionnaire, it is necessary to give a multiple answer to the questionnaire on the shortcomings of electric cars, as only one answer was possible in the questionnaire. Given the limitations of the research conducted, the recommendations for further research are primarily to increase the number of respondents and reduce the gender gap between men and women. In addition, future research should include a sample with a higher proportion of middle-income respondents and extend the research to other countries in order to obtain a more representative sample. Notwithstanding the limitations, this research provides an insight into the current data on the attractiveness of electric cars and their uptake in Croatia and is an excellent basis for the development of new research. Although electric cars are becoming increasingly popular, they have not yet been sufficiently researched in Croatia, so further research on this topic needs to be conducted.

6. CONCLUSION

The attractiveness of electric cars stems from their environmental benefits, technological advances, cost savings and the overall driving experience. As the market for electric cars continues to develop and mature, electric cars are poised to play a central role in the transition to sustainable and zero-emission transportation systems. The aim of the study was to find out how familiar and interested respondents are in using Tesla electric cars, how familiar they are with electric cars in general, whether they intend to buy this type of car and what the main disadvantages of electric cars are. This research has shown that the environmental benefits have a positive effect on the attractiveness of Tesla-branded electric cars, which, together with promotion has a positive effect on the intention to buy an electric car. The conclusion is that all three hypotheses were confirmed and the suggestions for improvement are to increase the number of respondents and extend the research to other countries. Increasing the number of respondents would provide more complete and relevant data that electric car manufacturers could use as a business guide, as the respondents also pointed out the negative sides of electric cars that manufacturers can turn into positive attributes in the future. On the other hand, it would be interesting to conduct this research in developed countries, where respondents generally have a higher standard and it is easier for them to afford an electric car, so it is assumed that the price is not the biggest disadvantage for them.

Each market is different and requires unique customization for the product to become significant and be well received by customers, and it is desirable that such research is conducted across a wider geographical area. If the wishes and intentions of the European Union to end the production of cars with internal combustion engines in 2035 are realised, electric cars will not only be permanent, but also the only solution for all drivers. Most of the answers about the shortcomings of electric cars were related to the price, which was to be expected if we take into account the standard of Croatia and the average salary compared to the developed countries of the European Union. Tesla offers models whose price is up to €150,000, and in this regard, such car models are not affordable for the vast majority of citizens of the Republic of Croatia. On the positive side, almost all respondents (98.6%) have heard of the Tesla brand, and 80.9% of them have a positive opinion of the company. Accordingly, it is only a matter of time before electric cars fully develop in Croatia and become the main means of transportation on the roads. Before that, of course, it is necessary to follow the trends, improve the infrastructure and raise consumer awareness of the benefits of electric cars. This topic is very important not only for Croatia, but also for the rest of the Europe and the whole world, as the world is in a time when it is deciding the future of generations to come and it is of utmost importance to pay attention to the preservation of the environment. The population is becoming more and more aware that CO₂ emissions from combustion engine cars are one of the biggest problems in terms of pollution. Although everyone is aware that this is one of the biggest milestones in the automotive industry, it will take some time, but also the desire for such a change.

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LITERATURE:

1. Al-Alawi, B. M., & Bradley, T. H. (2013). *Review of hybrid, plug-in hybrid, and electric car market modeling studies*. *Renewable and Sustainable Energy Reviews*, 21, 190-203. <https://doi.org/10.1016/j.rser.2012.12.048>
2. Alanazi, F. (2023). *Electric cars: benefits, challenges, and potential solutions for widespread adaptation*. *Applied Sciences*, 13(10), 6016. <https://doi.org/10.3390/app13106016>
3. Alsharif, A., Tan, C. W., Ayop, R., Dobi, A., & Lau, K. Y. (2021). *A comprehensive review of energy management strategy in Car-to-Grid technology integrated with renewable energy sources*. *Sustainable Energy Technologies and Assessments*, 47, 101439. <https://doi.org/10.1016/j.seta.2021.101439>
4. Archsmith, J., Muehlegger, E., & Rapson, D. S. (2022). *Future paths of electric car adoption in the United States: predictable determinants, obstacles, and opportunities*. *Environmental and Energy Policy and the Economy*, 3(1), 71-110. <https://www.journals.uchicago.edu/doi/pdf/10.1086/717219>
5. Balcioglu, Y. S., Sezen, B., & İşler, A. U. (2024). *Evolving preferences in sustainable transportation: a comparative analysis of consumer segments for electric vehicles across Europe*. *Social Responsibility Journal*. <https://doi.org/10.1108/SRJ-12-2023-0713>
6. Choi, H., Shin, J., & Woo, J. (2018). *Effect of electricity generation mix on battery electric car adoption and its environmental impact*. *Energy Policy*, 121, 13-24. <https://doi.org/10.1016/j.enpol.2018.06.013>
7. Corradi, C., Sica, E., & Morone, P. (2023). *What drives electric car adoption? Insights from a systematic review on European transport actors and behaviours*. *Energy Research & Social Science*, 95, 102908. <https://doi.org/10.1016/j.erss.2022.102908>

8. Egbue, O., & Long, S. (2012). *Barriers to widespread adoption of electric cars: An analysis of consumer attitudes and perceptions*. *Energy policy*, 48, 717-729. <https://doi.org/10.1016/j.enpol.2012.06.009>
9. Fayyazi, M., Sardar, P., Thomas, S. I., Daghig, R., Jamali, A., Esch, T., ... & Khayyam, H. (2023). *Artificial intelligence/machine learning in energy management systems, control, and optimization of hydrogen fuel cell cars*. *Sustainability*, 15(6), 5249. <https://doi.org/10.3390/su15065249>
10. Franke, T., Neumann, I., Bühler, F., Cocron, P., & Krems, J. F. (2012). *Experiencing range in an electric car: Understanding psychological barriers*. *Applied Psychology*, 61(3), 368-391. <https://doi.org/10.1111/j.1464-0597.2011.00474.x>
11. Ghosh, A. (2020). *Possibilities and challenges for the inclusion of the electric car (EV) to reduce the carbon footprint in the transport sector: A review*. *Energies*, 13(10), 2602. <https://doi.org/10.3390/en13102602>
12. Goel, P., Kumar, A., Parayitam, S., & Luthra, S. (2023). *Understanding transport users' preferences for adopting electric car based mobility for sustainable city: A moderated moderated-mediation model*. *Journal of Transport Geography*, 106, 103520. <https://doi.org/10.1016/j.jtrangeo.2022.103520>
13. Guzman, J. I., Faúndez, P., Jara, J. J., & Retamal, C. (2022). *On the source of metals and the environmental sustainability of battery electric cars versus internal combustion engine cars: The lithium production case study*. *Journal of Cleaner Production*, 376, 133588. <https://doi.org/10.1016/j.jclepro.2022.133588>
14. Hardman, S., Jenn, A., Tal, G., Axsen, J., Beard, G., Daina, N., ... & Witkamp, B. (2018). *A review of consumer preferences of and interactions with electric car charging infrastructure*. *Transportation Research Part D: Transport and Environment*, 62, 508-523. <https://doi.org/10.1016/j.trd.2018.04.002>
15. Hawkins, T. R., Gausen, O. M., & Strømman, A. H. (2012). *Environmental impacts of hybrid and electric cars—a review*. *The International Journal of Life Cycle Assessment*, 17, 997-1014. <https://doi.org/10.1007/s11367-012-0440-9>
16. Hawkins, T. R., Singh, B., Majeau-Bettez, G., & Strømman, A. H. (2013). *Comparative environmental life cycle assessment of conventional and electric cars*. *Journal of industrial ecology*, 17(1), 53-64. <http://dx.doi.org/10.1111/j.1530-9290.2012.00532.x>
17. Higuera-Castillo, E., Guillén, A., Herrera, L. J., & Liébana-Cabanillas, F. (2021). *Adoption of electric cars: Which factors are really important?*. *International Journal of Sustainable Transportation*, 15(10), 799-813. <https://doi.org/10.1080/15568318.2020.1818330>
18. Kim, S., Lee, J., & Lee, C. (2017). *Does driving range of electric cars influence electric car adoption?*. *Sustainability*, 9(10), 1783. <https://doi.org/10.3390/su9101783>
19. Kumar, M., Panda, K. P., Naayagi, R. T., Thakur, R., & Panda, G. (2023). *Comprehensive Review of Electric Car Technology and Its Impacts: Detailed Investigation of Charging Infrastructure, Power Management, and Control Techniques*. *Applied Sciences*, 13(15), 8919. <https://doi.org/10.3390/app13158919>
20. Kumar, R. R., Chakraborty, A., & Mandal, P. (2021). *Promoting electric car adoption: Who should invest in charging infrastructure?*. *Transportation Research Part E: Logistics and Transportation Review*, 149, 102295. <https://doi.org/10.1016/j.tre.2021.102295>
21. Lane, B., & Potter, S. (2007). *The adoption of cleaner vehicles in the UK: exploring the consumer attitude–action gap*. *Journal of cleaner production*, 15(11-12), 1085-1092. <https://doi.org/10.1016/j.jclepro.2006.05.026>
22. Larminie, J., & Lowry, J. (2012). *Electric car technology explained*. John Wiley & Sons. http://formulahybrid.ru/Books/new/Electric_Vehicle_Technology_Explained.pdf

23. Larson, P. D., Viáfara, J., Parsons, R. V., & Elias, A. (2014). *Consumer attitudes about electric cars: Pricing analysis and policy implications*. *Transportation Research Part A: Policy and Practice*, 69, 299-314. <https://doi.org/10.1016/j.tra.2014.09.002>
24. Liao, F., Molin, E., & van Wee, B. (2017). *Consumer preferences for electric cars: a literature review*. *Transport Reviews*, 37(3), 252-275. <https://doi.org/10.1080/01441647.2016.1230794>
25. Ma, S. C., Xu, J. H., & Fan, Y. (2022). *Characteristics and key trends of global electric car technology development: A multi-method patent analysis*. *Journal of Cleaner Production*, 338, 130502. <https://doi.org/10.1016/j.jclepro.2022.130502>
26. Mangram, M. E. (2012). *The globalization of Tesla Motors: a strategic marketing plan analysis*. *Journal of Strategic Marketing*, 20(4), 289-312. <https://doi.org/10.1080/0965254X.2012.657224>
27. Martins, H., Henriques, C. O., Figueira, J. R., Silva, C. S., & Costa, A. S. (2023). *Assessing policy interventions to stimulate the transition of electric car technology in the European Union*. *Socio-Economic Planning Sciences*, 87, 101505. <https://doi.org/10.1016/j.seps.2022.101505>
28. Mazali, I.I.; Daud, Z.H.C.; Hamid, M.K.A.; Tan, V.; Samin, P.M.; Jubair, A.; Ibrahim, K.A.; Kob, M.S.C.; Xinrui, W.; Talib, M.H.A. (2022). *Review of the methods to optimize power flow in electric vehicle powertrains for efficiency and driving performance*. *Applied Sciences*, 12(3), 1735. <https://doi.org/10.3390/app12031735>
29. Mersky, A. C., Sprei, F., Samaras, C., & Qian, Z. S. (2016). *Effectiveness of incentives on electric vehicle adoption in Norway*. *Transportation Research Part D: Transport and Environment*, 46, 56-68. <https://doi.org/10.1016/j.trd.2016.03.011>
30. Mwasilu, F., Justo, J. J., Kim, E. K., Do, T. D., & Jung, J. W. (2014). *Electric cars and smart grid interaction: A review on car to grid and renewable energy sources integration*. *Renewable and sustainable energy reviews*, 34, 501-516. <https://doi.org/10.1016/j.rser.2014.03.031>
31. Ntombela, M., Musasa, K., & Moloi, K. (2023). *A comprehensive review for battery electric cars (bev) drive circuits technology, operations, and challenges*. *World Electric Car Journal*, 14(7), 195. <https://doi.org/10.3390/wevj14070195>
32. Pipitone, E., Caltabellotta, S., & Occhipinti, L. (2021). *A life cycle environmental impact comparison between traditional, hybrid, and electric cars in the European context*. *Sustainability*, 13(19), 10992. <https://doi.org/10.3390/su131910992>
33. Rajaeifar, M. A., Ghadimi, P., Raugei, M., Wu, Y., & Heidrich, O. (2022). *Challenges and recent developments in supply and value chains of electric car batteries: A sustainability perspective*. *Resources, Conservation and Recycling*, 180, 106144. <https://doi.org/10.1016/j.resconrec.2021.106144>
34. Sanguesa, J. A., Torres-Sanz, V., Garrido, P., Martinez, F. J., & Marquez-Barja, J. M. (2021). *A review on electric cars: Technologies and challenges*. *Smart Cities*, 4(1), 372-404. <https://doi.org/10.3390/smartcities4010022>
35. Scrosati, B., Garche, J., & Tillmetz, W. (Eds.). (2015). *Advances in battery technologies for electric cars*. Woodhead Publishing.
36. Shafique, M., Azam, A., Rafiq, M., & Luo, X. (2022). *Life cycle assessment of electric cars and internal combustion engine cars: A case study of Hong Kong*. *Research in Transportation Economics*, 91, 101112. <https://doi.org/10.1016/j.retrec.2021.101112>
37. Sierzchula, W., Bakker, S., Maat, K., & Van Wee, B. (2014). *The influence of financial incentives and other socio-economic factors on electric car adoption*. *Energy policy*, 68, 183-194. <https://doi.org/10.1016/j.enpol.2014.01.043>

38. Sovacool, B. K. (2017). *Experts, theories, and electric mobility transitions: Toward an integrated conceptual framework for the adoption of electric cars*. *Energy research & social science*, 27, 78-95. <https://doi.org/10.1016/j.erss.2017.02.014>
39. Thangavel, S., Deepak, M., Girijaprasanna, T., Raju, S., Dhanamjayulu, C., & Muyeen, S. M. (2023). *A comprehensive review on electric car: battery management system, charging station, traction motors*. IEEE access. <https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=10056124>
40. Verma, M., Verma, A., & Khan, M. (2020). *Factors influencing the adoption of electric cars in Bengaluru*. *Transportation in Developing Economies*, 6(2), 17. <https://doi.org/10.1007/s40890-020-0100-x>
41. Wu, X., Ji, G., Wang, J., Zhou, G., & Liang, Z. (2023). *Toward Sustainable All Solid-State Li–Metal Batteries: Perspectives on Battery Technology and Recycling Processes*. *Advanced Materials*, 35(51), 2301540. <https://doi.org/10.1002/adma.202301540>
42. Xia, X., Li, P., Xia, Z., Wu, R., & Cheng, Y. (2022). *Life cycle carbon footprint of electric cars in different countries: A review*. *Separation and Purification Technology*, 301, 122063. <https://doi.org/10.1016/j.seppur.2022.122063>
43. Xue, C., Zhou, H., Wu, Q., Wu, X., & Xu, X. (2021). *Impact of incentive policies and other socio-economic factors on electric car market share: A panel data analysis from the 20 countries*. *Sustainability*, 13(5), 2928. <https://doi.org/10.3390/su13052928>
44. Zhang, X., Li, L., Fan, E., Xue, Q., Bian, Y., Wu, F., & Chen, R. (2018). *Toward sustainable and systematic recycling of spent rechargeable batteries*. *Chemical Society Reviews*, 47(19), 7239-7302. <https://doi.org/10.1039/C8CS00297E>

EXPLORING ECONOMIC DRIVERS OF THE 2021 SURGE IN ARTISTIC ORGANIZATIONS IN CROATIA USING THE PUSH-PULL ENTREPRENEURSHIP FRAMEWORK

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ABSTRACT

In 2021, Croatia experienced a rise in newly registered artistic organizations, despite facing economic challenges and the aftermath of destructive earthquakes and COVID-19. This paper investigates the motivations behind this surge, focusing on whether founders were driven by necessity or by new opportunities. Using the push-pull framework from entrepreneurship theory, a survey of organization founders revealed that most were inspired by the desire to realize their creative potential and gain independence, rather than by a lack of employment options or workplace conflicts. The findings suggest that opportunity-driven motivations played a stronger role than necessity-driven ones. Even in times of crisis, Croatian artists chose to pursue their ambitions, highlighting the importance of supporting creativity and innovation in the cultural sector.

Keywords: *Artistic organizations, Croatia, entrepreneurship, push-pull framework, motivation, creative sector, economic crisis*

1. INTRODUCTION

The cultural and creative sector through sub-industries of creative industry contributes directly to employment, economic growth and social cohesion. (Harc et al, 2019.) In the European Union, these sectors were significant economic contributors, accounting for approximately 4.4% of GDP and 3.8% of employment prior to the pandemic. However, the COVID-19 crisis delivered a shock to these industries, resulting in widespread closures, event cancellations, and significant income losses. In Croatia, this economic strain was compounded by a series of destructive earthquakes in 2020, creating a dual-layered crisis that severely tested the nation's creative community. In 2021, Croatia saw an unusual spike in new artistic organizations, despite economic challenges and moderate unemployment. During a time of economic hardship and social disruption, something unexpected happened: the number of new artistic organizations registered in Croatia jumped to about 40 in 2021. What makes this even more surprising is that it occurred when the country's unemployment rate was 7.61%. The rise in new artistic organizations during a difficult period is an interesting topic for economists and sociologists. The question is: why did so many people start these organizations despite the challenges? To answer this, the report uses the push-pull framework from entrepreneurship theory, which looks at whether people were motivated by necessity (push factors) or by new opportunities (pull factors). The goal is to find out which type of motivation was stronger for founders of artistic organizations in Croatia in 2021.

2. LITERATURE REVIEW

Culture and creativity are key engines of economic development, generating a wide range of positive impacts (EC, 2018).

These sectors foster creative entrepreneurship, show above-average growth, and create new job opportunities. This not only stimulates economic growth but also strengthens social cohesion (EC, 2018). The creative industry workforce is distinguished by a high percentage of educated individuals and by a high degree of flexibility and mobility in working hours (Benhamou, 2003). These sectors are also significant contributors to youth employment; for instance, in 2013, nearly one-fifth of the employed workforce was aged 15 to 29 (Ihermitte et al., 2014). Another defining characteristic of the creative industry is the high rate of self-employment, with many "One-Person-Enterprises" (OPEs) and freelancers (Rammer et al., 2008). The unique nature of creative business models—focused on developing complex, hard-to-standardize goods and services—means they often don't fit well with traditional working hours (Falk et al., 2011). Because of the uncertainty in demand and income, many creative workers have irregular employment, such as part-time or temporary positions (Kooyman, 2010). Many combine freelance or part-time work with a permanent job to ensure financial stability and support their creative pursuits (Kooyman, 2010). These specific employment forms directly influence the industry's innovativeness, as creative workers often engage in frequently changing project teams, which allows for a free flow of information and fresh ideas, thereby facilitating interactive learning and innovation (Falk et al., 2011). The socio-economic importance of entrepreneurship in driving economic growth is widely recognized (Alverado, 2014). The concept of what an entrepreneur is has changed quite a bit since it first appeared in economic theory. Early definitions, like the one from Richard Cantillon in the 18th century, described the entrepreneur as someone who takes risks with capital (Cantillon, 1755). Later, Jean-Baptiste Say refined this idea, seeing the entrepreneur as someone who moves resources to where they'll be more productive (Say, 1803). Joseph Schumpeter took this a step further, defining the entrepreneur as a disruptive force who drives economic development by constantly innovating and challenging the status quo (Schumpeter, 1942). While these definitions often focus on financial gain and market disruption, applying them to the creative economy requires a different view. In Croatia, artistic organizations are legally non-profit, with a primary goal of promoting cultural value for societal benefit rather than maximizing profit. While they can generate income through grants and services, their core motivation is often distinct from traditional commercial enterprises. For artists, founding an organization is less about increasing personal wealth and more about realizing a creative vision and contributing to their community's cultural life. This emphasis on purpose over pure profit represents a redefinition of entrepreneurial success in a sector where value is often non-monetary. The decision to become an entrepreneur is influenced by many factors, including age, education, family background, individual abilities, and the external environment. Scientific literature often highlights internal control, which means an individual's belief that their actions, rather than chance or luck, determine outcomes (Shapiro, 1984). The motivation of an individual is a decisive factor in their behavior, although not the sole one (Krueger Jr, 1993, Ajzen, 1991). An individual's performance is influenced by their intrinsic nature, which is a reaction to internal circumstances and shaped by their perceptions (Shapiro, 1984). A special group of stakeholders in the arts are artist-entrepreneurs. While there are many definitions, for this context, an artist-entrepreneur is an individual who independently creates, distributes, promotes, and prices their artwork (Colbert & Ravanis, 2018; Calcagno & Balzarini, 2016; Bridgstock, 2013). This means they operate without the support of galleries, museums, or production and publishing houses. Togharae et al. (2018, p. 10) state that: "an entrepreneur in the arts is a person without deep knowledge or involvement in marketing and promotional services." Richards and Wilson (2007) note that artists are often forced into entrepreneurship out of necessity, unlike entrepreneurs in other fields who are motivated by self-realization or the challenge of a new venture. Artists often have little desire to start a business, but necessity pushes them to do so.

The push-pull framework is a great way to analyze these motivations. The push theory suggests people are driven into entrepreneurship by negative circumstances, such as job loss, low salary, or other unfavorable work conditions (Block & Wagner, 2010). It's essentially a conflict between a person's current reality and their desired situation (Block & Wagner, 2010). In contrast, the pull theory argues that people are drawn to entrepreneurship by positive, opportunity-driven factors. These are often external forces like identifying a market gap or a new business idea, or internal desires for autonomy and self-realization. Generally, literature on entrepreneurship motivation supports the idea that pull factors are more likely to lead to long-term success than push factors, which are often short-lived (Kolvereid, 1996). It's important to note, however, that these two factors are not completely separate. There is a consensus among experts that motivation is often a combination of both push and pull factors (Block & Wagner, 2010). A negative circumstance (a "push") can act as a catalyst for an individual to pursue an existing opportunity (a "pull"). This dynamic interplay between necessity and opportunity is crucial for understanding entrepreneurial motivation, especially within purpose-driven sectors like the arts. This paper seeks to answer a central question: were necessity-driven (push) or opportunity-driven (pull) factors more prominent for founders in 2021? Our hypothesis is: **Hypothesis (H1):** Founders of artistic organizations in Croatia in 2021 were motivated by a combination of pull factors, such as the desire to realize creative potential and achieve independence, and push factors, such as dissatisfaction with previous work experiences.

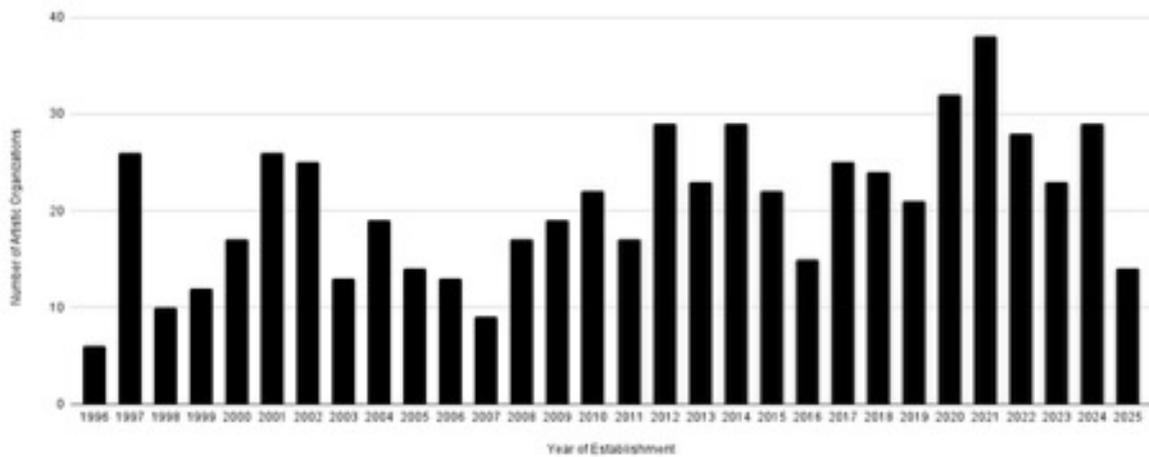
3. METHODOLOGY

To investigate the motivations behind the 2021 peak, a primary survey was conducted among founders of new artistic organizations in 2021. Data on registrations was sourced from the Croatian Ministry of Culture and Media's official Register. From the 36 artistic organizations registered in 2021, a sample of 21 founders responded to the online survey, resulting in a 58% response rate. The survey instrument was designed to specifically test the push-pull framework within the context of the arts. It adapted an established methodology from Gódány et al. (2021) and utilized a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire included a total of 16 items: 9 pull factors and 7 push factors, with questions tailored to the creative sector. For example, a pull item was "I started to realize my full creative potential," while a push item was "I had no other employment options due to COVID-19." The survey was distributed via email and online platforms in Croatian, with all ethical considerations for anonymity upheld. The demographic data from the sample provides valuable context. The median birth year of respondents was 1988, with a standard deviation of 11.26 years. This indicates a median age of approximately 33 in 2021, suggesting that the founders were not recent graduates or entry-level artists, but rather individuals with a certain level of professional experience. The descriptive statistics, including median, mean, and standard deviation, were computed using JASP software.

4. RESULTS

The data indicates a historical period of low organizational growth in the late 1990s, with new establishments ranging from approximately 5 to 10 annually. This initial phase was followed by a consistent and gradual increase throughout the 2000s and 2010s, where the number of new organizations annually fluctuated between 10 and 30. This upward trend culminated in a significant and sudden peak in 2021, when nearly 40 new artistic organizations were founded.

Croatian Artistic Organizations: Annual Establishment Rate



The provided categorical data offers a detailed breakdown of the types of organizations established over the entire period. This distribution reveals that certain artistic disciplines have a significantly higher rate of formal organization. The most prominent categories are **Theatrical** (21.46%) and **Musical-scenic** (17.7%), collectively accounting for nearly 40% of all new organizations. Other substantial categories include **Film** (12.36%), **Music** (11.49%), and **Multimedia Creation** (10.69%). The predominance of these categories suggests that the growth observed in the bar chart is largely driven by a strong focus on performing arts and media-related fields.

Distribution of Registered Artistic Organisations Across Municipalities in Croatia



Map: Web plus data • Source: Ministarstvo kulture i medija • Map data: © OSM • Created with Datawrapper

The survey of founders from 2021 shows that pull factors, such as the desire to realize creative potential or be one's own boss, had average scores between 3.24 and 4.24. In contrast, push factors, like lack of job options or workplace conflicts, had much lower averages, ranging from 1.24 to 3.24. This means that in 2021, most founders were more strongly motivated by positive opportunities than by necessity.

Rank	Type	Variable (Original Croatian)	Median	Mean	Std. Deviation
1	Pull	Realize full creative potential (Pokrenuo sam svoju umjetničku organizaciju jer sam želio ostvariti svoj puni kreativni potencijal.)	5.000	4.238	1.221
2	Pull	Be my own boss (Pokrenuo sam svoju umjetničku organizaciju jer sam želio biti sam svoj šef u upravljanju svojom umjetničkom praksom.)	5.000	4.000	1.414
2	Pull	Desire for self-development (Pokrenuo sam svoju umjetničku organizaciju jer imam snažnu želju za samo-razvojem kao umjetnik.)	5.000	4.000	1.304
3	Pull	Recognized demand for new products/services (Pokrenuo sam svoju umjetničku organizaciju jer sam prepoznao potražnju za novim umjetničkim proizvodima ili uslugama.)	4.000	3.667	1.354

4	Pull	Earn more through creative work (Pokrenuo sam umjetničku organizaciju jer sam želio zaraditi više novca kroz svoj kreativni rad.)	4.000	3.619	1.322
4	Pull	Achieve financial independence (Pokrenuo sam svoju umjetničku organizaciju jer sam želio postići financijsku neovisnost kako bih podržao svoju umjetnost.)	4.000	3.619	1.322
5	Pull	Ensure well-being for self/family (Pokrenuo sam svoju umjetničku organizaciju jer sam želio osigurati dobrobit za sebe i svoju obitelj.)	4.000	3.286	1.765
6	Push	Dissatisfied with previous experience (Pokrenuo sam svoju umjetničku organizaciju jer sam bio nezadovoljan svojim prethodnim radnim iskustvom u umjetnosti ili srodnim područjima.)	3.000	3.238	1.480
6	Pull	Achieve non-financial independence (Pokrenuo sam svoju umjetničku organizaciju jer sam želio postići neovisnost (npr. fleksibilno vrijeme za kreativne aktivnosti).)	3.000	3.238	1.375

7	Pull	Recognition for contributions (Pokrenuo sam svoju umjetničku organizaciju jer sam želio priznanje drugih za svoje umjetničke doprinose.)	2.000	2.476	1.401
7	Push	No other options due to economic uncertainty (Pokrenuo sam svoju umjetničku organizaciju jer nisam imao drugih mogućnosti zaposlenja, posebno tijekom ekonomske nesigurnosti (npr. pandemija COVID-19).)	2.000	2.476	1.470
8	Push	Felt hopelessness (Pokrenuo sam svoju umjetničku organizaciju jer sam osjećao beznadnost u vezi s mojom profesionalnom situacijom u umjetnosti.)	1.000	2.143	1.493
9	Push	Unemployed before starting (Pokrenuo sam svoju umjetničku organizaciju jer sam bio nezaposlen prije pokretanja (npr. zbog pandemije).)	1.000	2.000	1.304
10	Push	Position became insecure (Pokrenuo sam svoju umjetničku organizaciju jer je moja pozicija na prethodnom radnom mjestu postala nesigurna (npr. zbog otkaza povezanih s pandemijom).)	1.000	1.857	1.389

11	Push	Disagreements with manager (Pokrenuo sam svoju umjetničku organizaciju jer sam imao nesuglasice s voditeljem na prethodnom radnom mjestu.)	1.000	1.476	0.814
12	Push	Workplace conflicts (Pokrenuo sam svoju umjetničku organizaciju jer sam doživio sukobe koji su mi onemogućili nastavak rada.)	1.000	1.238	0.539

In 2021, the survey of artistic organization founders in Croatia revealed differences in what motivated people to start new artistic organisations. The most important reasons were the desire to fully use their creative potential, to be their own boss, and to grow as artists. Each of these motivations had an average score of 4 or higher, showing they were very strong influences. On the other hand, reasons like being unemployed before starting or having conflicts at work had much lower average scores, with workplace conflicts rated only 1.24. The only push factor that stood out was dissatisfaction with previous jobs, which scored 3.24, suggesting that while some founders were unhappy in their old roles, most were drawn to new opportunities rather than pushed by negative circumstances.

5. DISCUSSION

The findings of this paper present a compelling narrative that shifts the focus from a crisis-driven response to a proactive, opportunity-driven one. The data suggests that the 2021 peak in new artistic organizations was not a desperate reaction to economic hardship but a manifestation of creative ambition and entrepreneurial spirit. The high mean score for "Realize full creative potential" (4.24) is the powerful finding of this study. It underscores the central role of intrinsic motivation in creative entrepreneurship. This is consistent with literature that emphasizes how an individual's performance and behavior are influenced by their internal nature and reactions to personal circumstances. For artists, the desire to express themselves and realize their creative vision is often a more powerful motivator than the desire for financial gain alone. The pandemic, while creating economic disruption, also brought an unexpected period of reflection and re-evaluation for many artists. The cancellation of traditional projects, exhibitions, and performances created the time and mental space necessary for artists to reconsider their professional paths. This period of forced pause likely accelerated the pursuit of long-held personal and creative goals. Furthermore, the crisis spurred a rapid digital transformation of the arts. Online galleries, virtual performances, and remote collaborations became commonplace, creating new markets and avenues for artistic expression that were not as accessible before the pandemic. The high scores for motivations like "Recognized demand for new products/services" (mean 3.67) and "Achieve financial independence" (mean 3.62) suggest that founders were acutely aware of these new, crisis-catalyzed opportunities.

The findings of this study, in fact, echo similar research from the TEM Journal in Slovakia, which also concluded that opportunity-driven factors, such as the desire for self-development and the recognition of market gaps, are more influential than necessity-based factors in driving entrepreneurial activity. While the data clearly favors pull factors, a more nuanced analysis of the push factor "Dissatisfied with previous experience" (mean 3.24) is necessary. The founders in the survey had a median age of 33, indicating that they were not newcomers to the professional world but likely had prior work experience. This finding suggests that a negative circumstance, such as dissatisfaction with a previous job (a push factor), may not be a primary driver in and of itself but can serve as a catalyst for a proactive change. In this context, dissatisfaction with a hierarchical, non-creative, or restrictive work environment was the impetus that led them to seek the autonomy and creative freedom that their own artistic organization could provide. The low scores for truly desperate necessity factors like "Unemployed before starting" and "Position became insecure" further strengthen the argument that these were not acts of last resort, but rather intentional, purposeful transitions. This dynamic refines entrepreneurship theory, suggesting that for experienced individuals, a "push" is often a transitional trigger rather than a sole motivator. In 2021, most founders were motivated by a strong creative vision and a real desire to make something meaningful, not just by the need to escape a bad situation. Their passion and search for independence point to bigger changes happening in the arts world. Even though these organizations are non-profit and may not grow in the usual business sense, they bring important benefits to society, encourage new ideas, and help communities stay strong and connected. Findings of this paper support the idea that the creative sector in Croatia should focus on what really motivates artists: their passion and drive to pursue new opportunities, not just financial need or crisis relief. The rise in new artistic organizations in 2021 shows that many artists were inspired to act on their creative ambitions, even during tough times. This was not just a reaction to economic problems, but a proactive choice by people who wanted more independence and a chance to realize their ideas.

LITERATURE:

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
2. Alverado, M. (2014). The Role of Entrepreneurship in Economic Development. *Journal of Economics and Sustainable Development*, 5(18), 1-10.
3. Audretsch, D. B. (2007). *Entrepreneurship, Innovation and Economic Growth*. Edward Elgar Publishing.
4. Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.
5. Baumol, W. J. (1990). Entrepreneurship: Productive, unproductive, and destructive. *Journal of Political Economy*, 98(5), 11-37.
6. Benhamou, F. (2003). Artists' labour market. In R. Towse (Ed.), *A Handbook of cultural Economics* (pp. 69-75). Edward Elgar. https://econpapers.repec.org/bookchap/elgeechap/2039_5f7.htm
7. Block, J. H., & Wagner, M. (2010). The effect of self-efficacy on entrepreneurial intentions. *Small Business Economics*, 35(4), 369-389.
8. Cantillon, R. (1755). *Essai sur la Nature du Commerce en Général*.
9. European Commission. (2018). *Culture for cities and regions*. <http://www.cultureforcitiesandregions.eu/culture/home>
10. Falk, R., Bakhshi, H., Falk, M., Geiger, W., Karr, S., Keppel, C., Leo, H., & Spitzlinger, R. (2011). *Innovation and competitiveness of the creative Industries*. Austrian Institute of Economic Research, Wifo. https://www.wifo.ac.at/jart/prj3/wifo/main.jart?content-id=1454619331110&publikation_id=41510&detail-view=yes

11. Finkelstein, S., & Sanford, S. H. (2005). *Why smart executives fail: and what you can learn from their mistakes*. Penguin.
12. Gabor, E. A. (2010). The entrepreneurial journey. *International Journal of Entrepreneurship and Innovation Management*, 11(2), 113-128.
13. Góđány, J. (2021). Determinants of entrepreneurial intentions of university students in Slovakia. *TEM Journal*, 10(1), 324-332.
14. Harc, M., Bestvina Bukvić, I., & Mijoč, J. (2019). Entrepreneurial and innovative potential of the creative industry. In D. Barković, B. Crnković, & M. Zekić Sušac et al. (Eds.), *Interdisciplinary Management Research XV (IMR 2019): book of proceedings* (pp. 1562-1577). Josip Juraj Strossmayer University of Osijek, Faculty of Economics in Osijek, Croatian Academy of Sciences and Arts, Postgraduate doctoral Study Program in Management; Hochschule Pforzheim University.
15. Hébert, R. F., & Link, A. N. (1982). *The Entrepreneur: Mainstream Views and Radical Critiques*. Praeger.
16. Kirzner, I. M. (1973). *Competition and entrepreneurship*. University of Chicago Press.
17. Kolvereid, L. (1996). Organizational employment versus self-employment: reasons for career choice. *Entrepreneurship Theory and Practice*, 20(3), 23-31.
18. Kooyman, R. (2010). *The Entrepreneurial dimension of cultural and creative industries*. http://kultur.creative-europe-desk.de/fileadmin/user_upload/The_Entrepreneurial_dimension_of_the_cultural_and_creative_Industries.pdf
19. Koundouros, G. (2009). The promotion of entrepreneurship culture in Greece: a historical and comparative perspective. *Journal of Small Business and Enterprise Development*, 16(2), 209-224.
20. Krueger Jr, N. F. (1993). The impact of prior entrepreneurial exposure on entrepreneurial intentions. *Entrepreneurship theory and practice*, 18(1), 5-21.
21. McClelland, D. C. (1961). *The Achieving Society*. D. Van Nostrand Company.
22. Rammer, C., Muller, K., Kimpeler, S., & Georgieff, P. (2008). *Third Austrian Report on creative Industries Summary Focus on creative Industries and Innovation*. https://www.kreativwirtschaft.at/wp-content/uploads/2015/12/KWB_Kurzfassung_EN_web.pdf
23. Say, J. B. (1803). *Traité d'économie politique*. Deterville.
24. Schumpeter, J. A. (1942). *Capitalism, Socialism, and Democracy*. Harper & Brothers.
25. Schwenk, C. R. (1995). The role of cognitive biases in strategic decision making. In *Advances in Strategic Management* (pp. 129-158). JAI Press.
26. Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217-226.
27. Shapero, A. (1984). The Entrepreneurial Event. In *The Environment and the Entrepreneur*.
28. Vesper, K. H. (1980). *New venture strategies*. Prentice-Hall.
29. Bridgstock, R. (2013.). Not a dirty word: Arts entrepreneurship and higher education. *Arts and humanities in higher education*, 12(2-3), str. 122-137.
30. Calcagno, M., i Balzarini, L. (2016.). The Artist-entrepreneur Acting as a Gatekeeper in the Realm of Art. *Venezia Arti*, 20, str. 29-36.
31. Elias, S. R., Chiles, T. H., Duncan, C. M., i Vultee, D. M. (2018.). The aesthetics of entrepreneurship: How arts entrepreneurs and their customers co-create aesthetic value. *Organization Studies*, 39(2-3), str. 345-372.
32. Toghraee, M. T., Rezvani, M., Mobaraki, M. H., i Farsi, J. Y. (2018.). Entrepreneurial marketing in creative art based businesses. *International Journal of Management Practice*, 11(4), str. 448-464.
33. Richards, G., i Wilson, J. (Eds.). (2007.). *Tourism, creativity and development* (Vol. 10). Routledge.

STRATEGIES TO ADDRESS THE SOCIAL IMPACTS OF BUILDING DECARBONISATION POLICIES ON VULNERABLE CONSUMERS

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ABSTRACT

The decarbonisation of the European building stock is central to achieving the European Green Deal and the Fit-for-55 targets. Yet, while these measures promise substantial environmental and welfare gains, they also pose distributional risks for low-income households across Central and South-Eastern Europe (CEE/SEE). This paper analyses how three key policy mechanisms: the introduction of Minimum Energy Performance Standards (MEPS), the expansion of the EU Emissions Trading System (ETS2) to buildings, and the progressive phase-out of fossil-fuel boilers, affect vulnerable households. Drawing on modelled scenarios of energy expenditures, investment needs, and policy costs, the paper identifies potential adverse impacts and proposes mitigation strategies based on equity and energy-justice principles. The findings suggest that, although these measures can alleviate structural energy poverty by improving efficiency and comfort, they simultaneously risk deepening vulnerability unless accompanied by near-full subsidies, procedural inclusion, and a coherent use of EU funding instruments.

Keywords: *building decarbonisation, emission trading, energy efficiency, vulnerable households*

1. INTRODUCTION

Decarbonising Europe's building stock is both an environmental necessity and a socio-economic challenge. Buildings account for approximately 36 % of EU carbon emissions and around 40 % of final energy consumption (European Commission 2025b), with a large share of dwellings constructed before modern efficiency standards. (Stegnar 2025) Within Central and South-Eastern Europe, the challenge is accentuated by legacies of inefficient district heating, reliance on solid fuels, and widespread income disparities (Munčan et al. 2024) (Dorjnyambuu 2025). In this context, the European Union has advanced a set of ambitious policy instruments, most notably MEPS, ETS2, and the phase-out of fossil-fuel boilers, to accelerate decarbonisation and reduce reliance on imported fuels (Albulut 2026; Braungardt 2021; EESC 2022; European Commission 2025). However, the distributional consequences of these policies remain insufficiently addressed. Low-income households, tenants, and residents of multi-apartment buildings often lack the capital or credit access to invest in efficiency upgrades, while simultaneously facing higher energy-price exposure. (Miller et al. 2025) Without accompanying social and financial measures, climate mitigation policies risk reproducing or even amplifying existing inequalities, a challenge central to the emerging field of energy justice (Markkanen and Anger-Kraavi 2019). This paper explores how the combined introduction of MEPS, ETS2, and fossil-fuel boiler bans could reshape energy poverty dynamics in CEE/SEE countries.

It focuses on the balance between long-term welfare gains, such as improved comfort, lower energy use, and reduced pollution, and short-term financial burdens associated with investment and fuel-price shifts. (European Commission 2018) By integrating quantitative modelling with qualitative insights, the analysis identifies key risks, gaps in financing, and policy responses necessary to ensure a fair and inclusive transition.

2. METHODOLOGY

The research builds on the multi-country study *Status of Energy Poverty and Policies to Address it in CEE/SEE Countries* and research on policy effects. (Rogulj et al. 2023) It employs a mixed-method approach combining scenario modelling, statistical analysis of household vulnerability indicators, and expert consultation. The analytical framework comprises three stages: assessment of current vulnerabilities, simulation of policy impacts, and identification of mitigation strategies. Energy poverty is conceptualised as both an outcome of material deprivation and an expression of unequal access to energy services. Quantitatively, the study applies indicators developed by the EU Energy Poverty Observatory, notably the *M/2* indicator (share of households whose energy expenditure is below half the national median) and *2M* indicator (share spending more than twice the median relative to disposable income). Qualitative indicators, such as inability to keep the home adequately warm, arrears on utility bills, or damp and mould, provide complementary perspectives on welfare and comfort. (Thema, J. and Vondung, F. 2020), (Sokołowski et al. 2020)

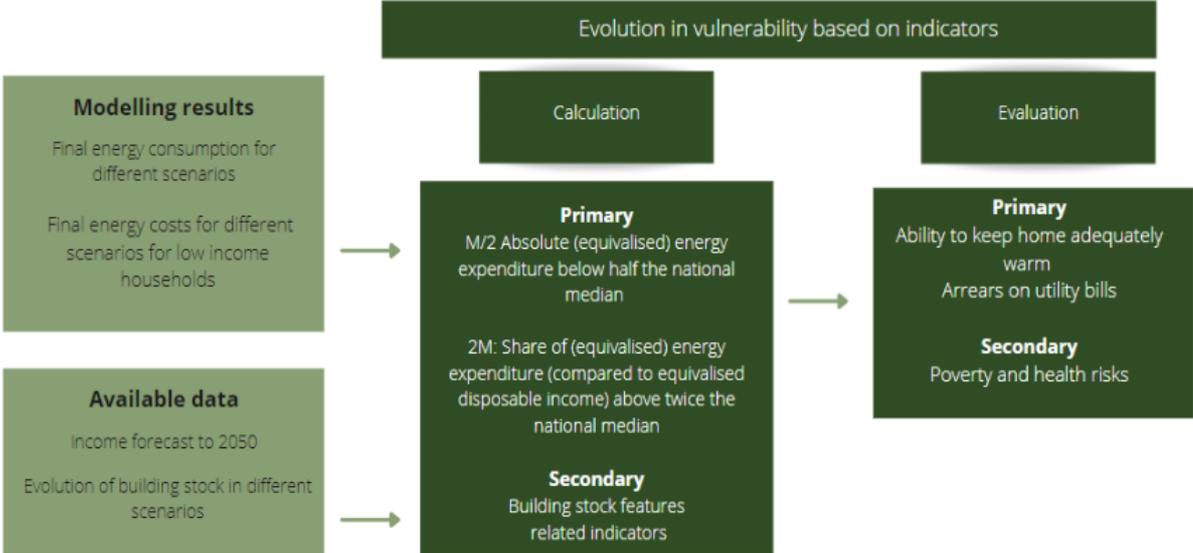


Figure 1 Evaluation of vulnerability

The quantified adverse (or positive) effect is based on the income dimensions, as the compensating variation is used as an index, which expresses the amount by which the mean total expenditure of low-income households would have had to increase/decrease in the target year (for instance 2030, 2040, 2050) to have maintained the baseline year ratio of absolute expenditure in relation to the overall mean energy expenditure in the target year. (Chipman and Moore, 1992) However, since the introduction of some policies does not add to the total energy expenditure but rather introduces new costs of the investments to households, the amount of how much the income would have to increase for a specific household to keep the same welfare level is calculated.

$$B = p_y y + p_x x + p_i i = Y + p_x x + p_i i$$

$x = \text{energy}, p_x = \text{price of energy} \rightarrow p_x x = \text{energy expenditure}$
 $i = \text{investment}, p_i = \text{price of investment} \rightarrow p_i i = \text{total cost of investment}$
 $y = \text{other household needs}, p_y = \text{price of other needs}$
 $= \text{considered constant in our case}$

$B = \text{total budget of the household (we refer to it as household income)}$
 $Y = \text{disposable income after energy \& investment expenditure}$

$$Y = B - p_x X - p_i i$$

$Y_B = \text{disposable income after expenditure in baseline scenario}$
 $Y_{Sx} = \text{disposable income after expenditure in evaluated scenario}$

$$CV = Y_B - Y_{Sx}$$

Data were drawn from Eurostat SILC, the EU Building Stock Observatory, national energy balances, and social statistics. Scenario simulations estimated energy consumption, price effects, and investment needs under alternative policy trajectories for the period 2025–2040. Both low- and high-cost assumptions were modelled to reflect market uncertainties in heat-pump and insulation prices, as well as variable ETS allowance revenues.

Policy Scenarios

Three interrelated scenarios were analysed:

- Minimum Energy Performance Standards (MEPS): Gradual tightening of building-energy-performance requirements, driving deep renovations of the least efficient stock.
- ETS extension: Inclusion of building-sector fuel suppliers in the EU Emissions Trading System, creating a carbon price on household heating fuels.
- Fossil-fuel boiler phase-out: Prohibition of new fossil-fuel boilers by 2040 and progressive replacement with clean-heating technologies.

Each scenario was examined individually and in combination to assess cumulative impacts. Modelling integrated projected household incomes, energy-price trajectories, and building characteristics. Funding scenarios were defined according to expected revenues from the Social Climate Fund (SCF) and auctioned ETS2 allowances.

3. RESULTS

Energy-expenditure effects

The ETS2 mechanism increases retail fuel prices proportionally to carbon intensity. In regions heavily dependent on coal or heating oil, households experience the steepest cost rise. Without compensatory measures, energy expenditures of the lowest-income quintile could rise between 10 % and 25 % in the early implementation years. For households already at risk of energy poverty, such increases could reduce disposable income below subsistence levels, exacerbating arrears and under-heating. Conversely, the implementation of MEPS and heating-system upgrades delivers energy-use reductions that offset these price effects in the medium term. Deep renovations can lower space-heating demand by 50–60 %, translating into significant cost savings once subsidies are applied. Yet, these benefits materialise only if low-income households can access the necessary investment support.

Table 1 - Welfare loss (income increase needed)- value relative to average income

Increase in income needed to cover both variation in energy price and the scenario cost (% of total average income)										
	Bulgaria	Czechia	Greece	Hungary	Italy	Poland	Portugal	Romania	Slovakia	Spain
Scenario 1	0.42	0.09	0.70	-0.01	0.03	-0.92	0.52	0.95	0.49	-0.37
Scenario 2	4.93	1.04	0.14	3.03	0.34	2.62	0.79	1.96	1.37	1.57
Scenario 3	20.55	4.35	8.97	26.80	1.40	7.22	6.67	13.56	6.56	5.21
Scenario 4	25.34	5.37	10.27	30.41	1.73	10.39	7.92	15.55	7.67	7.04
Scenario 5	22.33	4.73	10.11	29.26	1.52	9.53	7.89	14.95	7.23	6.69

Investment burdens and access to finance

The upfront cost of renovations and clean-heating technologies is the principal barrier for vulnerable groups. Without subsidies covering at least 90–100 % of costs, participation remains limited. Low-income households often lack collateral or ownership rights to undertake renovations, while tenants depend on landlords whose incentives are misaligned a manifestation of the “split-incentive” problem (Singhal et al. 2025). Model results indicate that the cumulative investment required for low-income households across the CEE/SEE region could reach €50–70 billion by 2040. Available SCF and ETS2 revenues, even under favourable assumptions, would cover at most 60 % of these needs; under conservative assumptions, the gap exceeds 70 %.

Funding adequacy and temporal mismatch

The analysis reveals a substantial temporal mismatch between funding availability and investment needs. The period 2030–2040 is characterised by peak renovation demand, yet ETS2 revenues are uncertain and depend on volatile carbon prices. In contrast, short-term funding streams, such as the Recovery and Resilience Facility (RRF), expire by 2026. Unless investments are front-loaded using these early funds, the medium-term financing gap will widen.

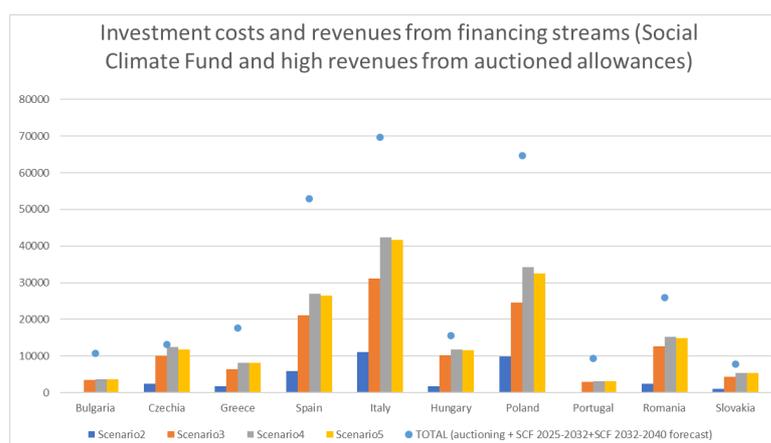


Figure 2 Investment costs against possible SCF and high revenues from auctioning for all scenarios

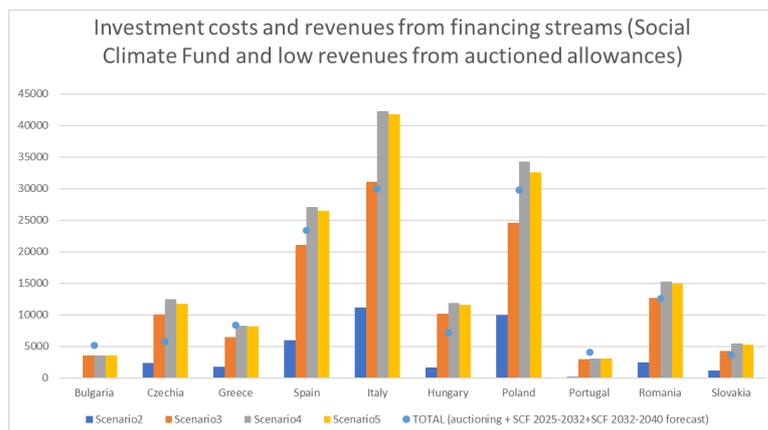


Figure 3 Investment costs against possible SCF and low revenues from auctioning for all scenarios

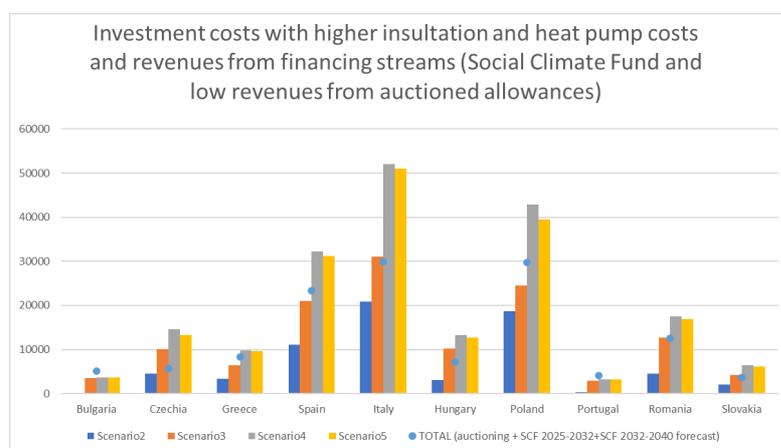


Figure 4 Investment costs against possible SCF and high revenues from auctioning for all scenarios with higher insulation and heat pump costs

Implications for energy-poverty indicators

Integrating model outputs with energy-poverty indicators shows divergent outcomes. Under a coordinated policy mix of MEPS and fossil-boiler phase-out, supported by full subsidies, the *M/2* indicator improves by 15–25 % by 2040, indicating fewer households unable to afford sufficient energy. Conversely, a carbon-pricing-only approach without compensations deteriorates both *M/2* and *2M* scores, implying deeper energy poverty among vulnerable groups.

Qualitative assessments include the findings: comprehensive renovation programmes yield improvements in comfort, indoor air quality, and health outcomes.

4. DISCUSSION

Interactions between policy instruments

The three policies exhibit strong interdependencies. MEPS deliver structural efficiency gains but rely on financial feasibility. ETS2 creates the necessary price signal for decarbonisation but imposes regressive short-term effects if unmitigated. The boiler phase-out accelerates clean-heating transitions yet risks affordability shocks. Their effectiveness depends on sequencing and complementarity. The optimal policy architecture couples carbon pricing with immediate reinvestment of revenues into deep-renovation subsidies for low-income groups, ensuring that behavioural and technological shifts reinforce each other rather than conflict.

Energy justice and procedural dimensions

Beyond economic redistribution, a just transition demands procedural fairness and recognition. Most national authorities in the region still lack official definitions of energy poverty or dedicated monitoring frameworks. Public participation of vulnerable groups in decision-making is limited, and information asymmetries persist. Integrating energy-poverty metrics into National Energy and Climate Plans (NECPs) and ensuring the visibility of low-income households in Social Climate Plans are preconditions for equitable implementation. Procedural justice also requires transparency in fund allocation and clear eligibility criteria. Current national schemes often favour owner-occupiers, neglecting tenants and informal settlements, thereby perpetuating exclusion.

Timing, governance, and financial planning

The coordination of EU funding instruments remains a major governance challenge. While the SCF is designed to support vulnerable households, its linkage to ETS2 revenues constrains flexibility: should ETS2 implementation be delayed or carbon prices fall, available support would shrink. The study recommends decoupling SCF allocations from ETS2 performance and integrating long-term structural funds such as the ERDF and Cohesion Fund. Moreover, the timing of interventions matters. Front-loading subsidies in 2025–2030 can exploit economies of scale, lower technology costs, and mitigate future financing stress. This requires anticipatory governance and cross-ministerial coordination, particularly between energy, environment, and social-affairs authorities.

Data and knowledge gaps

Reliable data on household energy behaviour are crucial yet limited. Disaggregated statistics on consumption patterns by income decile or dwelling type are seldom available. Without these, policymakers risk over- or under-estimating the sensitivity of low-income groups to price changes. Improved data collection, combined with evaluation of non-energy benefits, such as reduced healthcare costs, improved productivity, and local employment, would strengthen the case for higher subsidy rates and integrated policy design.

5. POLICY RECOMMENDATIONS

To safeguard social equity while advancing decarbonisation, several policy directions emerge:

- Reform subsidy structures to shift remaining public support from fossil-fuel boilers towards clean-heating technologies, ending fossil-fuel incentives by 2025–2030.
- Ensure near-full public financing (95–100 %) of renovation and heating upgrades for low-income households, including technical assistance and information campaigns.
- Apply the Energy Efficiency First principle in all decarbonisation planning, guaranteeing that efficiency improvements precede fuel switching.
- Integrate multiple-benefits accounting: health, air quality, and employment, into cost–benefit analysis to reflect real social returns.
- Earmark portions of broader EU funds (ERDF, Cohesion Fund, JTF) for energy-poverty alleviation, ensuring predictable multi-annual financing.
- Develop monitoring frameworks with harmonised indicators and periodic evaluation to track both climate and social outcomes.

Collectively, these recommendations shift the focus from short-term compensation to long-term structural inclusion, aligning decarbonisation with social welfare objectives.

7. CONCLUSION

The transition to climate-neutral buildings in CEE/SEE is both an opportunity and a risk for social cohesion. Decarbonisation measures can transform the region's ageing and inefficient housing stock, yielding substantial gains in comfort, health, and environmental quality. Yet, if implemented without adequate safeguards, they may deepen existing inequalities. The analysis demonstrates that the combination of ETS2, MEPS, and fossil-fuel boiler bans can only succeed socially when accompanied by subsidies, accessible financing, and participatory governance. Funding gaps, especially during 2030–2040, necessitate a redesign of EU and national financing frameworks. Integrating social considerations into every stage of policy design, from indicator development to financial planning, will be decisive for achieving both environmental integrity and social justice. The European experience thus illustrates a broader principle: the energy transition cannot rely solely on market mechanisms or technology mandates; it requires deliberate redistribution, institutional innovation, and sustained political commitment to fairness.

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LITERATURE:

1. Albulut, Koray. 2026. 'Addressing Social Vulnerabilities Resulting from Low-Carbon Energy Transition Policies in EU-27 Countries: A Systematic Survey of the Literature'. *Renewable and Sustainable Energy Reviews* 226: 116245. doi:10.1016/j.rser.2025.116245.
2. Braungardt, Sibylle. 2021. *Phase-out Regulations for Fossil Fuel Boilers at EU and National Level*.
3. Chipman, John S., and James C. Moore. 1992. 'Compensating Variation as a Measure of Welfare Change'. In eds. Wilhelm Neufeind and Raymond G. Riezman. Berlin, Heidelberg: Springer Berlin Heidelberg, 93–128. doi:10.1007/978-3-642-77671-7_5.
4. Dorjnyambuu, Byambasuren. 2025. 'A Systematic Literature Review of Income Inequality in Central–Eastern European Countries'. *Comparative Economic Studies* 67(1): 1–49. doi:10.1057/s41294-024-00240-2.
5. EESC. 2022. 'Minimum Energy Performance Standards (MEPS) in the Residential Sector'. <https://www.eesc.europa.eu/en/our-work/publications-other-work/publications/minimum-energy-performance-standards-meps-residential-sector>.
6. European Commission. 2018. *Employment and Social Developments in Europe 2019: Sustainable Growth for All : Choices for the Future of Social Europe*. Publications Office of the European Union. <https://data.europa.eu/doi/10.2767/305832>
7. European Commission. 2025a. 'ETS2: Buildings, Road Transport and Additional Sectors - Climate Action'. https://climate.ec.europa.eu/eu-action/carbon-markets/ets2-buildings-road-transport-and-additional-sectors_en
8. European Commission. 2025b. 'Fit for 55: Making Buildings in the EU Greener'. <https://www.consilium.europa.eu/en/infographics/fit-for-55-making-buildings-in-the-eu-greener/>
9. Markkanen, Sanna, and Annela Anger-Kraavi. 2019. 'Social Impacts of Climate Change Mitigation Policies and Their Implications for Inequality'. *Climate Policy* 19(7): 827–44. doi:10.1080/14693062.2019.1596873.
10. Miller, Madeline W., Anchal Malh, Kaan Cem Ketenci, Savannah M. Sturla Irizarry, Parth Vaishnav, Zachary E. Rowe, Simone M. Charles, et al. 2025. 'Energy-Efficient Upgrades in Urban Low-Income Multifamily Housing: Energy Burdens and Lessons Learned for Best Sustainability Practices'. *Sustainability* 17(12): 5464. doi:10.3390/su17125464.
11. Munćan, Vladimir, Igor Mujan, Dušan Macura, and Aleksandar S. Anđelković. 2024. 'The State of District Heating and Cooling in Europe - A Literature-Based Assessment'. *Energy* 304: 132191. doi:10.1016/j.energy.2024.132191.

12. Rogulj, Ivana, Marco Peretto, Vlasios Oikonomou, Shima Ebrahimigharehbaghi, and Christos Tourkolias. 2023. 'Decarbonisation Policies in the Residential Sector and Energy Poverty: Mitigation Strategies and Impacts in Central and Southern Eastern Europe'. *Energies* 16(14): 5443. doi:10.3390/en16145443.
13. Singhal, Puja, Stephan Sommer, Kathrin Kaestner, and Michael Pahle. 2025. 'Split-Incentives in Energy Efficiency Investments? Evidence from Rental Housing'. *Resource and Energy Economics* 82: 101488. doi:10.1016/j.reseneeco.2025.101488.
14. Sokółowski, Jakub, Piotr Lewandowski, Aneta Kielczewska, and Stefan Bouzarovski. 2020. 'A Multidimensional Index to Measure Energy Poverty: The Polish Case'. *Energy Sources, Part B: Economics, Planning, and Policy* 15(2): 92–112. doi:10.1080/15567249.2020.1742817.
15. Stegnar, Gašper. 2025. 'Strategic Prioritization of Residential Buildings for Equitable and Sustainable Renovation'. *Sustainability* 17(5): 2203. doi:10.3390/su17052203.
16. Thema, J. and Vondung, F. 2020. 'EPOV Indicator Dashbord Methodology Guidebook | Energy Poverty Advisory Hub'. <https://energy-poverty.ec.europa.eu/observatory/publications/epov-indicator-dashbord-methodology-guidebook>

KICKING TOWARD PEACE AND BUILDING SOCIAL CAPITAL: THE POTENTIAL OF CHINLONE AND NATION-BUILDING IN POST-CONFLICT MYANMAR

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ABSTRACT

Chinlone is an ancient Burmese ball game that is considered to be the national sport of Myanmar. The primary purposes of this paper are twofold; first, to understand Chinlone's history, relations to other Southeast Asian kickball games and its possible inclusion into UNESCO's intangible cultural heritage. Second, is to offer an argument for using Chinlone's inclusion as UNESCO intangible heritage as a tool for national reconciliation and pride in post-civil war Myanmar. During the colonization of Burma by the British, it began to adhere to the more 'Western idea of sport', something which was nonexistent in traditional Burmese society. In postcolonial Myanmar, Chinlone was used as a nation-building tool by the newly independent Burmese government. Chinlone was used to instill a sense of national pride and unity amongst the people of Myanmar. By inclusion into UNESCO's Intangible Cultural Heritage, Chinlone may be able to contribute to the formation of social capital and national reconciliation in post conflict Myanmar.

Keywords: *Chinlone; Intangible Cultural Heritage; Sports and Heritage; Sport and Conflict*

1. INTRODUCTION

Chinlone dates back at least 1500 years, and it is commonly practiced by the vast majority of different ethnic groups residing within Myanmar's modern borders. It is certainly not exclusive to the Bamar (the dominant ethnic group in Myanmar). In the present day, the sport is very much confined to Myanmar itself. There are small groups of international fans globally, but Chinlone is not globally well known. To the Western eye, Chinlone might to be 'Keepie-Uppie' with a tiny wooden soccer ball, or resemble 'Hacky-Sack': a common leisurely game played in the West. Chinlone is typically played in one of two forms, either in a group (known as Wein Kat), or individually (known as Tapandaing), the most common being Wein Kat, which is typically played by in groups of six. The court is typically marked by a white circular line measuring 22 feet in diameter on the ground. The players pass a handwoven rattan ball back and forth using mainly their feet and knees. Use of hands is strictly forbidden. They will continuously walk around in a circle formation rotating around one player standing in the middle. The player in the middle is known as the 'Prince' or 'Princess', and the players will take turns going into the middle of the circle to take on this role. What makes Chinlone truly unique is that it is not competitive, there is no winner and no loser. There is only one team, with every player involved being on the same team. The game has two main objectives, one primary, and one secondary. The primary objective is to pass the ball from person to person without it falling to the ground for the longest amount of time possible. The secondary objective is to add flair to the style of play, players will typically attempt to execute the most complicated and beautiful moves or tricks that they are capable of doing (Aung-Thwin, 2020). The solitary version of the game: Tapandaing, is traditionally played only by females with the same objectives. The player will essentially juggle the ball using their feet and knees, and attempt to go for as long as possible while executing their best tricks. This particular style of Tapandaing is a glimpse into just how culturally important the sport of Chinlone is to the people of Myanmar (Lequan, 2009). Another type of Tapandaing is more similar to what a circus juggler or jester would do, an example of this could be a female juggling a shiny metal ball with one foot, while her other foot is balancing on a glass bottle that is placed upon a stool, and the stool itself is

balancing on 4 more glass bottles placed under each leg of the stool, and those four glass bottles are placed upon another stool (Aung-Thwin, 2016). The individual form of the sport (Tapandiang) is essentially a modern-day performance art that is intended to display either baffling complex skills or ancient Burmese traditional culture, whereas the group version (Wien Kat) is generally viewed as more of a modern-day sport. The group version is highly structured with players wearing uniforms while playing on a specifically designed Chinlone court in front of a large audience of fans cheering them on (Bower-Bir, 2008).

2. REVIEW OF THE LITERATURE AND FIELD

There is limited English language academic literature about Chinlone. The most important documents found are written by Maitrii Aung-Thwin. Aung-Thwin has delved into the connection between the sport and how colonial/postcolonial powers used it for their various objectives such as domination over the Burmese in the case of the British. Aung-Thwin also notes the games' role in nation-building in the postcolonial Burmese government. Aung-Thwin covers a great deal of what we consider to be 'the second in a series of four segments' of the story of Chinlone. The second segment, though rather brief, is arguably the most important part of the sport's history (Wood, 2014). This second segment in the story of Chinlone could be referred to as 'its premodern history'. He details the intense changes it went through during the period. What Aung-Thwin doesn't talk much about, however, is what we could consider the First, Third, and Fourth segments in the story of Chinlone. Essentially he has covered the development of the sport in the periods of Colonial occupation and Postcolonial independence, starting when the British arrived in Burma in 1824 to the middle of the 20th century when the newly independent Burmese government utilized the sport as a nation-building tool. The First, Third, and Fourth segments in the story of Chinlone, would be as follows. First: its ancient history, Third: its recent history, and Fourth: its future. Aung-Thwin does talk a bit about Chinlone's ancient history in his work and he tells of how there is some evidence to suggest Chinlone is possibly more than a thousand years old, notably he mentions an Ancient 'replica of Chinlone ball' found in a 7th century CE Pyu civilization settlement:

“Contemporary tourist brochures, popular magazines, government websites and newspapers trace the origins of chinlone as far back as the Pyu civilization (first to eighth centuries), considered by historians to be the first political culture of ancient Myanmar. In 1926 –1927, a French scholar reported that he had uncovered a silver replica of a chinlone that dated back to the seventh century.” (Aung-Thwin, 2016).

Aung-Thwin also briefly discusses how historically variations of the game were played throughout all of Southeast Asia and the notable different names that Chinlone was called in these places. He then goes on to briefly mention one account of a Burmese king being gifted a Chinlone ball from a Siamese visitor in the Thirteenth century:

“Another reference to chinlone established its origins during the 'classical' kingdom of the thirteenth-century Bagan, where a king was presented an ivory chinlone by a 'Siamese' sculptor upon his ascension to the throne. The story goes that he was so pleased with the gift that he ordered it made in cane so that young men at the Royal Court could play it.” (Aung-Thwin, 2016).

Other than these few references to the ancient history of Chinlone, Aung-Thwin barely touches on the subject, and there is truly something to be told here because of the great deal of documentation that there is surrounding another similar but different sport: Cuju, which was played by another ancient kingdom in the region: China. Also known as Tsu-Chu, Cuju was an ancient Chinese sport that probably started being played more than 2000 years ago by the Han dynasty, and eventually ceased to be played at some point between the 14th and 17th centuries during the Ming dynasty period (Boucher, 2008; Cho and Leary, 2012). Due to the proximity of Myanmar to China, however, there is a strong likelihood that Chinlone is directly descended from Cuju. It is likely due to ancient Myanmar and ancient China having relations stretching nearly 2 millennia (Sangermano, 1833). Considering the fact that many other Southeast Asian countries have some sort of similar game to both Chinlone and Cuju, it can be theorized that all versions of these similar Southeast Asian sports could all be directly descended from Cuju. Aung-Thwin talks about these other similar sports and says:

“...Sixteenth century sources suggest that versions of the game were played in Siam, Cambodia, Southern Vietnam, and Indonesia.” (Aung-Thwin, 2020)

One can gain insight into the deeper relationship between all these ancient Asian sports from further understanding them individually, as well as their similarities and differences to each other. We can also suggest that there is a lot of significance in the relationship between Chinlone and Cuju. This is evidenced by the recent acknowledgment by FIFA that Cuju is considered to be the first officially recognized version of Soccer or Football, which is the world’s most popular sport.

The Third section in the story of Chinlone would be the recent history to the present. This would cover the period from the 1970s to the present day. There is more material from this period including modern competitions, stories, books, and documentaries. A well-known contemporary media, is *‘Mystic Ball’*: a spiritual documentary by Greg Hamilton (Hamilton and London, 2006). Speaking of the documentary, Aung-Thwin says:

“Audiences were treated to stunning footage that portrayed the ‘sport’ of chinlone being performed on temple grounds, in tournament play and in the back-alley streets of the city. Mystic Ball presented chinlone as an enduring element of Burmese culture, challenging conventional definitions of sport by presenting chinlone as a manifestation of cooperation, non-competitiveness, community and spiritual ideals.” (Aung-Thwin, 2020).

One easily accessible reference depicting how Chinlone has progressed in the recent past, however, is the inclusion of Chinlone in the Southeast Asian Games. Chinlone has been included in the SEA Games 3 times now in 2013, 2017, and most recently in 2023. At its inaugural inclusion into the SEA Games in 2013 it was met with criticism by many who claimed it was unfair because the Myanmar team seemingly had the upper hand as it was their national sport. Regardless of the criticism, inclusion has shown the progression of the sport as a whole and its potential to expand internationally, and this point leads to the fourth segment in the story of Chinlone: its Future (The Nation, 2023).

JoAnn LoSavio focuses on the use of sport in the nation-building of postcolonial Myanmar. LoSavio investigates how the postcolonial Burmese nation-builders wanted to escape from the legacy of colonial stereotypes. An example of these stereotypes is being labeled as ‘physically inferior’ by the British (LoSavio, 2021). LoSavio argues that one of the ways this was achieved was by using activities that were introduced to them by their colonial rulers, such as Western sports, to overcome their supposed ‘physically inferior’ image. She says:

“Participation in games communicated Burma’s sovereign status to other states and demonstrated a commitment to the global community. Simultaneously, transnational sporting events were liminal spaces to disrupt continued colonial perceptions which positioned Burmese as physically inferior. Burmese athletes disputed the material ‘truths’ on which racist attitudes relied: the physical incapacity of Asian bodies to match Western bodies and exoticized notions of time and place that rooted Burmese in a primordial past, lacking intellect to absorb modern technologies.” (LoSavio, 2020)

It was during this period that these same Burmese postcolonial nation-builders used a similar mix of pro-Western and anti-Western tactics to develop Chinlone into its modern form. Modern Chinlone played in Myanmar is a hybrid of the traditional Southeast Asian game combined with Western sporting culture.

3. A BRIEF HISTORY OF CHINLONE

Chinlone has its origins in the ancient Pyu civilization of modern-day Myanmar, it is not very clear whether the inhabitants of the ancient Pyu civilization created the sport themselves, or derived it from similar ancient Asian games (Crowther, 2007). There are a multitude of different ancient games which are very similar to Chinlone which can be found throughout the various nations of East and Southeast Asia. Some of these include Sipa of the Philippines, Da Cau of Vietnam, Cuju and Jianzi of China, Sepak Raga of Indonesia, and Takraw Wong of Thailand. While some of these games use the aforementioned wooden rattan ball (sometimes referred to as a Caneball in English), other variations use something that could be described more as a birdie or shuttlecock, similar to what is used in modern-day Badminton (Guillain, 2004). Regardless of whether they use a caneball or a type of shuttlecock, all these games are similar stylistically in their techniques, movements, and rules (Mabborang et. al., 2022; Pham Viet and Tieu Thanh, 2021; Sedykh et. al., 2020; Suratman and Esa, 2017). In many of these Asian nations, the game has developed into a hybrid net game, akin to volleyball or Badminton. Sepak Takraw is the most popular version of these hybrid net games and it is essentially a mix of Chinlone and Volleyball, it even still uses the same exact hand-woven wooden rattan cane ball (Oh, 2011). These hybrid net games, however, seem to be much more recent and probably were developed sometime in the past 100 years or so, while the original versions of the games are a great deal older with some potentially even dating as far back as the 9th century BCE (Yang, 2017). It should be mentioned that one of these original versions of the games (Cuju) did sometimes use a net as well, but the net being hoisted much higher up (Wertmann et. al., 2020). Furthermore, the players would attempt to kick the ball through a hole in the net, as opposed to over it. It is not clear whether other ancient versions of the games used a net as well, but in any case, the use of nets seems to have fallen out of favor more than 500 years ago. Subsequently, the more modern versions of the games played with nets, grew to become more popular than their traditional netless counterparts, even though they had only recently just reemerged.

This is likely due to these modern net versions being competitive games with clear winners and losers, whereas the traditional netless versions tend to be mostly non-competitive. Furthermore, the modern net versions of the game tend to display skills that are inherently more acrobatic and athletic, this can be observed in Sepak Takraw, where players commonly utilize aerial flips to spike the ball downward with their feet on the opponent's side of the net. It is truly a sight to behold, and when one is first exposed to it they tend to be very impressed by the amazing movements of the players. The traditional non-net versions of the game are beautiful in their own right, but they tend to have less acrobatic movements, focusing more on elegance and teamwork (Lim, 2023).

As previously mentioned, all these Asian kick-ball games likely originated from the ancient Chinese sport known as Cuju (sometimes spelled 'Tsu-Chu'), and this of course includes Chinlone. Cuju is well documented in the historical record and was played in mainland China possibly as far back as the 9th Century BCE, which makes it nearly 3000 years old. FIFA officially recognized Cuju as the original version of the world's most popular game.

“On July 15th, 2004, Mr. Blatter, the president of FIFA (Fédération Internationale de Football Association) officially announced in the 3rd session of Soccerex Fair, that football originated in Zibo, the capital of Qi State during the Spring and Autumn Period of ancient China” (Liu et al., 2018).

Jianzi: another Chinese adaptation of Cuju is very popular and is a common pastime for many people in China. Instead of a ball, it is played with something very similar to a badminton shuttlecock, which is made from goose or turkey feathers which are tied to a roll of copper coins as a counterbalance. Jianzi can be observed in public parks in the afternoon and is a relatively low-intensity sport so it is something you may see even elderly people participating in as a way to stay active during old age. Quite similar to Chinlone, players walk around in circles while they are playing and pass the shuttlecock back and forth. Due to the slow speed at which the shuttlecock flies through the air, the game is much more observable, meaning it is much easier to see clearly which movements and maneuvers are being used. It is basically Chinlone in slow motion, which makes it very age-inclusive. Another aspect that slows the game down (and differentiates it from Chinlone) is the fact that the bottom of the shuttlecock is flat, this allows the player to literally catch and balance the shuttlecock with the tops of their feet effortlessly. This changes the dynamic of play considerably: in Chinlone the bouncy wooden rattan ball immediately springs off of the player's foot upon impact, speeding up the pace of the game, but in Jianzi, the players can retain the shuttlecock for as long as they please with the tops of their feet. It is not uncommon to see players balancing the shuttlecock for 5 to even 10 seconds before releasing it and continuing the flow play.

4. WHAT'S IN A NAME?

Since its inaugural inclusion at the 2013 Southeast Asian Games, Chinlone has been further included an additional 3 times: 2015 (Singapore), 2017 (Malaysia), and 2023 (Cambodia). It was not included in 2019 (Philippines) and 2021 (Vietnam). At all the SEA Games events in which Chinlone has been included since its inaugural inclusion in 2013, it was grouped under the category of 'Sepak Takraw' and was not afforded its own separate sporting event category. However, the subgrouping it has been given has consistently gone by the name 'Chinlone', and has not been changed even though it has retained the same all-inclusive rules. It should be mentioned that many of these Southeast Asian kick-ball games which use the wooden rattan ball, are sometimes referred to collectively as 'Caneball'.

Across the world, there are debates about what the true name of any given sport should be. For English speakers, the debate on whether the sport most commonly known as ‘Football’ should go by that name, or should be called ‘Soccer’ has been raging on for more than half a century. Football is the more preferred name globally and thus it has been transliterated into almost every language in the world. ‘Soccer’ is the name most commonly used for the sport in many former British colonies around the world such as Ireland, Canada, South Africa, Australia, New Zealand, and most famously: The United States of America, where the name is very much a point of heated contention because the majority of its citizens use the word ‘Football’ to instead refer to their most popular sport, American Football (Murray, 1998). The name ‘Football’ is rather self-explanatory, but the name ‘Soccer’ was a creation using the lengthier official title of ‘Football’ which is ‘Association Football’, the word ‘Soccer’ was derived from the word ‘Association’. A similar sort of derivative title could be used in the renaming of the Chinlone event at the SEA Games. Another method to achieve this could be the utilization of a portmanteau or a compound word consisting of two or more parts taken from the name Chinlone and one of the other various names for a Southeast Asian kick-ball game. For example, using ‘Chinlone’ and ‘Sepak Raga’ we can create either the compound word: ‘Chinlone Raga’ or the portmanteau: ‘Chinraga’. This is not a suggestion of any particular name; this is merely a provided example of how a more inclusive name for the sport can be achieved ((Liu et al., 2018). For example, the creation of the official international name for the sport of Sepak Takraw.

“Sepak is the Malay word for kick and Takraw is the Thai word for a woven ball, therefore Sepak Takraw quite literally means “to kick ball.” The choosing of the Sepak Takraw name for the sport was essentially a compromise between Malaysia and Thailand, the two powerhouse countries of the sport” (Chen et al., 2018).

It should also be noted that this was not an organically developed name, this formal title for the sport was officially created in 1960, by a delegation of representatives from each of the countries that play this sport (not only Thailand and Malaysia) in an attempt to appease the international community of fans and give them a name that they could all agree on. For the numerous related Southeast Asian kick-ball games however, it could still be a very fitting solution for the question, as the international hybrid version of the game is still in its infancy, and has only been contested internationally at the SEA Games for a little over a decade now (The Nation, 2023).

5. POTENTIAL OF CHINLONE

At the most recent SEA Games in 2023 it was clear to see that the jump in effort dedicated to the hybridized Southeast Asian kick-ball event (called the ‘Chinlone’ event) from the last time it was contested at the SEA Games was massive (Matthews, 2023). This would clearly suggest that it likely has a bright future ahead of it and is on an obvious upward trajectory with the rise in recent years of other fusion sports. Fusion sports in general have a massive potential to spread globally in a very short period of time due to their inherent adaptability. One fusion sport which has also exploded in recent years, and is of the utmost importance to this research project is Teqball, which is basically a combination of Football and Ping-Pong.

“...teqball, a sport played on a specially curved table, combining elements of football and table tennis. This sport was invented in 2012 in Hungary and in 2019, Budapest hosted the Teqball World Championships with 160 athletes from 58 countries. To promote this sport, the International Teqball Federation signed an agreement with the Ministry of Foreign Affairs and Trade, which made it possible for hundreds of teqball tables to be donated to organisations around the world and popularized this sport with the help of the Hungarian embassies.” (Constantin, 2023)

It shares a great deal of similarity with the hybridized version of the Southeast Asian kick-ball games and Sepak Takraw due to the fact that it primarily involves the same essential skill set of keeping a ball aloft with one's feet and knees. That is why some of the best Teqball players in the world hail from Southeast Asia and are former Sepak Takraw players. This basic skill set that these three sports shares offer them a huge advantage in terms of potential to spread globally because of the ease of adaptability that people all over the world have should they decide to take up these sports. The reason that there is such a massive degree of adaptability with these sports specifically is that this essential skill set that they share is also shared with the world's most popular sport: Football. This is the primary reason for Teqball's massive increase in popularity in recent years, and it is certainly fathomable that the same thing could happen with the hybridized version of the Southeast Asian kick-ball games (Sanitate et. al., 1998).

6. INTANGIBLE CULTURAL HERITAGE: NECESSARY FOR RECOGNITION, PRIDE AND RECONCILIATION

UNESCO as the world's intergovernmental body with a mandate to promote cooperation in the fields of education, science and culture but more importantly to help foster conditions of peace (UNESCO, n.d.). The best-known UNESCO activities are its World Heritage Sites which were physical and natural artifacts and sites of cultural significance to national histories (UNESCO, 1972). Numerous studies have been conducted demonstrating significant economic impacts from tourism (Di Giovine, 2008; VanBlarcom and Kayahan, 2011), political contestation of sites Bertacchini, E., Liuzza, C., Meskell, L., & Saccone, D. (2016), state recognition and branding (Adie, 2017; Caust and Vecco, 2017), contributing to sustainable development (El Faouri and Sibley, 2024; Labadi, 2017). The overwhelming consensus is that World Heritage status is generally beneficial to the host nation as they institute good governance and preservation standards, increase income and national pride. On the back of this success UNESCO promulgated the Intangible Heritage Convention to preserve and uplift physical and non-physical markers of cultural history. The 2003 Convention defines intangible heritage as

“the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity” (UNESCO, 2003).

Adding Chinlone to UNESCO's official list of Intangible Cultural Heritage would not only provide many people with a sense of pride knowing that their national sport have been recognized by UNESCO and the greater global community as being of great cultural importance, but it would also ensure them that they will be afforded some protection should they ever need it (Tang, 2013). Their inclusion into the list would be a powerful way to legitimize them and garner recognition for them as sports of importance. This could then promote their growth which would ultimately ensure their longevity, and likely prevent them from ever being disregarded or forgotten about, and that is certainly reason enough to justify their inclusion into the list. At present Myanmar has only two World Heritage sites, Pyu Temples and Bagan (UNESCO World Heritage Centre, n.d.). In 2025, Myanmar submitted Chinlone to UNESCO for consideration and inclusion into the intangible heritage list (Xinhua, 2025). Just as UNESCO takes measures to protect historical sites, it also takes initiative in preserving cultural practices, this is because it has thankfully realized that both are equally fragile and deserve attention and preservation. The same intense feeling of comfort that some may encounter in knowing that a powerful organization such as the United Nations has vowed to protect their local historical site, would also be felt by others knowing that the same is being done for their traditional cultural practice. Thus, the existence of this list of Intangible Cultural Heritage is of the utmost importance to this report, because it presents an opportunity for all the aforementioned ancient Asian games to not only be legitimized but also preserved.

If added to UNESCO's list of Intangible Cultural Heritage, every ancient Asian sport and game mentioned in this essay would fall under the category referred to as 'TSGs' (Traditional Sports and Games). The International Council of Traditional Sports and Games (ICTSG), is an official organization that UNESCO played a major part in creating. The ICTSG was created to safeguard the TSGs played around the world defining itself as:

“The International Council of Traditional Sports and Games (ICTSG) is an official registered non-profit organisation which serves as an international umbrella to ensure the safeguarding and promotion of traditional sports and games aimed to support and assist governments, non-governmental organisations, as well as the sport movement at national, regional and continental levels through harmonization, coordination of efforts, guidance, assistance and advice.” (ICTSG, 2019).

Another organization which has also taken measures to formally recognize and protect TSGs is the Association of Southeast Asian Nations. In January of 2024, ASEAN published an official report containing more than 60 pages regarding the protection of TSGs. The title of the document is: *Promoting and Safeguarding Traditional Sports and Games in ASEAN: Challenges, Opportunities, and Strategies*. In this document ASEAN lays out a plan to ensure that the region's TSGs are guaranteed longevity and a promising future. The foreword of the report states that the report itself is:

“...proof of the commitment of our member states to uphold and celebrate the diverse cultural heritage that unites ASEAN. Through this comprehensive study, we explored the challenges faced by traditional sports and games in the modern era. It is not only the passage of time that poses a threat but also the allure of new, globalised forms of entertainment that pull our youth away from the traditions that have shaped our societies.” (Daut, 2024).

The report makes mention of nearly every single traditional Southeast Asian game mentioned in this essay, and though that fact should have been expected, it is still certainly a relief to know that at least at the regional level all these TSGs are recognized and in good hands for the time being. ASEAN is working to the safeguarding of TSGs, and however comforting as it may seem there are still some points of contention that need ironing out. For example, in ASEAN's report, there was quite a bit of animosity expressed towards the modernization of TSGs:

“Modernisation has also resulted in declining interest and participation in something old and traditional in favour of modern equipment and technology that make life easier. Thus, many of the world's TSG have been modernised, resulting in deviation from their origins (Boro, Daimary, Naizaree, 2015). New equipment is used, such as the change from a natural (i.e., rattan) to synthetic ball for kasipa, a kicking game in the Philippines; rules are revised to make a TSG more competitive; and different playing surfaces are used (i.e. from natural settings to modern concrete facilities).” (Daut, 2024)

For the modern hybridized version of the Southeast Asian circular kick-ball games, the recognition of the traditional sports which it draws from as practices of ‘Intangible Cultural Heritage’ by UNESCO would likely increase global participation in it and put it on track to actually become a well-known competitive sport with competitions and leagues all over the world. This could put it up there in terms of global popularity with other world famous Southeast Asian sports such as Muay Thai.

7. MYANMAR: CONFLICT AND NATIONAL IDENTITY

In *Imagined Communities*, Anderson argues that nation-states are products of modernity. The primary purposes of nation-building is to unify disparate peoples for political development. Many aspects of modernity from Anderson's view are top down in fashion and mimic tastes or perspectives of elite culture which are imposed downwards on a population through print media (Anderson, 1983, 1998). Gellner takes a broader view of exo-education and imposition of high culture to craft national identity for development under capitalist economic circumstances (Gellner, 1983). From both perspectives nation-building is a set of processes that seeks to unify for common purpose people's who previously have little in common with others outside of their locality or region. In the case of Myanmar nation-building, or building a cohesive national identity for the majority people inside of the nation state has been a failed project. Myanmar since achieving independence in 1948 has rarely known peace. Much of the conflict can be understood through the lens of failed nation-building as a consequence of ethnic fragmentation and inability to articulate and build a national identity (Clarke et. al. 2019). Htoo and Waters argue that General Ne Win strategy of ‘Burmanization’, or trying to forge a national identity from ethnic Burman heritage was a primary reason for resistance and ethnic strife (Htoo & Waters, 2024). Burmanization is the imposition of low land Bamar culture from the majority population onto a widely diverse population from language, history and other markers of ethnic identity. This can be seen in armed resistance by groups such as the Kachin, Shan, Karen and others who have resisted the imposition and integration of Bamar culture and state structures onto their own. Phattharathanasut and Brehm argue the same but from a nuanced perspective of pre and post democratization education and find that indoctrination during the military and Aung San Suu Kyi periods were nearly identical (Phattharathanasut & Brehm, 2025).

They see the imposition of Bamar nationalism in state education language policy and history instruction, which despite rhetoric of decentralization conforms to rigid nationalist instruction from an ethno perspective that does not allow expression of minority interests. This lends credence to the notion that there is a continuity of nation-building strategies that have both failed but are entrenched and enduring. Kramer finds that attempts to incorporate ethnic minorities into state structures and provide them with autonomy through the policy of decentralization as a tool for cohesion did not provide a means for lasting identity formation and unity (Kramer, 2010). Contemporary Myanmar is composed of 135 officially recognize ethnic groups and more which are not officially recognized (Humanitarian Aid Relief Trust, 2021). It is no great surprise that Myanmar's project of state building given the contradictions of a penchant for state authorities to centralize and utilize power coupled with extreme diversity of cultures and histories of not being directly governed has been problematic. These contradictions exploded after the coup of February 2021 when the NLD government was ousted in a military coup. Since the 2021 coup, Myanmar has been engulfed in open armed conflict that has destabilized nearly the entire country with armed groups pushing the military out of Myanmar's hinterlands. Since the coup the economy has been shattered and there is now open questioning of whether Myanmar as a state can be reconstituted in its previous form after conflict subsides, regardless of who emerges victorious (Pedersen, 2022; Takhun, 2025; Ware & Skidmore, 2023). The previous section argues a number of points, from failed nation-building and misplaced nationalism but most importantly is the reality that the conflict cannot continue indefinitely. When conflict does subside and concludes there is an open question: how to rebuild a shattered nation? The preceding section posits that there is little in the way of foundations for common national identity and nation-building. Yet there is one common past time that can unite the people of post-war Myanmar; Chinlone.

8. POST CONFLICT MYANMAR: THE ROLE OF SOCIAL CAPITAL

Post conflict Myanmar will face the prospect national reconciliation and conflict resolution. One major impediment will be the fundamental lack of trust in national authority and between ethnic armed organizations that will have earned a measure of autonomy or independence. The question of how to build durable peace is a complex. However, to create the conditions of this is address the deep roots of conflict rooted in culture which stem from gender, history, language and the like (Galtung, 1990). Implicit in Galtung's analysis is also to find commonality which can be agreed upon by a vast majority of the population which can set a condition for negative peace, or the absence of latent and non-latent violence (Galtung, 1969). One method to achieve a settled peace is to establish and support the production of social capital. Fukuyama (2001), conceptualizes social capital operating at a macro-theoretical level, as informal norms underpinning economic efficiency and liberal democracy, while warning of its exclusionary potential when confined to narrow groups. Social capital is defined by Bourdieu as "the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing *a durable network of more or less institutionalized relationships* of mutual acquaintance and recognition" (Bourdieu, 1986 p. 23). Bourdieu conceptualizes social capital from the perspective of the individual rather than the collective but importantly he introduces the notion of networked relationships that can be deployed for individual social benefit. Putnam defines social capital as "features of social organization, such as *networks, norms, and social trust, that facilitate coordination and cooperation for mutual benefit*" (Putnam, 2000 p. 57). Putnam is distinguished from Bourdieu in the sense that he sees social capital through the lens of networks of civic engagement. Most importantly where individuals meet in symbolic and performative activities that demand coordination and teamwork that build comradery. Myanmar in a broad sense has had strong intra-ethnic bonds while bonds between ethnic groups are many times contentious if not outright hostile (Anwary, 2020).

At present the larger unifying force of ethnic armed organizations and groups is towards the military junta in Naypyidaw (Brenner, 2025). For a post conflict Myanmar cross ethnic bonds must be strengthened alongside civil society to rebuild trust among antagonistic and autonomy or independence minded groups. Just as important is the reforging of civic traditions on a broad scale towards a civic and inclusive nationalism that can unify disparate groups. The 2021 military coup and civil war have undermined all progress of civic institution building from the 2010 transition period.

9. CHINLONE: SPORT AND NATION-BUILDING

There is a wide body of literature on the contribution of sport to post conflict reconciliation and nation-building. Burnett (2006), Bisung and Elliott (2014), and Fukuyama (2001) converge on the centrality of social capital in fostering cooperation, trust, and collective action, yet they differ in scope, application, and emphasis. Scholars also highlight sports capacity to promote social cohesion, reconciliation, and empowerment, but also caution against uncritical assumptions of its efficacy. Kidd (2008), Höglund and Sundberg (2008), and Krasniqi and Krasniqi (2018) illustrate that community-based initiatives—whether in HIV/AIDS awareness campaigns, post-apartheid South Africa, or post-war Kosovo—can facilitate trust, inclusion, and reconciliation when embedded within local identities and needs. Similarly, Merkel (2008), Mitchell et al. (2016, 2020), and Dolan and Connolly (2016) demonstrate how sport may serve as a symbolic and institutional mechanism for reconciliation and solidarity, while also reinforcing divisions through rivalry and exclusion. Yet, these studies reveal the limits of sport’s transformative potential: although it can generate symbolic unity or short-term trust, enduring structural inequalities and contested political identities frequently constrain long-term impact. Critical perspectives draw attention to the ways in which power asymmetries and donor agendas shape Sport for Development and Peace (SDP). Giulianotti et al. (2016), Giulianotti, 2011) and Hayhurst (2009, 2015) argue that many SDP initiatives reproduce neoliberal and postcolonial hierarchies, privileging Global North donors and international NGOs while sidelining grassroots actors. Kidd (2008) similarly critiques the sector’s fragmentation and underfunding, noting that short-term, volunteer-driven programs may undermine local systems. Marchetti and Tocci (2009) extend this critique to civil society more broadly, observing that in conflict-affected contexts, international donors frequently prioritize technical NGOs over legitimate grassroots organizations, potentially entrenching exclusion. These arguments resonate with Hartmann’s (2000) conceptualization of sport as a “contested terrain,” wherein emancipatory narratives coexist with the reproduction of structural inequalities, particularly in racial and postcolonial contexts. Fred-Mensah (2004) adds that in fragile postwar settings, sustainable development depends on rebuilding trust through inclusive governance structures, showing how UNDP initiatives in Mozambique and Rwanda transformed uncertainty into institutional capacity and citizen confidence. Despite such critiques, the literature collectively affirms that local agency, cultural legitimacy, and inclusive forms of social capital are essential for sustainable outcomes. Krasniqi and Krasniqi (2018) demonstrate how shared play facilitated bridging social capital in Kosovo, while Myeong and Seo (2016) show that inclusive networks foster greater trust in governance than bonding ties alone. Similarly, Nataliia & Maiia (2024) contend that the peacebuilding potential of sport is highly contingent upon political context, with democratic settings offering greater scope for activism than authoritarian regimes. Parry (2012) complements these findings normatively, suggesting that sport’s rule-based values of fairness and cooperation reflect liberal democratic ideals. Collectively, these studies indicate that sport’s role is neither inherently positive nor negative, but is shaped by broader political structures, opportunity contexts, and the balance between local ownership and external influence.

Nevertheless, several gaps persist. Gift and Miner (2017) highlight the neglect of the sport-politics nexus within political science, leaving insufficient analysis of how sport intersects with electoral processes, policymaking, and governance. Although numerous case studies exist, comparative and longitudinal analyses remain limited, particularly regarding the long-term impacts of sport-based interventions on structural inequalities, institutional trust, and reconciliation. Furthermore, the field requires greater engagement with interdisciplinary, postcolonial, and feminist methodologies Hayhurst (2015) that interrogate how power, identity, and representation are embedded within sport-for-peace initiatives. Addressing these gaps demands moving beyond celebratory or instrumental framings to critically assess how sport functions simultaneously as a vehicle of emancipation and as an instrument of control in global politics. For post conflict Myanmar, Chinlone offers a unique and nationwide inroad force of cultural inclusivity to begin to rebuild social bonds fractured by war. Aung-Thwin (2012, 2020) has traced the evolution of Chinlone from a traditional activity to national sport in the period following independence. Aung-Thwin argues that Chinlone's modernization was a product of nation-building to differentiate from the colonial period. Chinlone's roots are one of non-hierarchical and non-competitive play which reflect a non-adversarial nature that is suited for a post conflict society and anchored in the collective memory of Myanmar's population. Aung-Thwin (2020) has noted the structure of non-competitive play is powerful correlative of reconciliation and cultural marker of familiarity. This coupled with the low cost of entry to play Chinlone offers the ability to publicly display culturally inclusive dialogue that is able to transcend existing divisions. Chinlone has a broad appeal and is played in private and public settings of pagoda's which are prime examples of the ability of the game to transcend localization and class. Aung-Thwin has further noted the incorporation of Chinlone into national education curriculum as a means to foster national identity formation and familiarization (Aung-Thwin, 2012, 2020). This non-confrontational programming can and should be reimagined in a post conflict Myanmar. The to need to not only formulate a new but culturally familiar and connected history would be essential for building bonds of trust and social capital.

11. CONCLUSION

Chinlone is an ancient Burmese ball game that is considered to be the national sport of Myanmar. It is certainly a TSG of great importance, and is very unique in the sense that it is noncompetitive. It is over a thousand years old, and is likely descended from the even older Chinese sport of Cuju. It has many links and a shared heritage with several other traditional Asian games. It has gone through a myriad of changes in the past 200 years, caused by colonization, Westernization, and postcolonial nation-building projects (Guttman (1996). In a society highly fractured due to years of violent civil war, sport, in this case, Chinlone offers a powerful means to help rebuild the sinews of social bonds which have been severed. If UNESCO recognizes and grants Chinlone Intangible Cultural Heritage status, this would be powerful marker of national pride and a permanent symbol of linkage of the present to Myanmar's history. Chinlone is a single facet which can help contribute to post conflict reconciliation after the civil war. It of course is not the only factor but it is one which can help foster and build social capital on a broad basis. This coupled with the prestige and symbolism of achieving Intangible Cultural Heritage may provide a foundation for post conflict social reconstruction of nation which has seen far more than its share of conflict and deserves not only peace but pride of place.

LITERATURE:

1. Adie, B. A. (2017). Franchising our heritage: The UNESCO World Heritage brand. *Tourism Management Perspectives*, 24, 48–53. <https://doi.org/10.1016/j.tmp.2017.07.002>.
2. Anderson, B. (1983). *Imagined communities: Reflections on the origin and spread of nationalism*. Verso.
3. Anderson, B. (1998). *The Spectre of Comparisons: Nationalism, Southeast Asia, and the World*. Verso.
4. Anwary, A. (2020). Interethnic Conflict and Genocide in Myanmar. *Homicide Studies*, 24(1), 108876791982735. <https://doi.org/10.1177/1088767919827354>.
5. Aung-Thwin, M. (2012). Towards a national culture: chinlone and the construction of sport in post-colonial Myanmar. *Sport in Society*, 15(10), 1341–1352. <https://doi.org/10.1080/17430437.2012.744206>.
6. Aung-Thwin, M. (2016). Towards a national culture: Chinlone and the construction of sport in post-colonial Myanmar. In Y. Cho & C. Leary (Eds.), *Modern Sports in Asia* (pp. 38–49). Routledge.
7. Aung-Thwin, M. (2020). Chinlone: National sport of Myanmar. In F. Hong & L. Zhouxiang (Eds.), *The Routledge Handbook of Sport in Asia* (pp. 96–103). Routledge.
8. Bertacchini, E., Liuzza, C., Meskell, L., & Saccone, D. (2016). The politicization of UNESCO World Heritage decision making. *Public Choice*, 167(1-2), 95–129. <https://doi.org/10.1007/s11127-016-0332-9>.
9. Bisung, E., & Elliott, S. J. (2014). Toward a social capital based framework for understanding the water-health nexus. *Social Science & Medicine*, 108, 194–200. <https://doi.org/10.1016/j.socscimed.2014.01.042>.
10. Boro, J., Daimary, R., & Narzaree, B. (2015). Impact of Globalisation to Traditional Games and Recreation of the Bodos. *IOSR Journal of Humanities and Social Science*, 20(3), 87–91. <https://www.iosrjournals.org/iosr-jhss/papers/Vol20-issue3/Version-6/L020368791.pdf>.
11. Boucher, A. (2008). The Introduction of Sports in China. *China Perspectives*, 2008(1), 48–52. <https://doi.org/10.4000/chinaperspectives.3313>.
12. Bourdieu, P. (1986). The Forms of Capital. In J. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241–258). Westport.
13. Bourdieu, P., & Wacquant, L. J. D. (1992). *An Invitation to Reflexive Sociology*. Polity Press.
14. Bower-Bir, J. (2008). Constitutions and Education: Building and Burning Bridges in Burma. *Workshop in Political Theory and Policy Analysis Mini-Conference*. https://www.researchgate.net/publication/265536364_Constitutions_and_Education_Building_and_Burning_Bridges_in_Burma.
15. Brenner, D. (2025). Rebel Politics after the Coup: Ethnic Armed Organisations and Myanmar's Spring Revolution. *Journal of Contemporary Asia, Online First*, 1–24. <https://doi.org/10.1080/00472336.2025.2494109>.
16. Burnett, C. (2006). Building Social Capital Through an 'Active Community Club'. *International Review for the Sociology of Sport*, 41(3-4), 283–294. <https://doi.org/10.1177/1012690207078381>.
17. Caust, J., & Vecco, M. (2017). Is UNESCO World Heritage recognition a blessing or burden? Evidence from developing Asian countries. *Journal of Cultural Heritage*, 27, 1–9. <https://doi.org/10.1016/j.culher.2017.02.004>.
18. Chen, S., Dai, H., Tang, J., & Xiao, R. (2018). Physiological Profile of Filipino Sepak Takraw University Players. *Asia Pacific Journal of Education, Arts and Sciences*, 4(4). <https://doi.org/10.26480/icecsd.01.2018.63.66>.

19. Cho, Y., & Leary, C. (2012). Modern sports in Asia: cultural perspectives. *Sport in Society*, 15(10), 1323–1328. <https://doi.org/10.1080/17430437.2012.744204>.
20. Clarke, S. L. Myint, S.A..S., & Siwa, Z.Y. (2019). *Re-examining Ethnic Identity in Myanmar*. Centre for Peace and Conflict Studies.
21. Constantin, P. N. (2023). *National Report: Hungary*. Towards an EU Sport Diplomacy.
22. Crowther, N.B. (2007). *Sport in ancient times*. Norman: University of Oklahoma Press.
23. Daut, H.C. (2024). Promoting and Safeguarding Traditional Sports and Games in ASEAN: Challenges, Opportunities, and Strategies. [online] Jakarta: ASEAN Secretariat. Available at: <https://asean.org/wp-content/uploads/2024/01/Promoting-and-Safeguarding-Traditional-Sports-and-Games-in-ASEAN.pdf>.
24. DiGiovine, M. A. (2009). *The heritage-scape: UNESCO, world heritage, and tourism*. Rowman & Littlefield.
25. Dolan, P., & Connolly, J. (2016). Sport, unity and conflict: an enduring social dynamic. *European Journal for Sport and Society*, 13(3), 189–196. <https://doi.org/10.1080/16138171.2016.1229836>.
26. El Faouri, B. F., & Sibley, M. (2024). Balancing Social and Cultural Priorities in the UN 2030 Sustainable Development Goals (SDGs) for UNESCO World Heritage Cities. *Sustainability*, 16(14), 5833. <https://doi.org/10.3390/su16145833>.
27. Fred-Mensah, B. K. (2004). Social Capital Building as Capacity for Postconflict Development: The UNDP in Mozambique and Rwanda. *Global Governance: A Review of Multilateralism and International Organizations*, 10(4), 437–457. <https://doi.org/10.1163/19426720-01004005>.
28. Fukuyama, F. (2001). Social capital, civil society and development. *Third World Quarterly*, 22(1), 7–20.
29. Galtung, J. (1969). Violence, Peace, and Peace Research. *Journal of Peace Research*, 6(3), 167–191. <https://doi.org/10.1177/002234336900600301>.
30. Galtung, J. (1990). Cultural Violence. *Journal of Peace Research*, 27(3), 291–305. <https://journals.sagepub.com/doi/10.1177/0022343390027003005>.
31. Gellner, E. (1983). *Nations and Nationalism*. Cornell University Press.
32. Gift, T., & Miner, A. (2017). “DROPPING THE BALL”: The Understudied Nexus of Sports and Politics. *World Affairs*, 180(1), 127–161. <https://doi.org/10.1177/0043820017715569>.
33. Giulianotti, R. (2011). Sport, peacemaking and conflict resolution: a contextual analysis and modelling of the sport, development and peace sector. *Ethnic and Racial Studies*, 34(2), 207–228. <https://doi.org/10.1080/01419870.2010.522245>.
34. Giulianotti, R., Hognestad, H., & Spaaij, R. (2016). Sport for Development and Peace: Power, Politics, and Patronage. *Journal of Global Sport Management*, 1(3-4), 129–141. <https://doi.org/10.1080/24704067.2016.1231926>.
35. Guillain, J.-Y. (2004). *Badminton : An Illustrated History - From ancient pastime to Olympic sport*. Editions Publibook.
36. Guttmann, A. (1996). *Games and Empires. Modern Sports and Cultural Imperialism*. Columbia University Press.
37. Hamilton, G. and London, M. (2006). *Mystic Ball*. Black Rice Productions.
38. Hartmann, D. (2000). Rethinking the Relationships between Sport and Race in American Culture: Golden Ghettos and Contested Terrain. *Sociology of Sport Journal*, 17(3), 229–253. <https://doi.org/10.1123/ssj.17.3.229>.
39. Hayhurst, L. M. C. (2009). The power to shape policy: charting sport for development and peace policy discourses. *International Journal of Sport Policy and Politics*, 1(2), 203–227. <https://doi.org/10.1080/19406940902950739>.

40. Hayhurst, L. M. C. (2015). Sport for development and peace: a call for transnational, multi-sited, postcolonial feminist research. *Qualitative Research in Sport, Exercise and Health*, 8(5), 424–443. <https://doi.org/10.1080/2159676x.2015.1056824>.
41. Höglund, K., & Sundberg, R. (2008). Reconciliation through Sports? The case of South Africa. *Third World Quarterly*, 29(4), 805–818. <https://doi.org/10.1080/01436590802052920>.
42. Htoo, S. E., & Waters, T. (2024). *General Ne Win's Legacy of Burmanization in Myanmar*. Springer Nature.
43. Humanitarian Aid Relief Trust. (2021, February 8). *A Brief Overview of the Ethnic Minorities of Burma*. Humanitarian Aid Relief Trust (HART UK). <https://www.hart-uk.org/a-brief-overview-of-the-ethnic-minorities-of-burma/>.
44. ICTSG. (2024, November 21). *About Us*. Traditionalsportsgames.org. <https://traditionalsportsgames.org/index.php/about>
45. Kidd, B. (2008). A new social movement: Sport for development and peace. *Sport in Society*, 11(4), 370–380. <https://doi.org/10.1080/17430430802019268>.
46. Kramer, T. (2010). Ethnic Conflict in Burma: The Challenge of Unity in a Divided Country. In L. Dittmer (Ed.), *Burma or Myanmar? The Struggle for National Identity* (pp. 51–81). World Scientific. https://doi.org/10.1142/9789814313650_0003.
47. Krasniqi, S., & Krasniqi, B. (2018). Sport and peacebuilding in post-conflict societies: the role of Open Fun Football Schools in Kosovo. *Journal of Aggression, Conflict and Peace Research*, 11(3), 145–157. <https://doi.org/10.1108/jacpr-07-2018-0369>.
48. Labadi, S. (2017). UNESCO, World Heritage, and Sustainable Development: International Discourses and Local Impacts. In P. G. Gould & K. A. Pyburn (Eds.), *Collision or Collaboration. One World Archaeology* (pp. 45–60). Springer.
49. Lequan, C. (2009). Archaeological Discoveries and Tang-Song Period Sports and Games. *Chinese Archaeology*, 9(1). <https://doi.org/10.1515/char.2009.9.1.55>.
50. Lim, P. H. (2023). From *Sepak Raga* to *Sepak Takraw*: The Introduction and Institutionalization of an Indigenous Game in Regional Multi-Sport Events, 1965–1990. *Asian Journal of Sport History & Culture*, 2(1), 106–123. <https://doi.org/10.1080/27690148.2023.2209075>.
51. Liu, X., Zhang, Y., & Ma, X. (2018). Historical Study on the Relation between Ancient Chinese Cuju and Modern Football. *4th International Conference on Innovative Development of E-Commerce and Logistics*. <https://clausiuspress.com/conference/article/artId/1355.html>.
52. LoSavio, J. (2020). Burma in the Southeast Asia Peninsula Games, 1950-1970: Buddhism, Bodhisattvas, Decolonization, and Nation Making through Sport. *The International Journal of the History of Sport*, 37(12), 1101–1124. <https://doi.org/10.1080/09523367.2020.1846527>.
53. LoSavio, J. (2021). The Figure of the Sportswoman, Sport, and Nationalism in Burma, 1956–70. *Journal of Sport History*, 48(2), 135–150. <https://doi.org/10.5406/21558450.48.2.04>
54. Maborang, F. D., Suarez, A., Dacuycuy, M. C., Malapira, D. J., & Agag, R. (2022). Street Games in Filipino Society in Selected Rural Towns of Ilocos Norte. *Asian Research Journal of Arts & Social Sciences*, 18(1), 10–17. <https://doi.org/10.9734/arjass/2022/v18i130322>.
55. Marchetti, R., & Tocci, N. (2009). Conflict society: understanding the role of civil society in conflict. *Global Change, Peace & Security*, 21(2), 201–217. <https://doi.org/10.1080/14781150902872091>.

56. Matthews, P. (2023). *Myanmar women & men both win Gold in Chinlone at SEA Games*. Burma News International. <https://www.bnionline.net/en/news/myanmar-women-men-both-win-gold-chinlone-sea-games>.
57. Merkel, U. (2008). The Politics of Sport Diplomacy and Reunification in Divided Korea. *International Review for the Sociology of Sport*, 43(3), 289–311. <https://doi.org/10.1177/1012690208098254>.
58. Mitchell, D., Somerville, I., & Hargie, O. (2016). Sport for peace in Northern Ireland? Civil society, change and constraint after the 1998 Good Friday Agreement. *The British Journal of Politics and International Relations*, 18(4), 981–996. <https://doi.org/10.1177/1369148116656987>.
59. Mitchell, D., Somerville, I., Hargie, O., & Simms, V. (2020). Can Sport Build Peace After Conflict? Public Attitudes in Transitional Northern Ireland. *Journal of Sport and Social Issues*, 45(5), 464–483. <https://doi.org/10.1177/0193723520958346>.
60. Murray, W. J. (1998). *The world's game: A history of soccer*. University Of Illinois Press.
61. Myeong, S., & Seo, H. (2016). Which Type of Social Capital Matters for Building Trust in Government? Looking for a New Type of Social Capital in the Governance Era. *Sustainability*, 8(4), 322. <https://doi.org/10.3390/su8040322>.
62. Nataliia, K., & Maiia, N. (2024). Assessing the peacebuilding institutional capacity of sport in armed state conflicts. *Journal of Physical Education and Sport*, 24(5), 1198–1204. <https://doi.org/10.7752/jpes.2024.05138>.
63. Oh, S.-A. (2011). Rice, Slippers, Bananas and Caneball: Children's Narratives of Internal Displacement and Forced Migration from Burma. *Global Studies of Childhood*, 1(2), 104–119. <https://doi.org/10.2304/gsch.2011.1.2.104>.
64. Parry, J. (2012). The power of sport in peacemaking and peacekeeping. *Sport in Society*, 15(6), 775–787. <https://doi.org/10.1080/17430437.2012.708280>.
65. Pedersen, M. B. (2022). Myanmar in 2021: A State Torn Apart. *Southeast Asian Affairs*, 235–253. <https://www.jstor.org/stable/27206749>.
66. Pham Viet, T., & Tieu Thanh, S. (2021). Xây dựng tiêu chuẩn đánh giá hình thái cho nữ vận động viên đội tuyển đá cầu tỉnh Đồng Tháp. *Dong Thap University Journal of Science*, 10(2), 30–36. <https://doi.org/10.52714/dthu.10.2.2021.852>.
67. Phattharathanasut, T., & Brehm, W. (2025). State-building, nationalism, and education in Myanmar: a comparative study of two eras. *Comparative Education, Online First*, 1–20. <https://doi.org/10.1080/03050068.2025.2500218>.
68. Putnam, R. D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster.
69. Sangermano, V. (1833). *A Description of the Burmese Empire: Compiled Chiefly from Native Documents (Vol. 34)*. for the Oriental translation fund.
70. Sanitate, R., Harney, J., Schiro, M., Wollbrinck, D., Carrigg, M., & Buell, C. (1998). Takraw: A Global Sport. *Strategies*, 11(4), 29–33. <https://doi.org/10.1080/08924562.1998.10591334>.
71. Schmidt-Leukel, P., Grosshans, H.-P., & Krueger, M. (2021). *Ethnic and Religious Diversity in Myanmar*. Bloomsbury Publishing.
72. Sedykh, A.P., Ivanishcheva, O.N., Sidorova, T.A., Vorobyova, O.I. and Akimova, E.N. (2020). Universal and National Cultural Features of the Naming in Sports. *Revista Turismo Estudos e Práticas - RTEP/UERN*, [online] 9(3), pp.1–10. Available at: <https://geplat.com/rtep/index.php/tourism/article/view/585>.
73. Suratman, S., & Esa, S. H. (2018). Malay community and culture in Singapore. In *The Singapore Ethnic Mosaic* (pp. 113–188). World Scientific.
74. Takhun, R. (2025). The Cost of Myanmar's Coup d'état and Ongoing Civil War. *Journal of Southeast Asian Economies (JSEAE)*, 42(1), 1–27. <https://doi.org/10.1355/ae42-1a>.

75. Tang, W. C. (2013, December 6). Not your average ball game: A look at Chinlone and Petanque. *The Straits Times*. <https://www.straitstimes.com/sport/not-your-average-ball-game-a-look-at-chinlone-and-petanque>.
76. The Nation. (2023, February 1). *Thailand to boycott SEA Games Muay Thai after Cambodia changes name*. www.nationthailand.com.
<https://www.nationthailand.com/thailand/general/40024514>.
77. UNESCO. (n.d.). *Constitution*. unesco.org. Retrieved August 22, 2025, from <https://www.unesco.org/en/legal-affairs/constitution?hub=171411>.
78. UNESCO World Heritage Centre. (n.d.). *World heritage list*. UNESCO World Heritage Centre. Retrieved August 22, 2025, from <https://whc.unesco.org/en/list/>.
79. UNESCO. (1972). *Convention Concerning the Protection of the World Cultural and Natural Heritage*. unesco.org. <https://unesdoc.unesco.org/ark:/48223/pf0000132540>.
80. UNESCO. (2003). *Convention for the Safeguarding of the Intangible Cultural Heritage*. https://ich.unesco.org/doc/src/2003_Convention_Basic_Texts-_2020_version-EN.pdf
81. VanBlarcom, B. L., & Kayahan, C. (2011). Assessing the economic impact of a UNESCO World Heritage designation. *Journal of Heritage Tourism*, 6(2), 143–164.
<https://doi.org/10.1080/1743873x.2011.561858>.
82. Ware, A., & Skidmore, M. (2023). *After the Coup*. ANU Press.
83. Wood, R. (2014). Chinlone the Sport. www.topendsports.com. Available at: <https://www.topendsports.com/sport/list/chinlone.htm> [Accessed 15 Jul. 2024].
84. Wertmann, P., Chen, X., Li, X., Xu, D., Tarasov, P.E. and Wagner, M. (2020). New evidence for ball games in Eurasia from ca. 3000-year-old Yanghai tombs in the Turfan depression of Northwest China. *Journal of Archaeological Science: Reports*, 34, p.102576. doi:<https://doi.org/10.1016/j.jasrep.2020.102576>.
85. Xinhua. (2025, February 19). *Myanmar's traditional Chinlone sport to be submitted for UNESCO recognition in 2026*. [News.Cn](http://news.cn).
<https://english.news.cn/asiapacific/20250219/5482837ad88c4b7599f2961f3ec13976/c.html>
86. Yang, L. (2017). *Chinese Ju and World Football*. [online] www.atlantis-press.com.
doi:<https://doi.org/10.2991/mshsd-17.2018.52>.

ENTREPRENEURIAL FRAMEWORK CONDITIONS IN CROATIA FROM 2013 TIL 2023 – INCENTIVE OR RESTRICTIVE

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ABSTRACT

For the development of any society entrepreneurship is very important. Its impact on economic growth, employment and the alleviation of extreme poverty is known. High level of unemployment of young people, in Croatia and EU, points to the need to focus on entrepreneurship with the aim of reducing this type of unemployment. In order to encourage young people to become entrepreneurs, knowledge about entrepreneurship framework conditions (EFCs) is necessary. Namely, EFCs represent very important components of entrepreneurship ecosystem and they are a „oxygen of resources, incentives, markets and supporting institutions for the creation and growth of new firms. The aim of this paper is to explain EFCs and to analyze the scores for all nine EFCs in Croatia for the period from 2013 til 2023 and compare them with the average scores of EU countries. Furthermore, the goal is to identify the EFCs that are incentive and those who are restrictive for croatian entrepreneurship. The results of the analysis shows how the conditions primary and secondary education for entrepreneurship in Croatia records the lowest average value of 2.32 in the observed period, while the largest difference in the average value between Croatia and the EU is recorded for the conditions government policies towards entrepreneurship – speed and easy of regulatory (1.17 points) and government policies towards entrepreneurship – priorities and support (0,98 points).

Keywords: *Croatia, entrepreneurship, entrepreneuruial framework condtions, EU, young people*

1. INTRODUCTION

In the labour market of Europe, youth people are vulnerable and record high unemployment rates compared to other stakeholders in the market (Vasilecsu et al., 2025). Namely, in January 2024, the youth unemployment rate in the EU was 14.9% and in recent decades it has been consistently around twice as high as the general unemployment rate (people aged 15 to 74) (European Commission, 2025). In Croatia the youth unemployment rate is even higher and amounts 16,8% (Trading Economics, 2025). Given this, young people need to find new ways to enter the labour market and entrepreneurship stands out as an opportunity (Stoica et al, 2020; Pfeifer et al., 2021; Vasilecsu et al., 2025). Furthermore, according to Orobia et al. (2020) youth entrepreneurs as well as woman entrepreneurs have a significant effect on the development and economic growth of a country through job creation, new innovations and etc. (Stoica et al, 2020; Ionescu, 2020). They also represent a significant part of the society and the future of nations depend on them (Gulzar and Fayaz, 2021). Entrepreneurial framewotk conditions (EFCs) represent a „a set of structural conditions of entrepreneurial activity“ (Gomes et al., 2023, p. 2). The state of EFCs is directly connected to entrepreneurial capacity, preferences and opportunity which consequently affects business dynamics (Gabor, 2018). Furthermore, for the development of entrepreneurship and its effects on economic development, entrepreneurial participants and enviromental elements are also very important (Pfeifer et al., 2021).

According to Gomes et al. (2023, p. 2) entrepreneurial ecosystems are defined “*as unique sets of contextual and individual actors that stimulate the exploration and discovery of entrepreneurial market opportunities through competitiveness and innovation to achieve economic growth*”. Different countries have different EFCs, which can have a negative or positive effects on entrepreneurial activity outputs and inputs.

Due to previously mentioned, it is necessary to analyze the EFCs of individual countries in more depth. So, in this paper the focus is going to be on EFCs in Croatia for an eleven-year period and comparison with the EU. The question arises as to which elements of EFCs are incentive and which are restrictive for entrepreneurship?

2. ENTREPRENEURIAL FRAMEWORK CONDITIONS

For an entrepreneurship ecosystem most important components are entrepreneurial framework conditions (EFCs) and they represent an important „oxygen of resources, incentives, markets and supporting institutions for the creation and growth of new firms,, (Gabor, 2018, p. 154). According to the GEM survey, nine framework conditions of entrepreneurial environment are analyzed:

1. financial resources/access to money – represent availability of financial resources for new and growing firms (including equity, debt, grants and subsidies, private investors, etc.).
2. government policies towards entrepreneurship – represent the extent of public policies focused on supporting new and growing firms and the extent to which taxes and regulations do not harm new and growing firms.
3. government programs for entrepreneurship – represent the presence of programs focused on enhancing new and growing firms.
4. education and training for entrepreneurial competencies – represent the attention given to building creativity, self-confidence, or basic understanding of market and entrepreneurial principles in primary and secondary schools. Also includes availability of programs that prepare for starting and managing new or growing firms at all types of higher educational institutions including universities, colleges, vocational or professional schools.
5. transfer of research and development – represent the availability of new knowledge, and affordability of new technologies for new and growing firms.
6. professional and commercial infrastructure – represent the availability and affordability of business suppliers, contractors, consultants, legal, accounting and banking services.
7. openness of the domestic market – represent the perception of dramatic changes in market and the extent to which new and growing firms are free to enter existing markets.
8. physical infrastructure – represent ease of access to communication, utilities, transportation, land and space at a price that does not discriminate against new and growing firms.
9. cultural and social norms – represent the extent to which national culture supports individual success, self-sufficiency, risk taking, innovativeness and individual responsibility

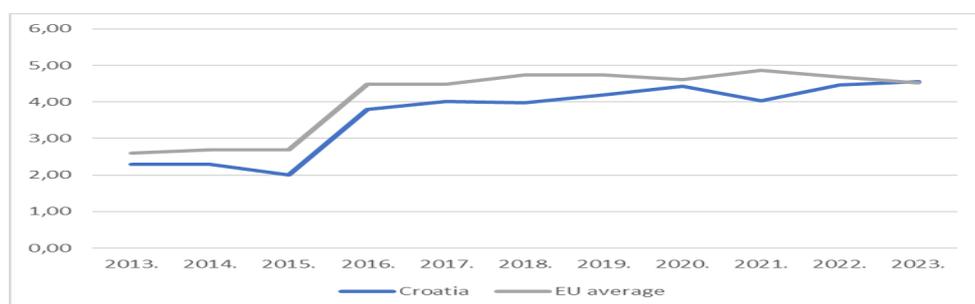
3. ANALYSIS OF EFCS IN CROATIA AND COMPARISON WITH THE EU FOR THE PERIOD FROM 2013 TILL 2023

3.1. Methodology

The analysis of Croatia's entrepreneurial environment is based on GEM survey data from 2013 to 2023, available on the CEPOR website. The survey includes two groups: a population sample aged 18 to 64 and experts. In Croatia, IPSOS PULS conducts the survey in cooperation with the GEM team, using a mix of telephone and online methods since 2020. Data are weighed by age and gender to reflect the working population and harmonized by the global GEM consortium. Respondents rate various aspects of the entrepreneurial environment on a scale from 0 (very poor) to 10 (excellent). Results are presented in graphs showing trends and indicating whether elements act as enablers or barriers to entrepreneurship. The questionnaire covers nine categories, providing clear insights into attitudes toward the entrepreneurial ecosystem. This analysis allows comparison between Croatia and EU countries and highlights key strengths and challenges in fostering entrepreneurship.

3.2. Results

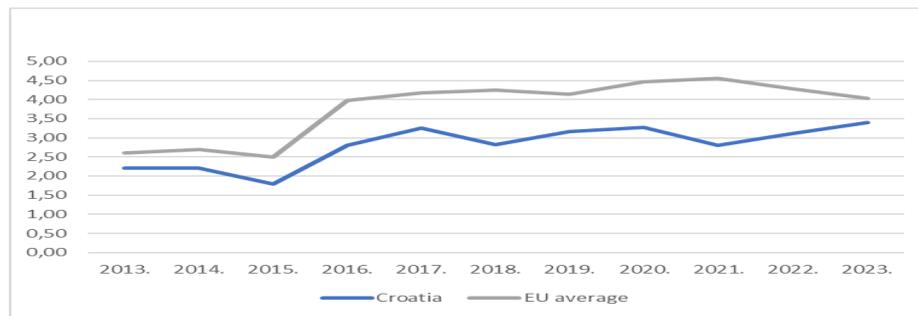
Graph 1 shows the values for the condition access to financial resources. Croatia experienced a decline in values from 2013 to 2015, followed by a significant increase in 2016. Until 2020, there was a steady slight growth, after which a notable drop of 0.39 points occurred in 2021 compared to the previous year. In 2022, growth resumed and continued into 2023, when Croatia achieved better results than the EU average. The average score for the financial resources element in the EU from 2013 to 2023 was 4.64, while for Croatia it was 4.18. These results indicate that Croatia lags considerably behind the EU average and that this element acts as a constraint on entrepreneurial activity within the country.



Graph 1: Financial resources/access for money for Croatia and EU average
Source: Author's based on GEM Croatia (2013 - 2023)

Although there are sufficient bank loans available in the Croatian market, the problem of inadequate access to appropriate financial resources persists, especially in the early stages of rapid business growth (young, innovative companies), when such resources are most needed by entrepreneurs. When referring to types of funding, this includes venture capital funds, business angels, crowdfunding, access to financial resources from European Union funds, and others. The reasons for these results can be found in the historical orientation of Croatian entrepreneurs toward banks, the negative perception among entrepreneurs that entering the capital market is expensive, lengthy, and complex, as well as the relatively short history of the market economy in Croatia. Graph 2, representing the condition of Government policies – priorities and support, shows that Croatia does not exhibit a consistent upward trend. From 2013 to 2023, Croatia's results reveal a pattern where after two years of growth, there is a decline in scores, indicating instability in government policies. Notably, Croatia experienced a drop of 0.40 percentage points in 2015 compared to the previous year, and a 0.44 percentage point decline in 2018.

In contrast, the EU average declines were smaller, with a 0.20 percentage point drop in 2015 and 0.27 percentage points in 2022, the latter being the largest decline among EU countries. A concerning fact for this category is that out of the nine lowest-rated statements related to entrepreneurial environment elements between 2012 and 2015, five were connected to government policies. Similarly, from 2020 to 2022, six of the fifteen lowest-rated statements concerned government policies. The average score for Croatia during the observed period was 2.80, while the EU average was 3.78 (Figure 13) clearly indicating the urgent need for key reforms in creating a supportive entrepreneurial environment in Croatia regarding government support.

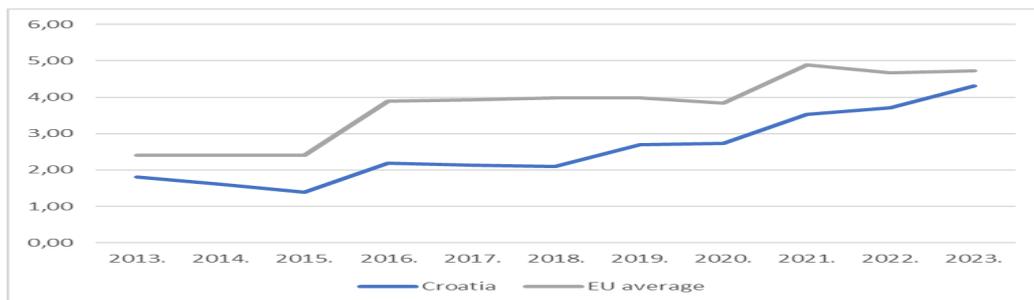


Graph 2: Government policies towards entrepreneurship – priorities and support for Croatia and EU average

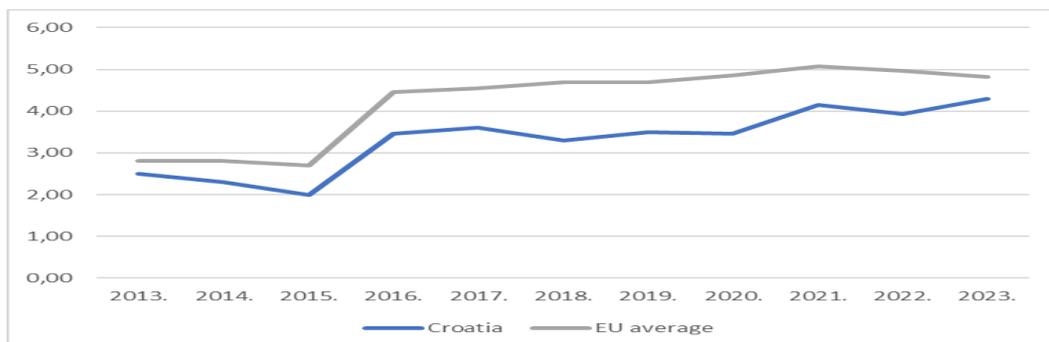
Source: Author's based on GEM Croatia (2013 - 2023)

Graph 3 illustrates the aspect of speed and efficiency of regulatory actions, specifically government policies aimed at simplifying the existing regulatory framework within which entrepreneurial activity takes place. Between 2013 and 2015, Croatia recorded a decline in values; from 2016 to 2018, there were no significant fluctuations in the trend, while from 2019 onward, a constant increase is evident, with the largest surge in 2021 of 0.8 points compared to 2020. In EU countries, stability in values can be observed from 2013 to 2015, followed by a sharp increase that, with minor variations, continued until 2020. In 2021, both the EU and Croatia registered significant growth, with the EU recording an increase of 1.05 points compared to the previous year, which is also the highest jump in the EU average within the observed period. The average score for the regulatory functioning dimension in the EU from 2013 to 2023 is 3.73, which is higher than Croatia's average but remains one of the lowest-rated categories in the research for EU countries. The average score for the government policy category—regulatory functioning dimension—in Croatia for the period from 2013 to 2023 is 2.56, which is lower than the score for the priorities and support dimension within the same category, which amounts to 2.80. Consequently, it can be concluded that this element of the entrepreneurial environment also acts as a limiting factor on the entrepreneurial climate and indicates the alarming state of this component of the entrepreneurial ecosystem. The condition government programs for entrepreneurship (chart 4) in Croatia is rated higher than both elements of government policies toward entrepreneurship, with an average score of 3.31. Despite this, the ratings for this research category are still lower than the average for EU countries. Regarding government programs for entrepreneurship, Croatia shows a slight decline in values from 2013 to 2015, followed by a significant increase in 2016, which is then maintained without major fluctuations until 2020. In 2021, there is a somewhat larger increase of 0.69 points compared to the previous year. However, this growth trend does not continue, as Croatia records a decrease of 0.21 points in 2022. In the category of government programs for entrepreneurship, the EU shows a stable trend from 2013 to 2015, followed by a sharp rise in 2016.

Throughout the rest of the observed period, EU countries record a slight increase without significant fluctuations. The average score of 4.21 for EU countries is significantly higher than Croatia's average of 3.31. Although scores in both Croatia and the EU show improvement, the evaluation criteria for this component highlight the need to change the implementation methods of government programs. From the previous figure 4, we conclude that the element of government programs for entrepreneurship acts as a limiting factor for the entrepreneurial climate in the Republic of Croatia. However, the fact that in the last observed year Croatia's average score increased by 0.36 points while the EU recorded a decline indicates the possibility for positive shifts and progress in the country.



Graph 3: Government policies towards entrepreneurship – Speed and Ease of Regulatory Functioning for Croatia and EU average
 Source: Author's based on GEM Croatia (2013 - 2023)



Graph 4: Government programs for entrepreneurship
 Source: Author's based on GEM Croatia (2013 - 2023)

Chart 5 shows the data for the condition of primary and secondary entrepreneurial education. For Croatia there is a visible decline in value in the period from 2013 to 2015, after which it records a significant increase in 2016, with a difference of 1.17 points compared to the previous year 2015. In 2017 and 2018, there are no significant changes in value, nor growth, while Croatia records a decline in value in 2019. The rest of the observed period, ending with 2023, is marked by a trend of constant slight growth. The values of the element of primary and secondary education in the EU from 2013 to 2015 record a stable trend, with the same score of 2.1, after which there is an exceptional increase in 2016 when the average score is 3.19. From 2017 to 2023, the EU records a constant trend of slight growth, with minor oscillations in value. EU countries maintain the average, while in Croatia a slightly larger oscillation of grades is observed, but with a tendency to increase. The average grade for the observed period in the Republic of Croatia is 2.32, while for EU countries it is 2.96, which makes this dimension one of the worst rated.

The inadequacy of primary and secondary education in the Republic of Croatia is considered one of the leading discouraging factors for the development of entrepreneurial activity, although their importance is strongly emphasized by various European Union programs. Many respondents declare that primary and secondary education does not contribute to the development of entrepreneurial ideas, initiatives and the development of creativity for strengthened entrepreneurial activity, which is confirmed by the ratings indicating that this component of the GEM research has a limiting effect on entrepreneurial activity in Croatia.

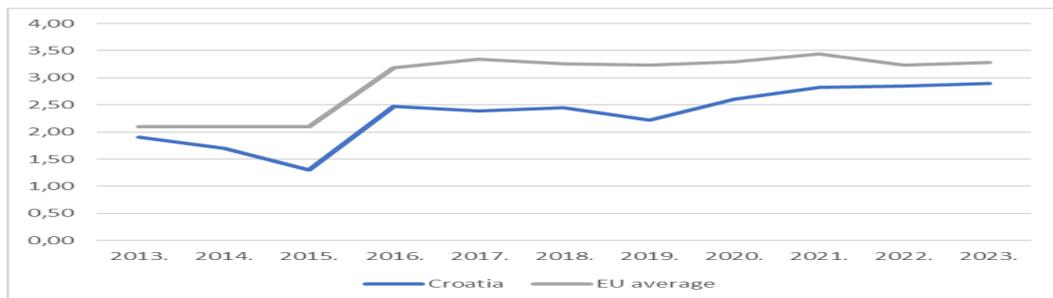


Chart 5: Entrepreneurship education - primary and secondary
Source: Author's based on GEM Croatia (2013 - 2023)

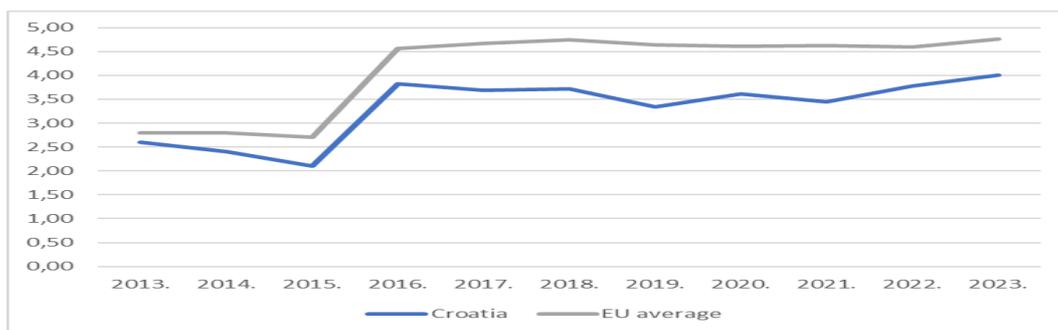


Chart 6: Entrepreneurship education – tertiary
Source: Author's based on GEM Croatia (2013 - 2023)

Regarding tertiary entrepreneurial education (chart 6) Croatia shows a decline in value from 2013 to 2015, after which it records a significant increase in value in 2016. Until 2018, the trend is stable with an average grade of 3.74, after which the value decreases in 2019. Until the end of the observed period, a constant slight increase is recorded. In the tertiary education category, the EU shows a slight decline in value from 2013 to 2015, after which it records an exceptional increase in value in 2016. Until 2023, a stable increasing trend in value is recorded. It is noticeable that the average of EU countries is maintained, as is the case with primary and secondary education, while in Croatia the trend oscillates. The average grade in the observed period for the EU is 4.13, and in the Republic of Croatia 3.31. It is a worrying fact that Croatia has had the lowest scores for the tertiary education element in the EU four times in the observed period of eleven years (2015, 2017, 2018 and 2020). Although, the tertiary education element has been rated with a higher average score than primary and secondary education, it is still significantly worse than the EU average, which indicates that adequate entrepreneurial education is a pressing problem in creating a stimulating entrepreneurial environment. These results should certainly be an incentive for a comprehensive reform of the education system in the Republic of Croatia, since they suggest that the educational component of the entrepreneurial environment does not have a stimulating effect on its development.

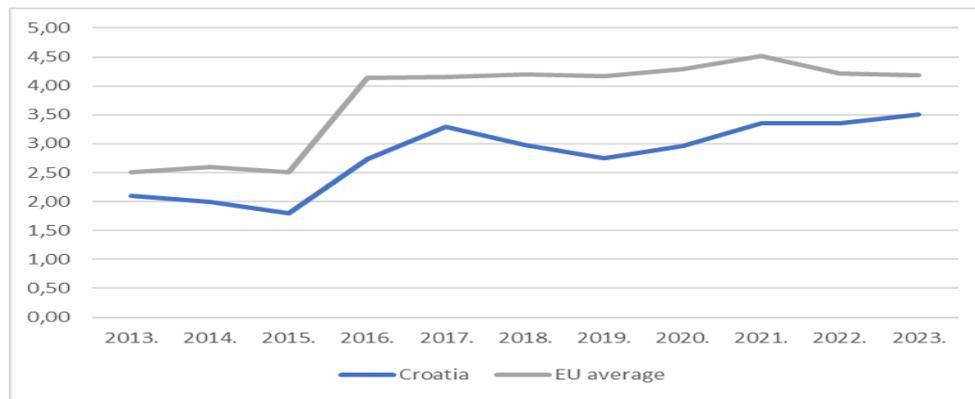


Chart 7: Transfer of research and development
Source: Author's based on GEM Croatia (2013 - 2023)

The condition transfer of research and development refers to the successful functioning between the research and business sectors. This component largely determines the competitiveness of Croatian companies' products, since innovation is the main prerequisite for growth: not only in the design and launch of new products, but also in the production process, organization and market placement. Chart 7 shows a decline in value from 2013 to 2015 for Croatia, after which it records a significant increase in value in 2016, which continues in 2017. After two years of growth, in 2018 there is a significant decrease in value, which continues in 2019. From 2020 to 2023, Croatia records a trend of constant slight growth in the value of this component. In the component of transfer of research and development, EU countries record stability in value in the period from 2013 to 2015, followed by an exceptional increase in value of 1.64 points in 2016. In the rest of the observed period, the EU records a constant slight growth in value. In the initial observed period (2013, 2014, 2015), the difference between the average scores of the R&D transfer component between Croatia and EU countries was not significantly pronounced, although Croatia was the country with the lowest score for the component in 2014 and 2015. The reason lies in the fact that this component of the entrepreneurial ecosystem was rated extremely poorly in EU countries from 2013 to 2015, with an average score of 2.53. Since 2016, the Croatian average has started to lag significantly behind the European average, and in 2016, 2018, 2019 and 2020, Croatia has traditionally been the country with the lowest score for this component among the surveyed countries. Since 2022, when Croatia's average score is 3.36 and the EU average is 4.21, the gap in the observed component is closing, which is certainly a good signal for the Croatian economy. The positive trend continues in 2023, when the difference between the average score of the Republic of Croatia and the EU countries was reduced to 0.69 points. This is also confirmed by the analysis of changes in the scores of individual statements defining the transfer of research and development within the GEM survey, which record a significant jump compared to previous years. In conclusion, the reduction of the gap behind the EU average for Croatia is a good signal, but the difference in the scores of Croatia and the EU in 2023 still warns that this component of the entrepreneurial environment is still limiting, rather than stimulating, the entrepreneurial climate in Croatia. In the professional and commercial infrastructure component (chart 8), Croatia shows a slight decline in value from 2013 to 2015, after which it records a significant increase in value in 2016, which continues in 2017. In 2018, Croatia records a decline, followed by a period of growth that, with minor oscillations, was maintained until the end of the observed period. In the EU countries, in the period from 2013 to 2015, the stability of the value is evident with an average score of 2.73, after which there is an exceptional growth in 2016. The trend of slight growth in value continues until the end of the observed period. Chart 8 shows that, despite the shortcomings, the professional and commercial infrastructure component is among the best rated in Croatia and the EU.

However, with an average score of 4.07 in the period from 2013 to 2023, Croatia lags behind the EU average by 0.77 points, which represents a significant lag. Given the fact that government programs have so far been mainly focused on institutional development, an analysis of effectiveness and radical changes in approach are necessary, primarily through government measures, so that the professional and commercial infrastructure component has a stimulating effect on the entrepreneurial environment.

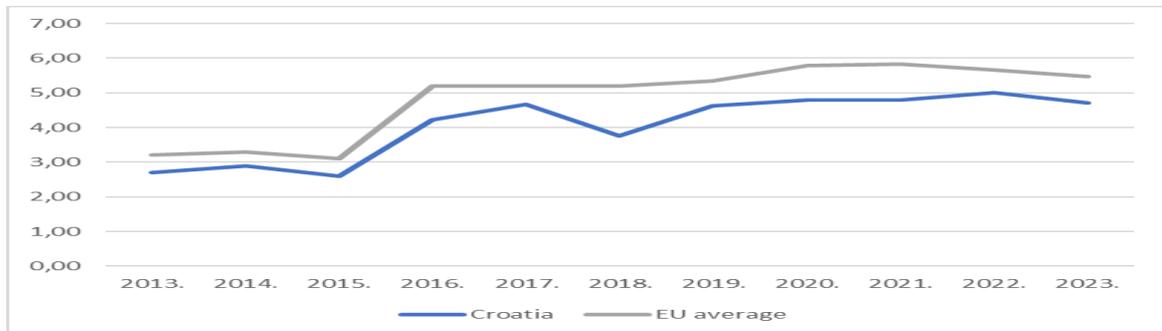


Chart 8: Professional and commercial infrastructure
Source: Author's based on GEM Croatia (2013 - 2023)

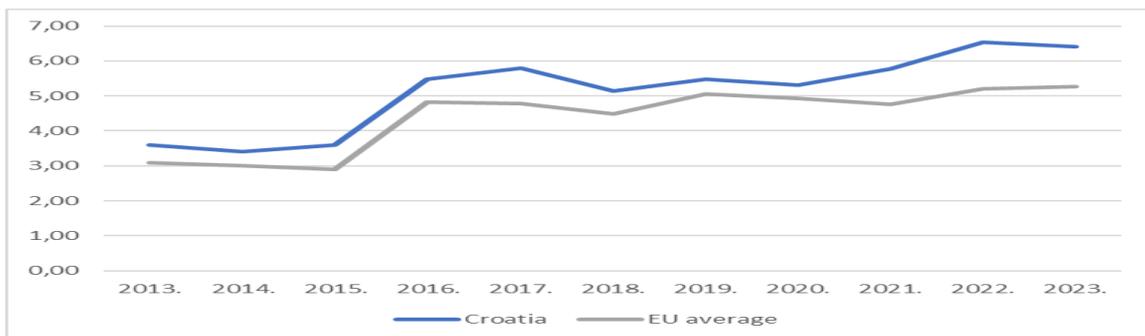


Chart 9: Market openness – dynamism of changes
Source: Author's based on GEM Croatia (2013 - 2023)

Regarding the openness of the domestic market - an element of dynamic change (chart 9), Croatia shows stability of values in the period from 2013 to 2015 with an average score of 3.53, followed by significant growth in 2016, and then in 2017. Since 2018, when the value decreased, with the exception of 2020, Croatia has recorded a continuous increase in value until 2023. In the period from 2013 to 2015, EU countries recorded a slight decrease, followed by exceptional growth in 2016. By the end of the observed period, the EU shows smaller oscillations in value with a tendency of slight growth. Chart 9 shows the component of dynamic change, which is also the first element of the GEM survey in which Croatia has scores higher than the average of EU countries throughout the observed period. The average component score from 2013 to 2023 in the Republic of Croatia is 5.13, while for the EU it is 4.39. With a difference of 1.14 percentage points in 2023, Croatia exceeded the EU average to the greatest extent so far, which is an excellent indicator of market opportunities and an invitation to invest in Croatian entrepreneurship. Regarding the openness of the domestic market - an element of entry barriers (Chart 10), Croatia shows a decrease in value from 2013 to 2015, after which it records a significant increase in value in 2016, and the trend of slight growth continues until 2023. EU countries in the period from 2013 to 2015 show stability in value with an average score of 2.73, after which there is an exceptional increase in value in 2016.

The trend of slight growth continues until the end of the observed period. Compared to the EU, Croatia shows greater changes in value movements during the observed period, but also with a tendency to grow. Chart 10 shows the below-average rated dimension of market barriers, which is an indicator of the ineffectiveness of the regulatory framework in the Republic of Croatia. In the period from 2016 to 2021, Croatia increased its gap compared to the EU average, while from 2022 this gap begins to decrease, and in 2023 it is more significant and amounts to 0.65 percentage points. In conclusion, although the dimension of dynamism of change is an indicator of a stimulating entrepreneurial environment, due to the fact that the entrepreneurial ecosystem is still extremely burdened by market barriers, market closure occurs in Croatia and this component is insufficiently stimulating for the development of entrepreneurial activity in the country.

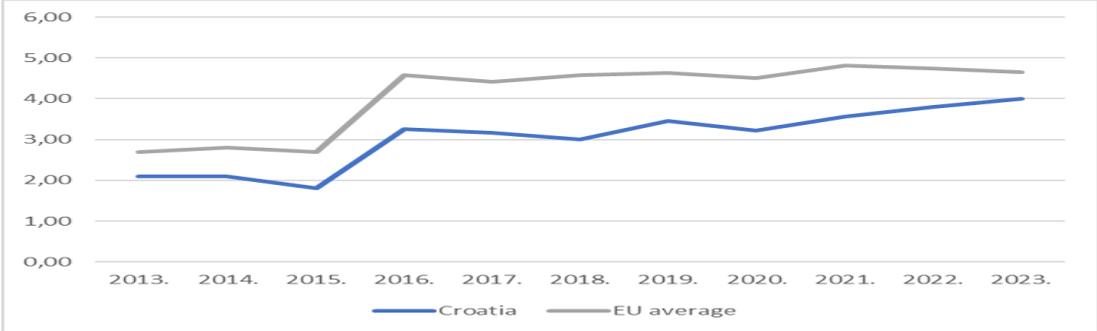


Chart 10: Market openness – barriers to entry
 Source: Author's based on GEM Croatia (2013 - 2023)

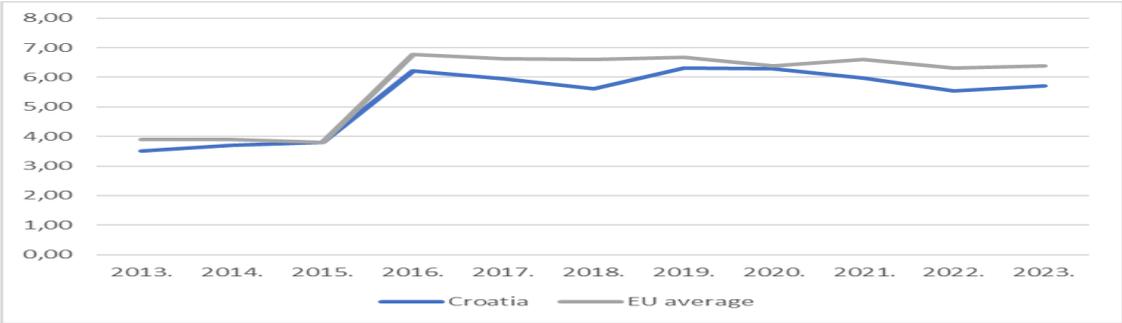


Chart 11: Physical infrastructure
 Source: Author's based on GEM Croatia (2013 - 2023)

The GEM survey assesses the quality of physical infrastructure through a number of sub-components, including transport, utility and telecommunications infrastructure. In the period from 2013 to 2015 (chart 11), Croatia recorded a trend of slight growth in value, while in 2016 a significant growth in value was evident. After exceptional growth, there was a decline in value in 2017 and 2018. In the following period, Croatia recorded growth until 2021, when there was a slight decline again. Compared to Croatia, EU countries show a tendency towards smaller oscillations in value. From 2013 to 2015, a trend of stability and equal component ratings was noticeable, which continued in the period after 2016, when there was a significant growth in value. The best rated component of the entrepreneurial environment in Croatia is physical infrastructure, and it can be said that it has a supportive effect on entrepreneurial activity in the Republic of Croatia. Chart 11 shows how Croatia successfully follows the growing trend of the EU average, but still, despite high ratings, lags behind the European average. With an average score of 5.32, Croatia lags behind the EU by 0.49 percentage points in the observed period, which indicates that there is much room for further progress in this category as well.

The fact that in the period from 2020 to 2023, Croatia has a tendency to decrease the score of this component is also of concern.

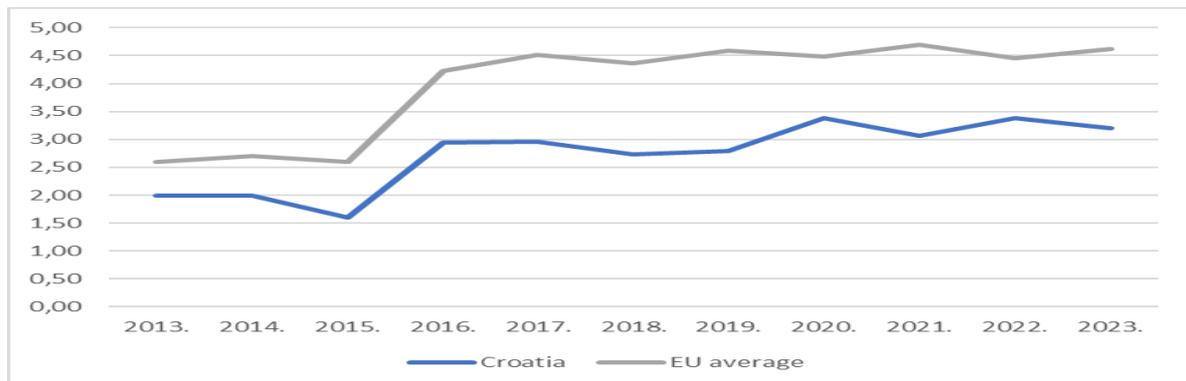


Figure 12: Cultural and social norms
Source: Author's based on GEM Croatia (2013 - 2023)

Regarding cultural and social norms (chart 12), Croatia shows a decline in values in the period from 2013 to 2015, followed by a significant increase in 2016. In the period from 2017 to 2023, there is an oscillation in values, with a slight trend of inconsistent growth. EU countries show stability in the ratings of this component in the period from 2013 to 2015, after which they record a significant increase in 2016. The tendency of slight growth, with minor oscillations, continues in the following period until 2023. In relation to EU countries, Croatia has the lowest ratings of this component of the entrepreneurial ecosystem in the period from 2014 to 2021. The significant lag behind the EU average indicates that cultural and social norms in Croatia seriously limit the development of entrepreneurial potential. With an average rating of 2.73, Croatia confirms its position at the bottom of European countries in the observed period. The cultural and social norms component is the lowest rated component of the GEM survey, behind the government policies component, which is an indicator that this component also has an extremely restrictive effect on entrepreneurial activity.

4. CONCLUSION

In Croatia, there is a prevalent perception that the prevailing economic environment and legal regulations are insufficiently aligned with the needs of entrepreneurs, generally acting as a deterrent to entrepreneurial initiatives and new business ventures. This perception is substantiated by the findings of the Global Entrepreneurship Monitor (GEM) survey spanning the period from 2013 to 2023. Although the Croatian Government has implemented several measures, primarily institutional support frameworks inspired by European Union recommendations, subsequent evaluations reveal that these interventions have neither been adequately effective nor comprehensive. Over the course of eleven years (2013-2023), despite observable improvements across most evaluated dimensions, Croatia remains positioned near the bottom of European rankings. Among the nine components of the entrepreneurial ecosystem assessed by the GEM survey, Croatia surpassed the EU average in only one category: market openness dynamics. Conversely, the scores for the other eight dimensions underscore a persistently unsupportive entrepreneurial climate, fostering skepticism and uncertainty among individuals regarding entrepreneurial engagement. Key barriers identified include limited access to finance, government policies and regulatory frameworks misaligned with entrepreneurial priorities, inadequately designed government programs, market entry obstacles, underdeveloped technology transfer mechanisms, deficient professional and commercial infrastructure, and an insufficient role of education alongside prevailing cultural and social

norms. Moreover, Croatia not only exhibits lower component scores than the EU average but also demonstrates considerable instability in these trends. While EU countries typically maintain consistent averages without substantial fluctuations, Croatia experiences significant variability, particularly in areas such as government policies and programmatic support. Nonetheless, Croatia's trajectory generally mirrors broader European patterns, with overall growth observed in all elements relative to the initial assessment period, albeit at comparatively lower levels. This trend indicates governmental efforts to enhance the national entrepreneurial landscape through targeted interventions, which are essential for cultivating a more conducive and stimulating environment. Particular attention should be devoted to young enterprises, as their market entry serves as a catalyst for innovation through the introduction of new ideas, products, and services, thereby generating employment opportunities and contributing to the broader economic strengthening. This analyzed evidence offers critical insights for policymakers aiming to foster a more supportive entrepreneurial ecosystem in Croatia, highlighting persistent challenges and avenues for strategic improvement drawn from longitudinal GEM data.

LITERATURE:

1. Alpeza, M., Peterka, S. O., & Has, M. (2018). Entrepreneurship in Croatia. In *Entrepreneurship in former Yugoslavia: diversity, institutional constraints and prospects* (pp. 37-50). Cham: Springer International Publishing.
2. Bago, A., & Pilipović, O. (2016). Skupno financiranje. *Elektronički zbornik radova Veleučilišta u Šibeniku*, 10(3-4), 23-36.
3. European Commission (2025) Youth employment support, https://employment-social-affairs.ec.europa.eu/policies-and-activities/european-employment-strategy/youth-employment-support_en,
4. Gabor, M. R. (2018). Entrepreneurial Framework Conditions and Sustainable Growth in Europe. A Multimethod Analysis. *Annals of "Dunarea de Jos" University of Galati Fascicle I. Economics and Applied Informatics*, 1(1), 154-161.
5. GEM Hrvatska (2012-2015). Što čini Hrvatsku (ne)poduzetničkom zemljom. Dostupno na: <https://www.cepor.hr/GEM%20zbornik%202022%2005%2007%202023.pdf>
6. GEM Hrvatska (2018). Što čini Hrvatsku (ne)poduzetničkom zemljom. Dostupno na: https://www.cepor.hr/wp-content/uploads/2015/04/GEM_brosura_2016_web.pdf
7. GEM Hrvatska (2021). Što čini Hrvatsku (ne)poduzetničkom zemljom. Dostupno na: <https://www.cepor.hr/wp-content/uploads/2019/04/GEM2018zaweb.pdf>
8. GEM Hrvatska (2022). Što čini Hrvatsku (ne)poduzetničkom zemljom. Dostupno na: <https://www.cepor.hr/wp-content/uploads/2022/06/GEM-publikacija-2021-WEB.pdf>
9. Global Entrepreneurship Monitor (GEM) 2023/2024 Global Report. Dostupno na: <https://gemconsortium.org/report/global-entrepreneurship-monitor-gem-20232024-global-report-25-years-and-growing>
10. Gomes, S., Ferreira, J. J., & Lopes, J. M. (2023). Entrepreneurial conditions and economic growth in entrepreneurial ecosystems: Evidence from OECD countries. *The International Journal of Entrepreneurship and Innovation*, 14657503231156340.
11. Gulzar, F., & Fayaz, A. (2023). Youth entrepreneurial intentions: an integrated model of individual and contextual factors. *International Journal of Organizational Analysis*, 31(5), 1279-1303.
12. Ionescu, A. M. (2020). ENTREPRENEURSHIP FRAMEWORK CONDITIONS AS PREDICTORS OF EARLY-STAGE ENTREPRENEURIAL ACTIVITY. In *7th SWS International Scientific Conference on Social Sciences ISCSS 2020* (pp. 217-224).

13. Orobia, L. A., Tusiime, I., Mwesigwa, R., & Ssekiziyivu, B. (2020). Entrepreneurial framework conditions and business sustainability among the youth and women entrepreneurs. *Asia Pacific Journal of Innovation and Entrepreneurship*, 14(1), 60-75.
14. Pfeifer, S., Singer, S., Šarlija, N., & Peterka, S. O. (2021). Perception of the national entrepreneurship conditions—differences across time and expert specialization. *The South East European Journal of Economics and Business*, 16(1), 1-17.
15. Stoica, O., Roman, A., & Rusu, V. D. (2020). The nexus between entrepreneurship and economic growth: A comparative analysis on groups of countries. *Sustainability*, 12(3), 1186.
16. Trading Economics (2025) <https://tradingeconomics.com/croatia/youth-unemployment-rate-eurostat-data.html>
17. Vasilescu, M. D., Crivoi, E. S., & Munteanu, A. M. (2025). Exploring entrepreneurial intention among European Union youth by education and employment status. *PloS one*, 20(1), e0318001.

THE IMPACT OF PROCESS INNOVATION ON THE ECONOMIC PERFORMANCE IN HOTEL SECTOR

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ABSTRACT

Process innovation plays an important role in strengthening the economic performance and competitiveness of hotel enterprises, particularly amid rising operating costs and increasing competitive pressures. This study examines the impact of process innovation on two key dimensions of hotel economic performance: the achievement of profit goals and cost management efficiency. Using data from a broader primary research project on innovation activities in Croatian hotels, linear regression analysis was applied to assess whether the introduction of new or significantly improved processes contributes to improved economic outcomes. The findings show that process innovation has a positive and statistically significant effect on both profitability and cost management. A key contribution of this study is its focus on individual economic performance indicators, rather than aggregated performance measures, providing a more precise understanding of the specific economic effects of process innovation. The results offer empirical evidence of the economic value of process innovation in the hotel sector and provide practical implications for managers aiming to enhance economic performance through targeted process improvements.

Keywords: *process innovation, achievement of profit goals, effective cost management, hotel sector, Croatia*

1. INTRODUCTION

Competitive pressures, globalisation and accelerated technological advancement have created an environment in which continuous adaptation has become a necessity rather than a strategic option. Schumpeter (1934; 1942) emphasises that innovation is a fundamental driver of economic development, as it transforms production patterns, opens new economic opportunities and shapes the long-term competitive positions of firms. In this context, innovation is recognised as a key source of sustainable competitive advantage, as it enhances products and processes, fosters organisational progress and enables companies to operate more efficiently and profitably (Atalay et al., 2013). Thus, innovation represents not only a response to changes in the external environment but also a mechanism for creating new value that supports long-term growth and competitive differentiation. In contemporary service industries, particularly in the hotel sector, innovation plays a crucial role in strengthening competitiveness, improving operations and ensuring long-term sustainability (Hjalager, 2010; Martin-Rios & Ciobanu, 2019; Ebersberger et al., 2021). The quality and efficiency of business processes largely determine the range and quality of products and services offered. Business processes form the foundation of every organisation, as they enable the systematic coordination of activities required to shape the offering, achieve business objectives and meet guests' needs. According to Drljača (2006), a business process comprises all activities that hotel units must perform to deliver a specific service and create added value for the customer. Processes therefore constitute the core of business operations and enable the continuous creation of value for the organisation and its clients through ongoing improvement (Sikavica & Hernaus, 2011). In an increasingly competitive and dynamic hospitality environment, hotels face rising pressures to improve efficiency, optimise operational processes and maintain sustainable levels of profitability. Growing labour costs, shifts in demand patterns and increasing guest expectations require continuous adaptation and innovation.

Among various types of innovation, process innovation has become particularly relevant, as it focuses on improving internal workflows, digitalising operations and enhancing service delivery methods. Such changes can directly influence a hotel's economic performance by reducing operational costs, increasing productivity and strengthening financial outcomes (Rammer, 2022). Although the strategic importance of process innovation is widely recognised, empirical findings regarding its impact on business performance remain inconsistent. Some studies report no significant relationship between process innovation and company performance, while others highlight its positive and significant effects across different industries. This inconsistency points to the need for further empirical investigation, particularly within the hospitality sector, where operational efficiency plays a central role in determining financial success. Scholars also emphasise the need to identify which types of innovations improve performance (Chen et al., 2015), as well as the necessity for hospitality researchers to examine additional types of innovation (Hjalager, 2010). Addressing this gap, this study investigates the effect of process innovation on two key dimensions of hotels' economic performance: profitability goals and cost management efficiency. By analysing primary data collected from hotel companies, the study provides quantitative evidence on whether the introduction of new or significantly improved processes contributes to enhanced financial outcomes. This approach aligns with the recommendations of the Oslo Manual (OECD & Eurostat, 2018), which stresses the importance of measuring and understanding the effects of process innovation. In doing so, the paper aims to contribute to the ongoing discussion on innovation in hospitality and to provide practical guidance for hotel managers seeking to strengthen competitiveness through operational efficiency.

2. THEORETICAL FRAMEWORK

2.1. Innovation and Innovation Capability

The conceptualisation of innovation is traditionally rooted in the work of Schumpeter (1934), who defines innovation as the introduction of "new combinations" that transform existing methods of production and economic activity. Schumpeter (1961) identifies five areas in which novelty can be considered an innovation: the introduction of new products (product innovation), the adoption of new methods of production (process innovation), the opening of new markets (marketing innovation), access to new sources of supply (supply-chain innovation), and the implementation of new forms of organisation (organisational innovation or business model innovation). Innovation capability refers to a firm's ability to generate new ideas, products, processes or business models that enable competitiveness and adaptation to changing market conditions. It is considered a fundamental organisational capacity that supports the creation, adoption and effective application of innovative solutions. Organisations that prioritise innovation are better able to align innovation activities with strategic objectives, enabling long-term growth and competitive positioning (Teece, 2018). Over recent decades, research on innovation in services has expanded significantly, with a growing focus on tourism (Hjalager, 2010). Authors such as Pivčević & Petrić (2011), de Larrea et al. (2021) and Pikkemaat et al. (2019) emphasise the need for additional studies examining the effects of innovation in the hotel sector. Scholars likewise call for further research into the impact of innovations on both financial and non-financial hotel performance (Mattsson & Orfila-Sintes, 2014; Wikhamn et al., 2018) and into identifying which types of innovation yield the strongest improvements (Chen et al., 2015).

2.2. Process Innovation and Economic Performance in the Hotel Industry

According to the Oslo Manual (OECD, 2005; OECD & Eurostat, 2018), innovations are categorised into product/service innovations, process innovations, marketing innovations and organisational innovations.

Process innovation refers to the implementation of a new or significantly improved production process, delivery method or supporting activity for products and services. It must be new to the firm, though not necessarily new to the market. In the hotel sector, process innovations include workflow optimisation, digitalisation of operational systems, automation of back-office functions, the introduction of new service technologies and the redesign of organisational procedures. Process innovation represents a crucial component of a firm's overall innovation activity. Enhancing the technologies used for producing and delivering products and services, improving the organization of internal processes and strengthening interactions with customers and suppliers can play a key role in improving a firm's competitiveness (Rummer, 2022). These innovations typically involve "backstage" initiatives aimed at increasing efficiency, productivity and operational flow. Information and communication technologies (ICT) play a central role in driving many process innovations (Buhalis & Law, 2008). Firm performance is a multidimensional construct encompassing both financial and operational aspects. Research identifies profitability, liquidity, growth and market performance as key dimensions (Hamann et al., 2013). Santos and Brito (2009) propose a broader stakeholder-based framework that includes growth, profitability, market value, customer satisfaction, employee satisfaction and environmental/social performance. One explanation is that process innovation outcomes are frequently measured imprecisely, often using simple indicator variables (e.g., whether a process innovation was introduced), which fail to capture the diversity and economic significance of process innovation outcomes (Hall, 2011). In the hotel industry, economic performance is often assessed through indicators such as revenue, profitability, occupancy rates, cost management and managers' subjective assessments of achieving strategic goals. Innovations help hotels adapt to changes in demand, reduce costs and enhance service quality, ultimately contributing to increased profits and greater value for guests (Tang et al., 2015; Jones, 1996; Ottenbacher et al., 2006; Chang et al., 2011). Understanding the relationship between process innovation and profitability or cost efficiency is therefore essential for strategic decision-making.

3. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Research on innovation in tourism and especially in the hotel sector, remains relatively limited (Hjalager, 2010). Numerous studies, confirm a positive association between innovation and hotel performance (Jacob et al., 2003; Orfila-Sintes et al., 2005; Tseng et al., 2008; Orfila-Sintes & Mattsson, 2009; Grisseman et al., 2013; Martin-Rios & Ciobanu, 2019). Findings concerning process innovations are mixed. While some authors find no significant relationship (Gunday et al., 2011; Koellinger, 2008; Ilmudeen et al., 2021), Ar & Baki (2011) argue that the effects of process innovation on performance are as substantial as those of product innovation. Atalay et al. (2013) report a significant positive effect of process innovation on firm performance, while Zand & Rezaei (2020) demonstrate that a process innovation strategy positively and meaningfully affects business performance. Kemp et al. (2003) stress that innovation inputs and processes must result in innovation outputs among which process innovations are essential, as they enhance the transformation process and thereby directly influence profitability. However, empirical studies such as Hall (2011) indicate that the effects of process innovation may be underestimated because of limited measurement precision. Given these inconsistent findings, further research on the economic outcomes of process innovation, particularly in hotels, where operational efficiency strongly determines financial results (Mattsson & Orfila-Sintes, 2014; Wikhamn et al., 2018) is warranted. Based on the theoretical background and previous empirical findings, this study proposes a conceptual model that positions process innovation as a key determinant of two dimensions of hotel economic performance: achievement of profitability goals and cost management efficiency. The conceptual model is presented in Figure 1.

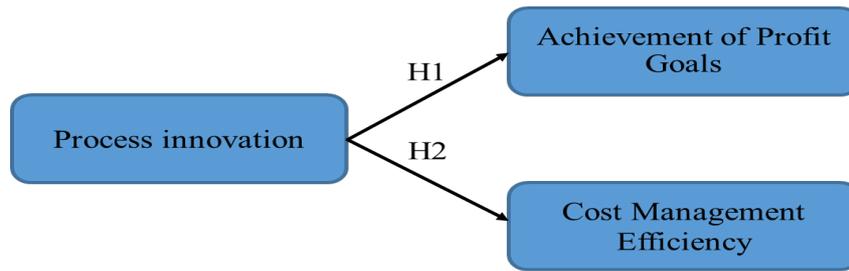


Figure 1. Conceptual model of the impact of process innovation on economic performance indicators

Source: Author's illustration based on research framework

In line with the proposed conceptual model, the following hypotheses are formulated:

H1: Process innovation positively and significantly influences the achievement of hotels' profitability goals.

H2: Process innovation positively and significantly influences cost management efficiency in hotels.

4. METHODOLOGY

This study uses an existing dataset collected in the author's earlier primary research conducted between September and December 2023 in the Croatian hotel sector. Although the original study covered a broader set of innovation constructs, the present paper applies a derived data analysis, focusing specifically on variables related to process innovation and economic performance.

4.1. Sample and Measures

The dataset consists of 111 hotel establishments across the Republic of Croatia. Data were collected using a structured questionnaire completed by hotel managers, directors, and owners in 3, 4 and 5 star hotels. Process innovation was measured using binary indicators (Yes/No), while economic performance variables were measured on a 5-point Likert scale. Process innovation was assessed using four-items derived from the Community Innovation Survey (CIS) framework, which defines the introduction of new or significantly improved existing: 1) methods of service delivery and production, 2) logistics, delivery or distribution methods, 3) supporting activities for processes and 4) methods of information processing or communication. The two economic performance measures were operationalised using established scales: achievement of profit goals, adapted from Grisseman et al. (2013), and cost management efficiency, based on Tjahjadi et al. (2020). Both measures were rated on a 5-point Likert scale (1 = very unsuccessful, 5 = very successful), allowing a consistent evaluation of subjective performance outcomes.

4.2. Data Preparation and Descriptive Analysis

Data were screened for completeness and suitability for regression analysis. Descriptive statistics (mean and standard deviation) were calculated, and a violin plot was used to visualise score distributions for both economic performance measures.

4.3. Statistical Procedure

To test the hypotheses, simple linear regression was performed for each dependent variable:

Model 1: Process innovation → Profit goal achievement

Model 2: Process innovation → Cost management efficiency

Model suitability was evaluated through R^2 , adjusted R^2 , ANOVA F-tests, and standardized beta coefficients. All analyses were conducted using SPSS Statistics.

5. RESULTS

Cronbach's alpha for the four-item process innovation scale is 0.774, indicating satisfactory internal consistency. This level of reliability suggests that the items measure a single underlying construct and can be combined into a composite process innovation index. Table 1 provides descriptive statistics for the two economic performance measures, including mean values, standard deviations, and score ranges. These statistics offer an overview of the central tendency and dispersion of responses across the hotel sample.

Variable	Mean	SD
Achievement of Profit Goals	4.162	0.708
Cost Management Efficiency	3.973	0.78

Table 1: Descriptive Statistics

Source: Author's calculation based on survey data

Descriptive statistics provide an initial overview of economic performance in the hotel sample. As shown in Table 1, both dimension, Achievement of Profit Goals ($M = 4.16$, $SD = 0.71$) and Cost Management Efficiency ($M = 3.97$, $SD = 0.78$) exhibit relatively high mean scores, indicating generally strong economic performance among surveyed hotels.

These results suggest that hotels in the sample tend to perceive themselves as successful in meeting financial targets and managing operational costs. The moderate standard deviations indicate limited variability, pointing to relatively homogeneous performance assessments across hotels.

Figure 2 presents a violin plot illustrating the distribution and response density for the variables Achievement of Profit Goals and Cost Management Efficiency. This visualization provides a detailed representation of central tendency and variability, highlighting the degree to which hotels differ in their economic performance assessments.

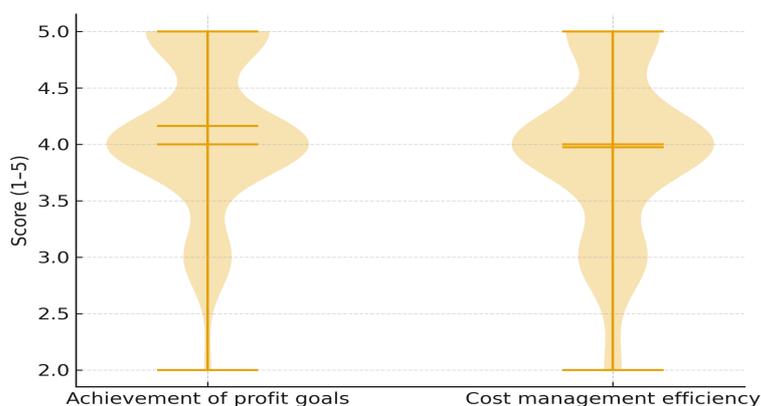


Figure 2. Distribution of Scores for Achievement of Profit Goals and Cost Management Efficiency (Violin Plot)

Source: Author's calculation based on survey data

The violin plot in Figure 2 illustrates the distribution and density of responses for both economic performance indicators. Achievement of Profit Goals shows a strong concentration around higher values, with the median located at approximately 4. The dense upper tail indicates consistently strong profit attainment among most hotels. Cost Management Efficiency exhibits a similar pattern, with responses clustering around the value of 4 and a relatively narrow distribution. This suggests that hotels maintain comparable approaches and perceptions regarding cost control processes. Overall, the violin plot visualisation reinforces the descriptive findings by showing high performance and low dispersion, which later helps contextualise the regression results particularly the stronger predictive relationship observed in the cost management model. To empirically examine the proposed conceptual relationships, two regression models were estimated to test the study's hypotheses. Model 1 assesses the effect of process innovation on the achievement of profit goals (H1), while Model 2 evaluates its effect on cost management efficiency (H2). The results of regression model are presented below (Table 2 and Table 3).

Dependent variable	Model summary		ANOVA table summary		Coefficient table summary		
	R ²	Adjusted R ²	F	p	Std. Beta	t	P
Achievement of Profit Goals							
Independent variable Process innovation	0.06	0.052	7.007	<0.009	0.245	2.648	.009

Table 2. Regression Results for Achievement of Profit Goals

Source: Author's calculation based on survey data

The regression analysis conducted to test H1 which proposes that process innovation positively and significantly influences the achievement of profit goals in hotels shows a positive effect but modest. The model explains 6% of the variance in profit target achievement ($R^2 = 0.06$), while the adjusted R^2 value (0.052) indicates modest explanatory power. The standardized regression coefficient ($\beta = 0.245$) shows that process innovation has a small yet positive influence on the achievement of profit targets. This effect is statistically significant ($t = 2.648$, $p = 0.009$), indicating that higher levels of process innovation are associated with slightly improved profit performance among hotels. The ANOVA result confirms that the regression model is statistically significant overall ($F = 7.007$, $p = 0.009$).

Dependent variable	Model summary		ANOVA table summary		Coefficient table summary		
	R ²	Adjusted R ²	F	p	Std. Beta	T	p
Cost Management Efficiency							
Independent variable Process innovation	0.143	0.135	18.149	<0.001	0.378	4.260	.0000

Table 3. Regression Results for Cost Management Efficiency

Source: Author's calculation based on survey data

The regression analysis indicates a moderate and statistically significant relationship between process innovation and cost management efficiency in hotel ($\beta = 0.378$, $p < .001$). The model explains 14.3% of the variance in cost management efficiency ($R^2 = 0.143$), while the adjusted R^2 value (0.135) confirms the stability and generalisability of the model.

The ANOVA result ($F = 18.149$, $p < .001$) further demonstrates that the model is statistically significant. Overall, the findings show that process innovations contribute meaningfully to improving hotels' cost efficiency, thereby supporting the study's hypothesis. Overall, the results show that process innovation plays a meaningful role in shaping economic performance in hotels. While its effect on profit attainment is positive but modest, its impact on cost management efficiency is substantially stronger. This pattern reinforces the theoretical view that process innovation primarily acts through internal operational improvements, which may subsequently translate into higher profitability over time. Both hypotheses (H1 and H2) are supported, with stronger empirical evidence for H2.

6. RESEARCH LIMITATIONS AND RECOMMENDATIONS FOR FUTURE STUDIES

This study has several important limitations that should be considered when interpreting the results. First, profit goal achievement and cost management efficiency were measured through subjective assessments provided by hotel managers. Such evaluations may be influenced by perceptual biases and may not fully reflect actual financial performance. Future research should incorporate objective financial metrics. Second, economic performance was analysed using only two dimensions, achievement of profit goals and cost management efficiency. Although these measures are relevant, they represent only a portion of the broader framework of business performance. Future studies should expand the analysis by including additional indicators such as revenue growth, occupancy rates, market share, liquidity, or overall financial stability. Finally, the study employed simple linear regression, which allows examination of individual relationships but does not account for potential mediating or moderating effects, nor more complex interactions among variables. Future research could apply more advanced statistical approaches, such as multiple regression, structural equation modelling (SEM), or longitudinal analyses, to gain a deeper understanding of the mechanisms through which process innovations influence economic performance.

7. DISCUSSION AND CONCLUSION

The findings of this study provide new empirical evidence on the role of process innovation in the economic performance of hotels, focusing specifically on profit goal achievement and cost management efficiency. Consistent with theoretical expectations and previous studies (Atalay et al., 2013, Grisseman et.al. 2013), the results show that process innovation contributes positively to both performance dimensions, though with differing magnitudes. The effect of process innovation on profitability was positive but relatively modest. This is aligned with research suggesting that financial outcomes often materialize more slowly, as profit is influenced by a wide range of internal and external factors (Hall, 2011; Peters et al., 2018). In contrast, the influence of process innovation on cost management efficiency was substantially stronger. The moderate and statistically robust effect ($\beta = 0.378$) supports the argument that process innovation primarily enhances internal efficiency, reduces waste, and strengthens resource utilization. These improvements directly support effective cost control, which is critical for hotel competitiveness, especially in environments characterized by rising labour costs and fluctuating demand. It is important to note that in previous analyses of the broader dataset, where economic performance was examined as an aggregated construct, process innovation did not demonstrate significant effects. In contrast, the results of this study based on a disaggregated view of economic performance across specific dimensions (profitability and cost management efficiency) show statistically significant positive effects. This contrast suggests that aggregated measures may obscure specific relationships and highlights the importance of an analytical approach that examines individual economic outcomes separately.

These findings confirm that process innovation operates as a strategic internal mechanism: first improving operational efficiency, and subsequently enabling better financial performance. This contributes to the growing body of literature on innovation in the hospitality sector, addressing long-standing calls for more quantitative evidence on innovation outcomes (Hjalager, 2010; Mattsson & Orfila-Sintes, 2014; OECD & Eurostat, 2018).

LITERATURE:

1. Ar, I. M. and Baki, B. (2011). Antecedents and performance impacts of product versus process innovation: Empirical evidence from SMEs located in Turkish science and technology parks. *European journal of innovation management*, 14(2), pp. 172–206.
2. Atalay, M., Anafarta, N. and Sarvan, F. (2013). The Relationship between Innovation and Firm Performance: An Empirical Evidence from Turkish Automotive Supplier Industry. *Procedia – Social and Behavioral Sciences*, Vol. 75, ISSN 1877-0428, pp. 226–235.
3. Buhalis, D. and Law, R. (2008) Progress in Information Technology and Tourism Management: Twenty Years on and 10 Years after the Internet: The State of Etourism Research. *Tourism Management*, 29, 609-623.
4. Chang, S., Gong, Y. and Shum, C. (2011). Promoting Innovation in Hospitality Companies through Human Resource Management Practices. *International Journal of Hospitality Management*, 30(4), pp. 812–818.
5. Chen, Y. S., Lin, Y. H., Lin, C. Y. and Chang, C. W. (2015). Enhancing green absorptive capacity, green dynamic capacities and green service innovation to improve firm performance: An analysis of structural equation modeling (SEM). *Sustainability*, 7(11), pp. 15674–15692.
6. De Larrea, G. L., Altin, M., Koseoglu, M. A. and Okumus, F. (2021). An integrative systematic review of innovation research in hospitality and tourism. *Tourism Management Perspectives*, 37, p. 100789.
7. Drljača, M. (2006). Metodologija izgradnje poslovnih procesa u hotelu. *18th Biennial International Congress Tourism & Hospitality Industry 2006, New Trends in Tourism and Hospitality Management*. Opatija: Fakultet za turistički i hotelski menadžment u Opatiji.
8. Ebersberger, B., Galia, F., Laursen, K. and Salter, A. (2021). Inbound open innovation and innovation performance: A robustness study. *Research Policy*, 50(7), p. 104271.
9. Galarza, I. S., León-Carlosama, R. G., Cevallos-Pineda, A. G. and Martínez-Gómez, M. (2023). Innovation in the tourism sector, organizational learning and performance. *Academia Revista Latinoamericana de Administración*, 36(4), pp. 463–486.
10. Grisseman, U. S., Pikkemaat, B. and Weger, C. (2013). Antecedents of innovation activities in tourism: An empirical investigation of the Alpine hospitality industry. *Tourism Management*, 36, pp. 123–134.
11. Gunday, G., Ulusoy, G., Kilic, K. and Alpkan, L. (2011). Effects of innovation types on firm performance. *International Journal of production economics*, 133(2), pp. 662–676.
12. Hjalager, A. M. (2010). A review of innovation research in tourism. *Tourism Management*, 31(1), pp. 1–12.
13. Jacob, M., Tinotre, J., Aguiulo, E., Bravo, A., Mulet, J. (2003), Innovation in the tourism sector: results from a pilot study in the Balearic Islands; *Tourism Economics*, 9 (3), pp. 279-295.

14. Ilmudeen, A., Bao, Y., Alharbi, I. M. and Zubair, N. (2021). Revisiting dynamic capability for organizations' innovation types: does it matter for organizational performance in China? *European Journal of Innovation Management*, 24(2), pp. 507–532.
15. Kemp, R. G., Folkeringa, M., De Jong, J. P., & Wubben, E. F. (2003). *Innovation and firm performance* (No. H 200207). Zoetermeer,, The Netherlands: EIM.
16. Koellinger, P. (2008). The relationship between technology, innovation, and firm performance – Empirical evidence from e-business in Europe. *Research policy*, 37(8), pp. 1317–1328.
17. Liao, C., Wang, H. Y., Chuang, S. H., Shih, M. L. and Liu, C. C. (2010). Enhancing knowledge management for R&D innovation and firm performance: An integrative view. *African Journal of Business Management*, 4(14), p. 3026.
18. Martín-Rios, C. and Ciobanu, T. (2019). Hospitality innovation strategies: An analysis of success factors and challenges. *Tourism management*, 70, pp. 218–229.
19. Mattsson, J. and Orfila-Sintes, F. (2014). Hotel innovation and its effect on business performance. *International Journal of Tourism Research*, 16(4), pp. 388–398.
20. OECD and Eurostat (2018). *Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation, 4th Edition, The Measurement of Scientific, Technological and Innovation Activities*. Paris: OECD Publishing, Luxembourg: Eurostat.
21. Orfila-Sintes, F. and Mattsson, J. (2009). Innovation behavior in the hotel industry. *Omega*, 37(2), ISSN 0305-0483, pp. 380–394.
22. Ottenbacher, M., Shaw, V. and Andrew Lockwood A. (2006). An Investigation of the Factors Affecting Innovation Performance in Chain and Independent Hotels. *Journal of Quality Assurance in Hospitality & Tourism*, 6(3–4), pp. 113–128.
23. Pikkemaat, B., Peters, M. and Bichler, B. F. (2019). Innovation research in tourism: Research streams and actions for the future. *Journal of Hospitality and Tourism Management*, 41, pp. 184–196.
24. Pivčević, S. and Petrić, L. (2011). Empirical evidence on innovation activity in tourism-the hotel sector perspective. *The business review, Cambridge*, 17(1), pp. 142–148.
25. Rammer, C. (2022). Measuring process innovation output: Results from firm-level panel data. *ZEW-Centre for European Economic Research Discussion Paper*, (22-002).
26. Santos, J.B., and Brito, L.A.L. (2009). Toward a Measurement Model for Firm Performance Aatoria. IV Encontro de Estudos em Estrategia. Recife/PE
27. Schumpeter, J. A. (1934). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credits, Interest, and the Business Cycle*. Piscataway: Transaction Publishers.
28. Schumpeter, J. A. (1942). *Capitalism, Socialism, and Democracy*. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.
29. Schumpeter, J. A. (1961). *The Theory of Economic Development*, 3rd Edition. New York: Oxford University Press.
30. Sikavica, P. and Hernaus, T. (2011). *Dizajniranje organizacije: strukture, procesi, poslovi*. Zagreb: Novi informator.
31. Tang, T.-W., Wang, M. C.-H. and Tang, Y.-Y. (2015). Developing service innovation capability in the hotel industry. *Service Business*, 9, pp. 97–113.
32. Teece, D. J. (2018). Business models and dynamic capabilities. *Long range planning*, 51(1), 40-49.

33. Wikhamn, W., Armbrecht, J. and Wikhamn, B. (2018). Innovation in Swedish hotels. *International Journal of Contemporary Hospitality Management*, 30(6), pp. 2481–2498.
34. Zand, H. and Rezaei, B. (2020). Investigating the impact of process and product innovation strategies on business performance due to the mediating role of environmental dynamism using structural equations modeling. *Brazilian Journal of Operations & Production Management*, 17(2), pp. 1–15.
35. Zhou, K. Z., Brown, J. R. and Dev, C. S. (2009). Market orientation, competitive advantage, and performance: A demand-based perspective. *Journal of business research*, 62(11), pp. 1063–1070.

THE FACEBOOK SOCIAL NETWORK AS A PLACE FOR PROMOTING SUSTAINABLE BUSINESS

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ABSTRACT

This article examines the phenomenon of sustainable business and its promotion through the social network Facebook, providing a comprehensive theoretical framework for understanding the topic. The study focuses on companies that explicitly position themselves as sustainable enterprises. Within the empirical section, content analysis and sentiment analysis are employed to identify and evaluate the specific Facebook tools and communication strategies used by these companies to convey their sustainability efforts. Furthermore, sentiment analysis is utilized to assess the reactions and attitudes of followers toward the posts shared by selected company profiles that emphasize sustainable business practices. The adopted methodological approach is expected to yield insights that will facilitate the formulation of informed conclusions and contribute to answering the research questions defined in this study.

Keywords: *sustainable business, social network Facebook, content analysis, sentiment analysis, corporation*

1. INTRODUCTION

Nowadays, companies face new challenges and opportunities in the context of sustainable business. The growing importance of environmental and social issues creates a need for innovative business approaches that consider not only economic, but also social and environmental dimensions. Contemporary marketing is expected to undergo transformation, as it is criticized for artificially induced needs, excessive materialism, and political influence. At the same time, it encounters criticism for its negative environmental impacts. These factors highlight the necessity of transitioning from traditional marketing to sustainable marketing, which emphasizes the long-term objectives of companies. Technological advancement and digitalization introduce new methods and channels for communication between companies and their customers. Social networks enable companies not only to disseminate information rapidly and efficiently, but also to interact directly with end users, collect feedback, and adapt their strategies in real time. Therefore, social media form an essential component of sustainable marketing as a dynamic and continuously evolving phenomenon of the digital era. They represent a relevant and influential environment for shaping and promoting the values of sustainable business. Social networks offer companies opportunities to engage their audiences in more environmentally friendly and socially responsible ways. Through direct and targeted communication, community building, and sustainability advocacy, companies can use social media to strengthen their brand image and demonstrate their commitment to global social and environmental issues.

2. SUSTAINABLE BUSINESS

Sustainable business refers to a mode of conducting business that is environmentally sustainable, socially responsible, and economically viable.

The importance of sustainability in the business context is increasing as global challenges such as climate change, resource depletion, and social inequality become more pressing (Hart, 2010). Sustainable business represents an approach that focuses on creating long-term value from economic, social, and environmental perspectives (Elkington, 1999). This concept emphasizes the need to align business strategies with the principles of sustainable development in order to minimize negative impacts on the environment and society while maximizing positive outcomes for both. The importance of sustainable business is reflected not only within organizations but also in their relationships with external stakeholders, such as customers, suppliers, investors, and the public. Businesses that adopt sustainable principles often gain competitive advantages and build stronger relationships with customers and partners. In addition to contributing to environmental protection and social equity, these companies are also likely to face lower risks related to regulatory restrictions and negative public perceptions (Appelbaum et al., 2020). Sustainable business therefore represents not only a moral obligation but also a source of competitive advantage and long-term success for companies in a world where environmental and social issues are receiving increasing attention. A prominent figure in the field of sustainable business is Paul Hawken. In his seminal work *The Ecology of Business: A Declaration of Sustainability* (2010), Hawken explores the relationship between business and the natural environment. His definition of sustainable business underscores the need for a fundamental shift in the way companies operate. He argues that traditional industrial practices are inherently unsustainable, leading to ecological degradation and social inequality. In contrast, sustainable business seeks to align economic activities with the principles of ecological integrity, social justice, and economic vitality. Hawken calls for a new business paradigm that recognizes the finite nature of Earth's resources and the interconnectedness of all living systems. He advocates embracing sustainability not as a charitable activity or regulatory obligation but as a strategic imperative for long-term survival and profitability. According to Hawken, sustainable companies must prioritize the regeneration of natural capital and the fair treatment of workers, create value that extends beyond financial gain, and ultimately foster innovation, shared prosperity, and planetary protection. Another pioneer in the practical application of sustainable business principles is Yvon Chouinard, founder of the outdoor clothing company Patagonia. In his book published in 2005, he presents his philosophy on business and sustainability. Chouinard's definition of sustainable business is grounded in the concept of responsible enterprise. He argues that businesses have an obligation to operate in ways that respect and protect the natural environment while contributing positively to society. Chouinard highlights the importance of incorporating environmental and social considerations into all aspects of business decision-making, from product design to marketing strategies. He advocates a business model that prioritizes sustainability, quality, and long-term thinking over short-term profits. His approach includes minimizing environmental impacts, fostering a positive corporate culture, and empowering employees to make ethical decisions. Chouinard offers a compelling vision of how companies can prosper while contributing to positive societal and environmental change. His commitment to sustainability has inspired many businesses to adopt more responsible practices, making him one of the most influential voices in the field of sustainable business (Chouinard, 2016).

2.1. Basic principles of sustainable business

In today's global economic environment, sustainable business has become a key factor determining the success and long-term viability of companies. With increasing pressure from customers and regulators to address environmental, social, and economic challenges, businesses around the world are adopting a holistic approach to sustainability (Lovins et al., 2000). This approach is grounded in the concept of the three pillars of sustainable business, which together form the basis for responsible and long-term corporate practice.

These three principles—environmental sustainability, social sustainability, and economic sustainability—are inextricably linked and collectively create a framework that enables companies to respond effectively to contemporary challenges and opportunities. The concept of the three pillars of sustainable business is widely recognized in the literature on sustainable development. Its foundational reference is the 1987 publication *Our Common Future* by the World Commission on Environment and Development, commonly known as the Brundtland Commission, which is credited with introducing and defining the concept of sustainable development. The report presented a vision of development that balances economic growth, environmental protection, and social equity. The economic pillar emphasizes the need for business models that are not only profitable but also take environmental and social impacts into account, marking a shift from traditional consumer-driven paradigms. The environmental pillar focuses on reducing negative impacts on the planet and promotes practices that conserve natural resources and minimize waste. The social pillar addresses issues of equality, justice, and the fulfillment of basic human needs, underscoring the importance of creating opportunities and ensuring the well-being of current and future generations (Elkington, 1999).

Hart (2010) identifies the following basic principles of sustainable business:

Redefining the purpose of business: Firms should move beyond the sole objective of profit maximization and adopt a broader purpose that emphasizes value creation for society and the environment.

Innovation for sustainability: This principle highlights the role of innovation in developing sustainable products, services, and business models that meet the needs of present and future generations.

Creating shared value: Businesses should implement strategies that generate value for all stakeholders, including employees, customers, communities, and the environment.

Collaborative partnerships: Effective responses to complex sustainability challenges require collaboration among businesses, governments, NGOs, and other stakeholders.

Systems thinking: Companies should adopt a systems-thinking perspective that recognizes the interconnectedness of economic, social, and environmental systems in the decision-making process.

2.2 Sustainable marketing mix

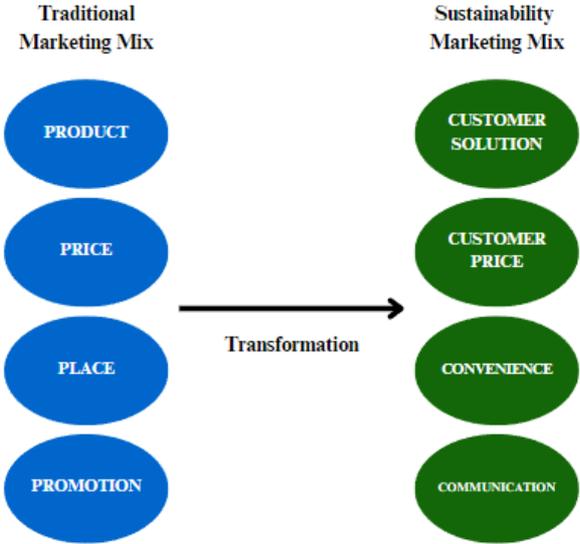
A fundamental condition for achieving sustainable marketing at the organizational level is the systematic review and reassessment of all traditional marketing activities. It is essential to adapt the elements of the traditional marketing mix – product, price, distribution and marketing communication – so that they align with the principles of sustainable marketing. The sustainable marketing mix and its components are considered a replacement for the basic 4P marketing mix. Together, these elements form a sustainable marketing mix that not only reflects traditional marketing objectives, but also incorporates sustainability principles to ensure long-term value creation for both the company and society.

Sustainable product: Strategies for sustainable products include designing offerings with a reduced environmental impact, for example through the use of recycled materials, ensuring a long product lifespan, and considering recyclability at the end of the product's life cycle.

Sustainable pricing: Pricing strategies in sustainable marketing take into account the possibility of higher prices for sustainable products, reflecting their added environmental and social value, while also maintaining competitive pricing to increase accessibility.

Sustainable distribution: This involves optimizing distribution channels to reduce the carbon footprint, such as through local sourcing, efficient logistics systems, and the use of digital distribution methods.

Sustainable marketing communications: The emphasis is placed on communicating the environmental and social benefits of products, utilizing environmentally friendly marketing materials, and maintaining transparency regarding sustainability efforts (Sharma et al., 2021).



*Figure 1 Transforming the marketing mix into a sustainable marketing mix
Source: Belz et al., 2012; own processing*

There is an ongoing discussion suggesting that it is time to more fully consider customer relationships and sustainable development, as this marketing mix better reflects both sustainability and the customer perspective. Implementing the first element, the customer solution, presupposes that customer needs are clearly defined, which makes it possible to offer products and services tailored to these needs while also accounting for social and environmental factors. When assessing the price for the customer, not only the financial costs associated with the product are taken into account, but also social, environmental, and psychological factors, as well as the ways in which the product is used and the potential waste generated. The third "C," convenience, concerns ensuring that products and services are simple and easily accessible, thereby maximizing customer satisfaction and comfort. Marketing communication has transformed from one-way promotion into genuine communication, meaning that open dialogue between the seller and the customer is intended to foster mutual trust and authenticity. Growing awareness of environmental degradation, economic instability, and social inequality has led to a shift in consumer preferences towards more sustainable products and services. This shift has encouraged businesses to adopt sustainable practices not only as a moral and ethical choice, but also as a strategic business decision.

3. SOCIAL NETWORKS AND PROMOTION OF SUSTAINABLE BUSINESS

Social media provide sustainable companies with direct channels to communicate their values, initiatives and innovations. This transparency enhances trust in the brand and strengthens engagement with current and potential customers. By using social media, sustainable companies can build and maintain communities of supporters.

Social media facilitate discussions, disseminate success stories and support community-driven sustainability initiatives. At the same time, companies that effectively use social media to highlight their sustainability efforts can increase brand loyalty among environmentally and socially conscious consumers. These platforms also offer valuable information on consumer preferences, trends and direct feedback, enabling companies to adapt their products, services and communication strategies to market demands. Moreover, social media serve as platforms for sharing ideas, fostering innovation and collaborating with other organizations or individuals interested in contributing to sustainability. Integrating social media into the marketing strategies of sustainable companies is not only beneficial but also essential in today's digital age. It expands a company's reach, strengthens its identity and aligns marketing activities with key principles of sustainability and corporate responsibility. Social media thus represent an effective tool for sustainable businesses to support their environmentally friendly and socially responsible initiatives. Through strategic communication, community engagement, the collection of consumer insights and the direct addressing of challenges, companies can effectively use social media to achieve their sustainability goals and contribute to building a more sustainable future (Schlosserová & Hruzová, 2025). In today's highly competitive business environment, creating and maintaining brand awareness is crucial for success both on and beyond social media. The power of online marketing should not be underestimated. Sustainable brands that prioritize socially responsible practices and engage their audiences more deeply gain a significant competitive advantage. The main benefits of online marketing and social media for sustainable brands include:

Creating a unique brand identity: Online marketing enables sustainable brands to differentiate themselves. They can establish a distinct position in the market to promote their sustainable and socially responsible products and services.

Building trust and brand loyalty: Consumers increasingly value authenticity and transparency. Online marketing allows sustainable brands to build trust by presenting their purpose-driven initiatives. When consumers perceive a brand as socially responsible or sustainable, they are more likely to form a strong connection with it and become loyal customers.

Increasing demand for sustainable products and services: Sustainable brands can stimulate demand through strategic online marketing. By promoting sustainable lifestyles and highlighting their advantages, these brands can attract conscious consumers who actively seek sustainable alternatives.

Sustainable companies that effectively use social media to communicate their values, objectives and initiatives gain a significant competitive advantage in building their brand. Strengthening trust, fostering loyalty and increasing awareness of sustainability are key goals that can be achieved through well-designed online marketing strategies. Therefore, it is essential for companies to continuously monitor and adapt their social media approaches to communicate effectively with their audiences and build strong customer relationships (Kaplan et al., 2010). Companies are increasingly using green language on social media, as discussed by Sarmiento (2023). They can emphasize the environmental benefits of their products or services—for example, instead of cheap, they may use terms such as budget-friendly or economical; instead of convenient, they may opt for time-saving or efficient. The use of green language appeals to customers who prioritize sustainability. Social media also enable companies to communicate their efforts and commitments transparently, thereby strengthening consumer trust. Authentic storytelling about sustainability initiatives fosters deeper connections with audiences. For these reasons, social media platforms have become highly effective tools for building sustainable brands, offering unique opportunities for engagement, narrative creation and connection with socially and environmentally conscious audiences.

3.1 Content formats used on social networks

The basic formats that were popular a few years ago are gradually being replaced by more interactive forms of posts. Post formats without visual content on Facebook have been almost completely abandoned by companies, and in the case of Instagram, new post formats are also preferred. Social networks are well-suited for presenting sustainability through compelling visuals and videos. Interactive content can engage audiences and offer insight into a company's sustainable practices (Murza, 2023). Content formats on social networks encompass a diverse range of styles designed to engage users and resonate with them. As noted above, they combine visual, audio, and textual elements to communicate messages effectively. In this paper, we primarily focus on post formats on the social network Facebook. One of the most engaging content formats on Facebook is the carousel. Because it is a more interactive format than static images, users tend to spend more time interacting with it. In 2022, Meta introduced significant changes to the platform and placed greater emphasis on video content. Reels videos quickly became widespread and increased content reach, prompting companies to adjust their strategies accordingly. Selecting the appropriate content format for social media requires careful analysis of the company's marketing objectives, target audience preferences, and, above all, the purpose of the content itself. If the strategy centers on storytelling or product presentation, carousel posts may be an optimal choice. Conversely, if the company aims to entertain, inform, or keep up with trends, Reels videos may represent a more suitable alternative (Hutchinson, 2024). Innovative content that differs from standard formats can attract attention and enhance overall profile engagement.

4. RESEARCH PART OF THE THESIS

We focus on how consumers react to content on the Facebook profiles of selected companies dedicated to sustainable business, analyzing sentiment expressed in comments on company posts. We also conduct a content analysis of individual posts, whose success is measured by the number of likes. Subsequently, we concentrate on the social network Facebook as the primary platform of interest. The aim of the research is to examine how users of the Facebook social network perceive sustainable companies and the posts they share, as well as to identify which post formats and types of content are preferred by companies engaged in sustainable business when communicating with their followers on Facebook. To achieve this goal, we apply two research methods: sentiment analysis and content analysis. Sentiment analysis, also referred to as attitude analysis, is the process of identifying, extracting, and quantifying subjective information, primarily from textual data. In practice, this means analyzing people's opinions, feelings, evaluations, attitudes, and emotions toward specific subjects. The analysis focuses mainly on opinions that express or imply positive or negative sentiments (Liu, 2020). In our case, we focus on emotions conveyed in text comments. We also analyze the content of shared posts through content analysis. Krippendorff (2018) defines content analysis as a systematic and objective approach to examining text, audio, visual, or any other form of communication. For content analysis to be effective, it is essential to establish clear coding schemes and categories aligned with the research objectives and theoretical framework. The research material consists of selected sustainable companies from the clothing industry, which is considered one of the world's major polluters. If no substantial change occurs, the fashion industry is projected to generate one-quarter of global CO₂ emissions by 2050. Consumers purchase approximately 80 billion pieces of clothing annually, placing a significant burden on the environment. Consequently, many clothing companies have begun to address sustainability (Otajovičová, 2019). The research sample was selected based on a ranking published by Sustainability Magazine, which identified the top sustainable clothing companies of 2023.

Although the clothing industry is known to be highly polluting—contributing approximately 10% of global emissions associated with climate change—many global brands are striving for change (Buchholz, 2023). From the magazine’s top-ten ranking, we selected six companies: Patagonia, Tentree, Reformation, Pact, Quince, and Whimsy + Row (Schlosserová & Hruzová, 2025). We analyzed user reactions on the Facebook pages of these selected companies over the course of one month (20 January 2024–20 February 2024). The dataset is sufficiently extensive, as these companies post content on a daily basis. All data were compiled into an Excel spreadsheet to ensure clarity. The spreadsheet contains the following information: the tag, format, and content of each post; user comments; and the sentiment category assigned to each comment. The data table is provided in Appendix A. If a comment contains an emoticon, categorization is simplified, as emoticons often indicate the commenter’s sentiment. As noted above, we classify the data into three categories: positive (+1), neutral (0), and negative (–1).

Značka	Formát	Obsah	Komentár	Kategória
tentree	Infografika	Edukácia	Amazing 🤩🤩	+1
			😊😊	+1
			What a fun infographic!!!	+1
			Is just for canada?	0
tentree	Reelsvideo	Edukácia	I like this idea. However, why does men's clothing earn \$5 more credit than women's? :(If you use the argument of less material, you charge \$40 for both men's and women's tshirts. It's similar to the pink tax, wage gap, and other financial differences regarding gender. Please consider EQUALIZING credit for adult clothing. Women are not less than, this subconsciously says otherwise :(-1
			Are there any groups join located in Northern California to help with planting?	0
			Omg!!!! This is amazing ❤️ love this initiative	+1
			Ooooooo can't wait to see this 🤩	+1
			❤️❤️ okay! I want to plant the trees, here in Canada! Where can people sign up??	+1
			🤩🤩	+1
			🤩❤️	+1
			🤩🤩🤩🤩🤩	+1
			❤️❤️❤️❤️❤️❤️❤️❤️	+1
			love it 😊!	+1

Figure 2 Research material - sentiment analysis (sample)

Source: own processing

In the case of content analysis, we base our analysis on data from selected sustainable companies on Facebook. We work with data collected over a period of one month (January 20, 2024 – February 20, 2024). In this case, we are interested in what post formats the companies use and what type of content they promote on Facebook.

Poradie	Značka	Sociálna sieť	Obsah	Formát	Komentáre	Likes	Láska	Cítim s tebou	Údiv	Hnev	Smiech
1	pact	Facebook	Produkt	Carousel - fotografie	1	43	9				
2	pact	Facebook	Produkt	Carousel - fotografie	8	44	4				
3	pact	Facebook	Produkt	Carousel - fotografie	9	29	5				
4	pact	Facebook	Produkt	Carousel - fotografie		15	1				
5	pact	Facebook	Produkt	Fotografia		11				1	
6	pact	Facebook	Produkt	Fotografia	1	24	4				
7	pact	Facebook	Produkt	Carousel - fotografie	5	34	5			2	
8	pact	Facebook	Produkt	Carousel - fotografie		26	3			1	
9	pact	Facebook	Produkt	Carousel - fotografie		26	5				
10	pact	Facebook	Produkt	Fotografia	8	32	7				
11	pact	Facebook	Produkt	Fotografia	8	82	10				
12	pact	Facebook	Produkt	Carousel - fotografie	4	31	3		1		

Figure 3 Research material - content analysis Facebook (sample)

Source: own processing

As mentioned above, sentiment analysis is the process of identifying, extracting, and quantifying the emotional tone of text expressed as positive, negative, or neutral. In our rigorous research, we applied sentiment analysis to evaluate comments on selected posts on the social network Instagram. Based on individual codes (+1, 0, –1) and their corresponding values, we classified the comments accordingly.

Content analysis is a systematic method of examining content to gain a deeper understanding of its structure, patterns, and themes. In our rigorous research, we focused on content analysis as a means of identifying key formats and key content used by sustainable companies on the social networks Facebook and Instagram. We employed techniques such as content coding and frequency analysis to identify the dominant types of content in posts. The posts were categorized into groups based on shared content characteristics: lifestyle, influencer, education, product, sale, motto, inspiration, event, testimonial, giveaway, entertainment, or promo code. The categorization was informed by current content trends on social networks (Pugh, 2024).

Lifestyle: posts promoting a sustainable lifestyle.

Influencer: posts featuring collaborations with influencers who have a significant following in a given industry and can create natural-looking content appealing to the target audience.

Education: posts sharing educational content, particularly relevant in the context of sustainability and engaging for audiences interested in current environmental and social issues.

Product: posts presenting product photographs or photos featuring models.

Sale: although many sustainable companies distance themselves from discounts, in the clothing industry we identified posts promoting product discounts or links to sales collections.

Inspiration: posts aiming to inspire or offer advice; these are enriching in nature but not primarily educational.

Event: posts informing audiences about events organized by the company or presenting outcomes of such events.

Testimonial: posts sharing customer opinions and reviews, often including photos, videos, or interviews with customers.

Motto: posts containing quotations from well-known personalities or the company's own motto; quoting customers and their reviews is also a current trend.

Giveaway: posts promoting contests with specific rules designed to engage the audience and increase brand awareness.

Promo code – discount code: posts offering exclusive discounts intended to motivate purchases and foster brand loyalty.

In processing the posts, we considered not only their content but also their format. Based on this, we classified the posts into several categories to better reflect their nature, namely: reels/video; carousel – photos; photography; carousel – photos and videos; infographics; carousel – videos; and carousel – infographics. These formats represent the types of posts shared by the selected companies within the specified time period on the Facebook social network.

4.1 Analysis and interpretation of research results

In this section, we will review the results by research question.

Research Question 1: What format of posts within sustainable companies gets the most likes and reactions from users on the social network Facebook??

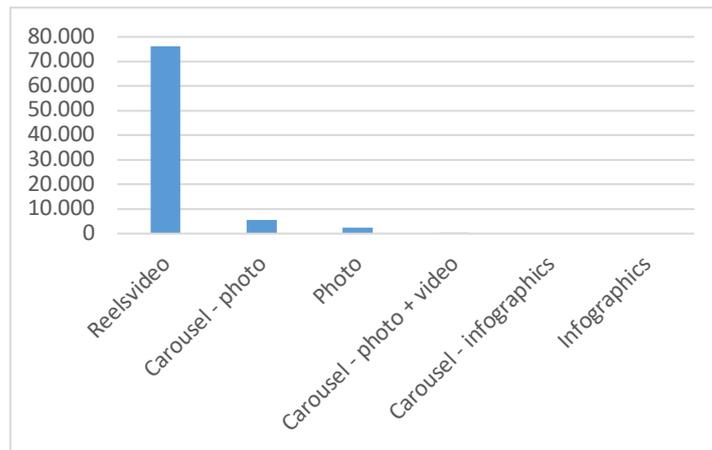


Chart 1 Occurrence of formats in relation to user interaction (likes) on Facebook
Source: own processing

In the case of Facebook, we worked with a set of 102 posts, as companies do not share all content equally across their social networks. The graph clearly shows a strong preference for the Reels video format (76,038), which indicates that video content is highly popular among users on this platform as well. The high interaction value of these videos can be attributed to their ability to engage users through a visual narrative that is not only informative but also emotionally resonant. The Carousel–photo format follows with a substantially lower number of likes and reactions (5,599). Although this value still reflects a positive user response, it is not as strong as in the case of video content. Single photos received 2,313 likes and reactions, suggesting that while they are less engaging than video posts, they still retain a solid ability to capture users’ attention. Other post formats generated only minimal levels of engagement, indicating that these types of content are less preferred on the Facebook platform. Infographics and infographic carousels, although ranking lowest, remain an important tool for user education. Their limited engagement may stem from users’ preference for highly visual, quickly digestible, and entertaining content over more text-oriented posts on social media platforms.

Research Question 2: Which post format within sustainable companies has the highest number of comments from users on Facebook?

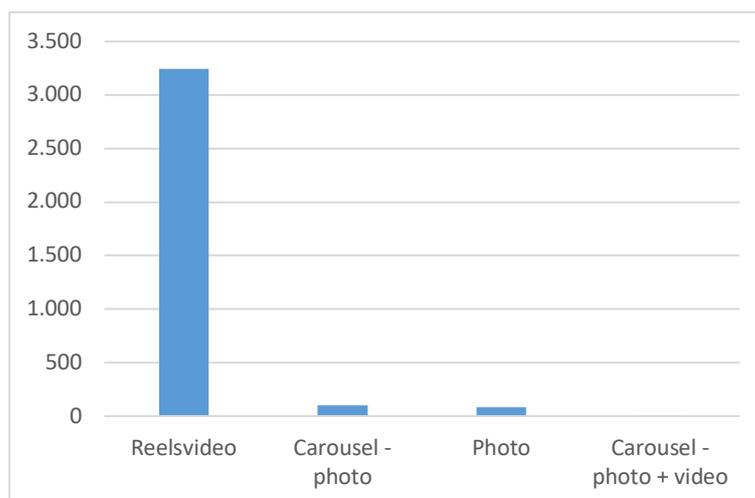
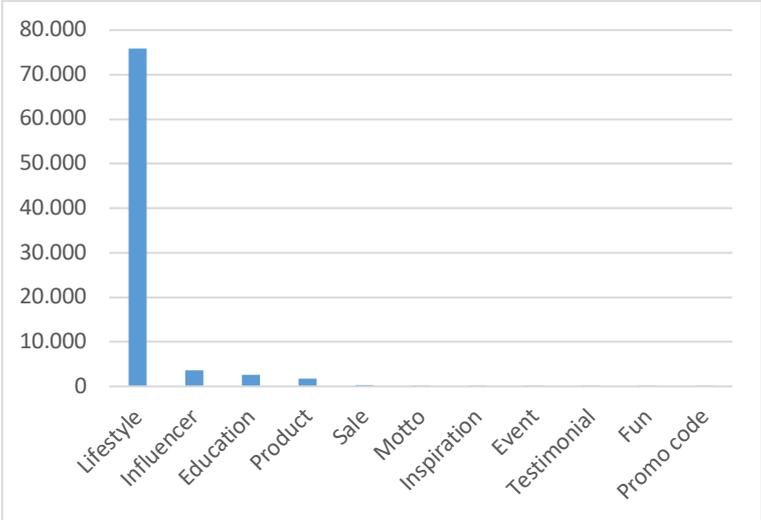


Chart 2 Occurrence of formats in relation to user interaction (comments) on Facebook
Source: own processing

In terms of post formats with the most comments from users on Facebook, Reelsvideo posts clearly dominate with a total of 3,246 comments. This significant number indicates that video content generates a strong response and encourages discussion among users, which is key for sustainable companies seeking to engage their community and spread their message. Carousel - photos are in second place with 100 comments, which is much lower than Reelsvideo, but still an interesting format in terms of the number of interactions. Single photos received 82 comments, indicating that while simple visuals can be effective, in the context of sustainability, more context needs to be provided to stimulate deeper discussion. The other formats with the least number of comments show that combined content or less traditional formats on Facebook do not generate as much interaction as the above content types.

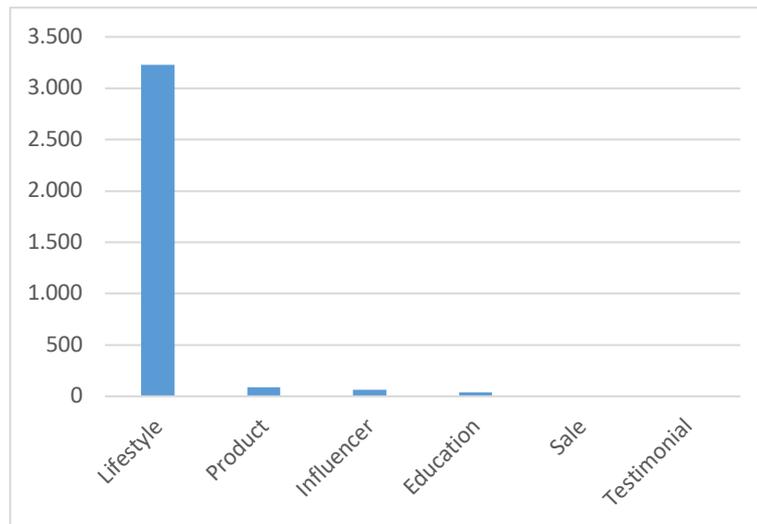
Research Question 3: What content of posts within sustainable companies gets the most likes and reactions on the social network Facebook?



*Chart 3 Content occurrence in relation to interaction (likes) of users of the social network Facebook
Source: own processing*

Lifestyle content from sustainable companies has the most likes and reactions from users on Facebook, with 75,834. This type of content, which includes posts about lifestyle or life outcomes, is clearly very resonant among users. Influencer content follows with a significantly lower number of likes and reactions, specifically 3,620, which indicates that even though influencers have a significant impact on spreading awareness about sustainability, they do not attract as many interactions on Facebook. Educational content, with 2,597 likes and reactions, proves that content that informs and educates about sustainable topics is valued by users. Other categories such as posts focused on sales campaigns, or posts containing inspiration, event links, entertaining posts or mottos achieve a very low number of likes and reactions compared to the most popular categories. This suggests that they are less effective in getting likes and reactions from users on the Facebook platform.

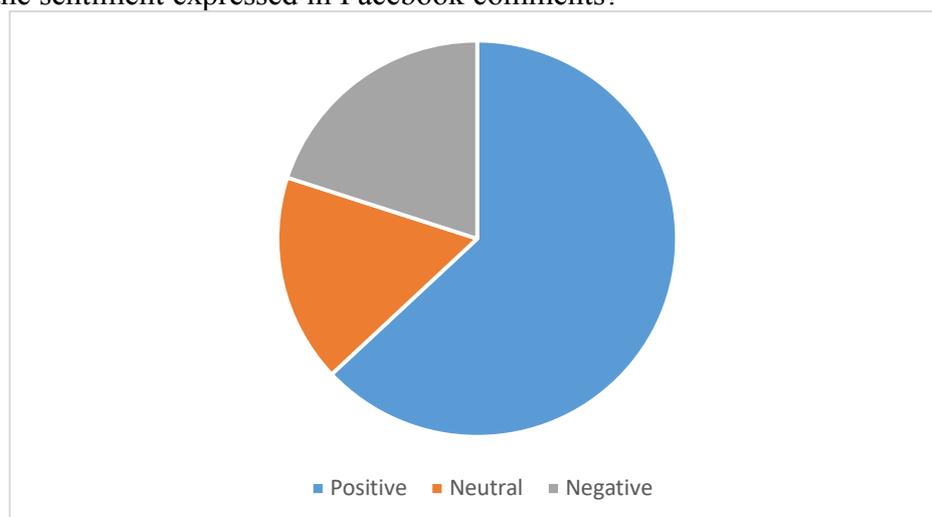
Research Question 4: What content of posts within sustainable companies do users comment on the most on the social network Facebook?



*Chart 4 Content occurrence in relation to user interaction (comments) on Facebook
Source: own processing*

Based on the processed data, Facebook users comment most frequently on posts within the lifestyle category of selected sustainable companies, totaling 3,230 comments. This finding suggests that content related to sustainable lifestyles resonates strongly with users and encourages interaction. Posts featuring product displays received 89 comments, while posts from influencers garnered 64 comments, indicating that although these types of content generate some interest and discussion, they do not achieve the same level of engagement as lifestyle-related posts. Educational posts received 41 comments, and sales-promoting posts only 8 comments, suggesting that users are less inclined to comment on these types of content on Facebook. Overall, the data indicate that Facebook users engage most actively with content related to sustainable lifestyles and less with other types of content. Consequently, sustainable companies should consider increasing the frequency of lifestyle-oriented posts on Facebook to maximize audience engagement and foster discussion about their initiatives.

Research Question 5: How are selected sustainable companies perceived by social media users based on the sentiment expressed in Facebook comments?



*Chart 5 Sentiment Analysis: Perception of Sustainable Companies on Instagram
Source: Own processing*

Based on the sentiment analysis of Facebook comments regarding selected sustainable companies, it can be concluded that the perception of these companies is generally positive. Of the total number of comments analyzed, 63% are positive reactions, which indicates that the majority of social media users evaluate the posts of these companies positively. Neutral comments make up 17%, which may indicate that a certain proportion of users are more reserved towards the attitudes of these companies. We also included questions from users who asked a specific question in the comments. Negative comments represent 20%, which indicates the existence of a critical group of users who express reservations about sustainable companies and what they share. These results indicate that although positive perceptions prevail, it is important to pay attention to critical and neutral comments in order to identify potential areas for improvement and increase overall brand trust.

Research Question 6: How are different post formats perceived by users on social networks based on the sentiment expressed in Facebook comments?

We can conclude that different post formats on Instagram are perceived differently by users. Reels and videos are clearly perceived the most positively with a significant predominance of positive comments (1236 positive versus 292 negative and 148 neutral). Carousel posts containing photos follow with a higher number of positive (285) than negative (144) and neutral (97) comments. Photos also have a favorable rating with a higher number of positive (382) than neutral (96) and negative (21) comments. Other formats, such as Carousels with a combination of photos and videos, infographics, or Carousels with videos only, have lower numbers of comments, but still maintain more positive than negative sentiment. It is interesting to note that infographics, while having a lower number of comments, have a low number of negative responses, suggesting that this format is generally well-received, although perhaps not as widely discussed as other formats. Overall, Instagram users tend to respond positively to different post formats, with the greatest preference for Reelsvideo. This trend points to the potential effectiveness of visual and dynamic content for sustainable companies. Negative sentiments are present, but generally to a lesser extent compared to positive and neutral comments.

Research Question 7: How are different types of post content perceived by social media users based on the sentiment expressed in Facebook comments?

Educational posts are perceived the most positively of all categories, with a significant preponderance of positive comments (625) compared to negative (76) and neutral ratings (278). This trend indicates a high level of response and positive reception of content aimed at educating users on social networks. Posts from influencers and product posts also have a high number of positive comments (275 and 282, respectively), but at the same time they have a relatively high number of negative comments (51 and 45, respectively) compared to other categories. This may indicate that although these posts are popular, they can also cause controversy or different opinions among users. Lifestyle and testimonial posts have approximately the same number of positive and neutrally rated comments, which indicates that users are positive towards this content, but maintain a certain distance. Posts with entertainment content have a lower frequency of positive comments, and sales posts, inspirational content or posts about events have a low number of comments overall, which may indicate lower interest from users.

Based on the data obtained and presented in this part of the thesis, it can be concluded that the objective of the thesis has been achieved. The analysis revealed that the highest number of user comments on the Facebook social network, as well as the post format within sustainable companies that receives the most likes and reactions from users, is the Reels video format. Furthermore, Lifestyle content within sustainable companies also generates the highest number of likes and reactions from users on Facebook. Users comment most frequently on posts categorized as Lifestyle among the selected companies. The sustainable companies included in the study are perceived by users on social networks, based on the sentiment expressed in Facebook comments, as predominantly positive—both overall and across individual post formats and content categories.

4. CONCLUSION

As has been demonstrated, the importance of sustainable business is growing and becoming a contemporary necessity for companies. Sustainable business reflects the increasing demand for environmentally responsible, socially conscious, and economically viable practices. As the world continues to face global environmental and social challenges, the significance of sustainability in the business realm is expected to further increase. In the introduction of this study, in addition to the history and importance of sustainable business, the work also addresses the challenges and benefits faced by such companies. Growing awareness of social and environmental issues compels sustainable companies to innovate. Sustainable business is not only a moral or ethical choice but also brings tangible economic benefits. It is common for companies to make false or misleading sustainability claims on social media to appear greener or more ethical. Often, they use rhetoric and visuals to present themselves as environmentally responsible or innovative, primarily to enhance their public image while obscuring their actual environmental impact. Therefore, sustainable businesses must ensure that their social media communications accurately reflect their practices and are both trustworthy and verifiable. The data analysis confirmed that social media users generally have a positive perception of companies focused on sustainability. This perception was supported by a high number of positive reactions and comments. The results indicate that users prefer educational content that clearly presents sustainable initiatives and their significance. Such content generates increased interaction and engagement, as reflected in a higher number of likes and comments. Sentiment analysis further confirmed that the majority of comments were positive, suggesting that followers of sustainable companies on social media possess a predominantly favorable awareness of sustainability. This positive perception can be crucial for building and strengthening a brand's reputation. Reels videos and carousel posts recorded higher "like" metrics compared to static posts with simpler content, indicating a higher level of user engagement with these formats.

Overall, we believe that this study is both stimulating and inspiring for further research in this area.

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LITERATURE:

1. Appelbaum, Binyamin a Friedman, Milton. (2020). *Capitalism and Freedom*. s.l. : University of Chicago, 2020. s. 272. 9780226734798.
2. Belz, Frank-Martin a Peattie, Ken. (2012). *Sustainability Marketing: A Global Perspective*. Chichester : John Wiley & Sons, Ltd, 2012. s. 352. 978-1-119-96619-7.
3. Buchholz, Lucy. (2023). *Top 10: Sustainable Clothing Companies*. [Online] Sustainability Mag, 2023. <https://sustainabilitymag.com/articles/top-10-sustainable-clothing-companies>.

4. Elkington, John. (1999). *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*. s.l. : John Wiley & Sons, 1999. s. 424. 9781841120843.
5. Hart, Stuart. (2010). *Capitalism at the Crossroads: Next Generation Business Strategies for a Post-Crisis World*. s.l. : Wharton School Pub, 2010. 9780137042326.
6. Hawken, Paul. (2010). *The Ecology of Commerce: A Declaration of Sustainability*. s.l. : Harper Business, 2010. s. 224. 9780061252792.
7. Hutchinson, Andrew. (2024). *Instagram's Testing Carousel Posts Within the Reels Stream*. [Online] Social Media Today, 2024. <https://www.socialmediatoday.com/news/instagram-reels-carousel-post-test/707473/>.
8. Chouinard, Yvon. (2016). *Let My People Go Surfing*. s.l. : Penguin Books, 2016. s. 272. 9780143109679.
9. Kaplan, Andreas a Haenlein, Michael. (2010). *Users of the World, Unite! The Challenges and Opportunities of Social Media*. [Online] Business Horizons, 2010. <http://dx.doi.org/10.1016/j.bushor.2009.09.003>
10. Krippendorff, Klaus. (2013). *Content Analysis: An Introduction to Its Methodology*. s.l. : Sage Publications, Inc., 2013 . 9781412983150.
11. Lovins, Amory, Lovins, Hunter L. a Hawken, Paul. (2000). *Natural Capitalism: Creating the Next Industrial Revolution*. s.l. : US Green Building Council, 2000. s. 360. 978-0316353007.
12. Liu, Bing. (2020). *Sentiment Analysis*. s.l. : Cambridge University Press, 2020. s. 448. 978-1108486378.
13. Murza, Martin. (2023). *ecommercebridge.sk. Aktuálne úspešné formáty na sociálnych sieťach*. [Online] 2023. <https://www.ecommercebridge.sk/aktualne-uspesne-formaty-na-socialnych-sietach/>
14. Otajovičová, Soňa. 2019. *Do koša hádzeme oblečenie za viac ako 15 miliónov eur. Aké materiály najviac znečisťujú prostredie?* [Online] Startitup, 2019. <https://www.startitup.sk/dokosa-hadzeme-oblecenie-za-viac-ako-15-milionov-eur-ake-materialy-najviac-znecistuju-prostredie/>.
15. Pugh, Rob. (2024). *Jetpack. The 22 Different Types of Social Media Content*. [Online] 2024. https://jetpack.com/blog/types-of-social-media-content/?fbclid=IwAR1cdD8IbBgjgboTFH3N_smO6q0Vc5pLRvbV1qj1pd-FCi_HN6OAAgG7_RQ.
16. Sarmiento, Kat. (2023). *Going Green On Social Media. Martech360*. [Online] Marketing Technology Redefined, 2023. <https://martech360.com/social-media-technology/social-media-marketing/going-green-on-social-media-how-businesses-can-promote-sustainability-through-social-media-marketing/>.
17. Sharma, Rishi Raj , Kaur, Tanveer a Syan, Amanjot Singh. (2021). *Sustainability Marketing*. s.l. : Emerald Publishing Limited, 2021. 978-1-80071-245-4.
18. Schlosserova, Z., & Hruzová, K. (2025). *Sustainable Business Study and Its Presentation on the Social Network Instagram*. *Journal of Economics and Business Issues*, 5(2), 54-65.

CRYPTOCURRENCIES AS A TOOL FOR PORTFOLIO DIVERSIFICATION

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ABSTRACT

The aim of the paper is to explore portfolio diversification, through a combination of traditional instruments and cryptocurrencies. The analysis identified the correlation between these instruments and assessed the role of cryptocurrencies in modern investment strategies. It is revealed that cryptocurrencies, despite being high-risk assets, contribute to better portfolio diversification due to their low correlation with traditional instruments. Despite their volatility, cryptocurrencies attract investors seeking high returns, while stablecoins offer potential for risk mitigation. The findings of the paper are based on the concepts of modern portfolio theory and models, emphasizing the importance of balancing risk and return through rational investment. The study provides practical recommendations for constructing optimal portfolios, considering the change of economic conditions and the specifics of the crypto market.

Keywords: *Bonds, Cryptocurrencies, Diversification, Gold, Portfolio theory, Risk, Stocks*

1. INTRODUCTION

Investments are crucial for economic growth and financial stability, with portfolio diversification being an essential strategy for optimizing returns and reducing risks. In modern society, investing has become not only a way to save and generate profit but also a significant factor in shaping the global economy. Traditional financial instruments such as stocks, bonds, and gold have a long history as stable investment options, while cryptocurrencies, led by Bitcoin, represent a newer, high-risk but potentially lucrative form of asset. With the advancement of technology and globalization, investment opportunities have significantly expanded, allowing individuals to choose among various financial instruments, markets, and sectors. The most popular financial instruments worldwide are stocks, followed by bonds. Their movements depend on numerous factors: the state of the economy, the country's position, inflation, unemployment rate, and the performance of individual companies. Gold is often associated with stocks as a form of refuge from inflation and other changes that may influence stock and bond prices, while cryptocurrency, a digital form of asset, gained popularity in recent decades. Despite the challenges, cryptocurrencies represent one of the most exciting and innovative trends in the financial world. They became widely recognized after the launch of Bitcoin in 2010, which is now considered the pioneering and most well-known representative of this category.

The development of cryptocurrencies marks a turning point in the financial world, offering a decentralized, transparent, and technologically advanced alternative to traditional currencies and investment instruments. Their popularity continues to grow carrying a high risk due to their volatility, regulatory uncertainties, and sensitivity to market fluctuations. Alongside the theoretical analysis of these topics, the paper aims to examine, using available literature and statistical methods, whether including cryptocurrencies in an investment portfolio is an effective way of diversification. Diversification, as a key strategy for reducing risk and optimizing returns, is based on the variety of instruments within a portfolio, whose values do not depend exclusively on the same economic factors. In this context, the correlation between returns on investment in cryptocurrencies and traditional financial instruments will be explored. Based on the analyses conducted, the paper will provide conclusions and recommendations on how investors can combine traditional financial instruments and cryptocurrencies to achieve optimal investment results. Furthermore, the review of existing research that has explored the potential of cryptocurrencies as a tool for portfolio diversification is discussed. The key findings from these studies are emphasized, suggesting that cryptocurrencies can provide benefits for risk reduction in a portfolio, although risks related to their volatility remain. In addition, the research methodology, including the selection of data sources, data selection criteria, statistical methods used, and the time frame of the analysis is explained. The limitations of the study are also addressed, such as irregularities in data distribution, the short analysis period, and the absence of external factors. The research results, presenting descriptive statistical data and the results of six correlation analyses between different investment instruments are explained in details. This section provides insight into the relationships between stocks, bonds, gold, and cryptocurrencies and shows how these assets coexist within a portfolio context. The conclusion summarizes the key findings and insights of the study offering recommendations for future research. It includes a discussion of the research findings, analysing the causes and implications of the observed correlations. It also considers the opportunities and challenges of including cryptocurrencies in diversified portfolios comparing various approaches proposed in the literature. The understanding of the characteristics of cryptocurrencies and their place in modern financial portfolios is highlighted, while encouraging further analysis within a broader time frame and the inclusion of external factors.

2. LITERATURE REVIEW

Pavković, A., Anđelinović, and Pavković, I. (2019) conducted an econometric analysis of diversification potential in selected European markets using cryptocurrencies. Two cryptocurrencies, Bitcoin and Ripple, proved to be potential diversification instruments for most observed European markets, as their correlation coefficients were negative. However, the authors also point out the high volatility of cryptocurrencies, which makes them high-risk investments and assets that cannot be heavily relied upon. Demiralay and Bayracı (2021) conducted a study to examine whether digital currencies are alternative investments for portfolio diversification to better understand the effect of cryptocurrencies in terms of asset allocation and diversification benefits. They used a correlation-based measure known as the CDB measure. Their findings highlight several key points of which are the most important that adding cryptocurrencies to stock portfolios reduces correlation levels among assets, but certain news events and dramatic occurrences, such as hacker attacks and government bans on cryptocurrencies, can increase these correlations. In addition, the observed cryptocurrencies showed the highest correlations with developed markets and the lowest with emerging markets, suggesting heterogeneity in cryptocurrencies regarding their correlations with stocks. Including virtual currencies in stock portfolios provides greater benefits than portfolios containing only stocks, but the diversification benefits decreased after the end of 2017 due to increased trading activity and several dramatic events.

Although they confirmed their predictions, they also addressed several factors to consider when using cryptocurrencies as a diversification tool in stock portfolios—namely, that cryptocurrencies are significantly less liquid than stocks, although access is improving, and that the study includes only stock portfolios, not other asset types. Therefore, the generalizability of the results to all types of portfolios is limited. Letho, Chelwa, and Alhassan (2022) in their research examine the benefits of portfolio diversification through cryptocurrencies using mean and variance tests, and conclude that including cryptocurrencies in a portfolio increases its financial gains. Also, the mean values and risk of cryptocurrency returns are significantly higher than those of traditional assets, reaching almost extreme levels. The study reveals that most relationships between cryptocurrencies and South African traditional and alternative assets exhibit weak negative and positive correlations, indicating the potential for using cryptocurrencies as a tool for portfolio diversification. The analysis included ten different cryptocurrencies, seven of which improved the performance of South African traditional and alternative investment portfolios in terms of utility and risk. Almeida and Gonçalves (2022) summarize existing findings on portfolio diversification, hedging, and safe haven properties in cryptocurrency investments by analyzing 146 studies published in journals listed in the 2021 Association of Business Schools ranking. Their results show that cryptocurrencies can serve as a hedge against stocks, fiat currencies, geopolitical risks, and economic policy uncertainty, though these properties vary over time. Since cryptocurrencies possess diversification and safe haven properties, but these change depend on time and market conditions, investors should consider gold, along with the European carbon emissions market, CBOE Bitcoin futures contracts, and oil, as protection against unexpected cryptocurrency market shifts. Some investors might also consider investing in coin market capitalization-based portfolios instead of tokens, due to their higher Omega ratio (Almeida & Gonçalves, 2022). Modern portfolio theory, based on the works of Harry Markowitz and William Sharpe, provides a scientific framework for managing investments through maximizing expected returns while minimizing risk. Key concepts include diversification, which reduces overall portfolio risk, and the Capital Asset Pricing Model (CAPM), which links risk to expected returns. Markowitz's theory focuses on balancing return and risk within a portfolio, while CAPM uses the beta coefficient to measure the relationship between an asset's return and the market portfolio. Both theories rest on assumptions such as investor rationality, perfect market efficiency, and information availability. It is also important to note that despite their potential advantages, cryptocurrencies remain less liquid compared to traditional asset classes, which may limit their broader application in investment environments.

3. METHODOLOGY

The emphasis of the methodological frame is put on the usage of the Spearman rank correlation coefficient since the data distribution is not normal and includes outliers, making the traditional Pearson correlation coefficient less suitable. The Spearman coefficient is a ranked correlation coefficient that measures monotonic association between variables and does not require that the variables follow a normal distribution. This coefficient is useful because it is based on ranking data rather than actual variable values, making it less sensitive to extreme values or outliers, which can strongly influence the Pearson coefficient. The deviation of the distribution of annual return on investment for Bitcoin is shown in Figure 1.

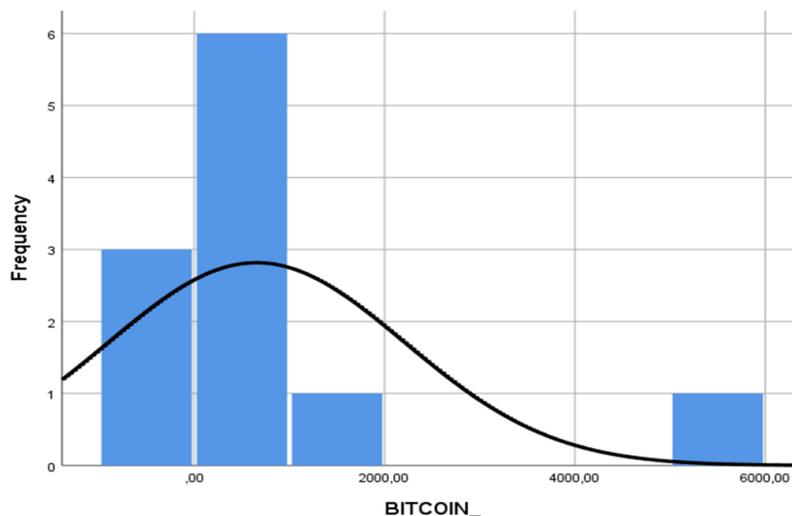


Figure 1: Distribution of Investment Returns for Bitcoin
 (Source: <https://curvo.eu/backtest/en/market-index/bitcoin?currency=eur>)

The correlation analysis was conducted using IBM SPSS software. The analysis was based on annual returns on investment for each of the instruments from 2013 to 2023. The last ten years were chosen due to significant fluctuations in Bitcoin during its early years, which could significantly impact the results. Six correlation analyses were conducted. The first correlation examined the relationship between annual returns on stocks and cryptocurrencies. The S&P 500 index was used to represent stock returns, while Bitcoin was used to represent cryptocurrency returns. Although it reflects American companies, the index is highly significant for the global stock market because many of those companies operate globally, such as Apple and Microsoft, so changes in these companies also influence their global partners. Similarly, due to the importance of the U.S. in the global economy, stock investors often use the S&P 500 index in investment decisions, meaning it indirectly affects other capital markets. Bitcoin is selected to represent cryptocurrencies in the analyses, as it was the first cryptocurrency investment and remains the most popular today. Bitcoin holds the largest share of the market capitalization of all cryptocurrencies, making it the biggest single factor in the total value of the cryptocurrency market. When Bitcoin rises or falls, this is typically reflected in the movements of other cryptocurrencies, so its trend is useful for predicting broader market trends. To measure correlation with bonds, data on annual returns on investment for the U.S. ten-year government bond are used. This bond is issued by the U.S. Department of the Treasury with a maturity of 10 years. Since U.S. government bonds are one of the safest investments due to their low risk of default, their yields often reflect global demand for safe assets. Changes in the yield of this bond are also useful for assessing future monetary policy, which in turn influences other global policies due to the importance of the U.S. dollar in the global economy. Additionally, the yield on the U.S. 10-year bond is often used as a benchmark for many other bonds, including bonds issued by other countries and corporate bonds. Gold, like Bitcoin, is of a universal nature, so annual return on investment data for gold were used in the analysis. Data on annual investment returns for traditional financial instruments are obtained from the NYU Stern School of Business, which uses multiple services for data collection. Data on annual returns for Bitcoin were obtained from the Curvo and Statuse platforms. Table 1 presents the data used in the correlation analysis. It shows annual returns on investment from 2013 to 2023 for the S&P 500 index, Bitcoin, U.S. ten-year government bonds, and gold. Annual return on investment represents the return achieved over one year and is expressed as a percentage of the initial investment amount (CFI).

Year	S&P 500 Index	Bitcoin	U.S. 10-Year Government Bonds	Gold
2013.	32,15%	5189,37%	-9,10%	-27,61%
2014.	13,52%	-3,17%	10,75%	0,12%
2015.	1,38%	34,37%	1,28%	-12,11%
2016.	11,77%	123,75%	0,69%	8,10%
2017.	21,61%	1369,03%	2,80%	12,66%
2018.	-4,23%	-73,48%	-0,02%	-0,93%
2019.	31,21%	92,00%	9,64%	19,08%
2020.	18,02%	303,09%	11,33%	24,17%
2021.	28,47%	59,71%	-4,42%	-3,75%
2022.	-18,04%	-64,27%	-17,83%	0,55%
2023.	26,06%	155,41%	3,88%	13,26%

Table 1: Annual Investment Returns for the S&P 500 Index, Bitcoin, U.S. Government Bonds, and Gold from 2013 to 2023

(Source: https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html)

4. RESULTS

To explore portfolio diversification in more details, six correlation analyses were conducted. The first three analyses are conducted between the three traditional financial instruments (stocks, bonds, and gold) and Bitcoin as a new form of investment. The next three analyses are conducted between the traditional financial instruments (stocks-bonds, stocks-gold, gold-bonds) to enable a better analysis of portfolio diversification.

4.1. Correlation Analysis of Return on Investment for the S&P 500 Index and Bitcoin

Figure 2 displays a scatter plot of the annual return on investment for Bitcoin and the S&P 500 Index. The data are expressed in percentages and range from -18.04% to 32.15% for the S&P 500 Index, and from -64.27% to 5,189.37% for Bitcoin. As noted, there are quite a few outliers, especially for the Bitcoin variable.

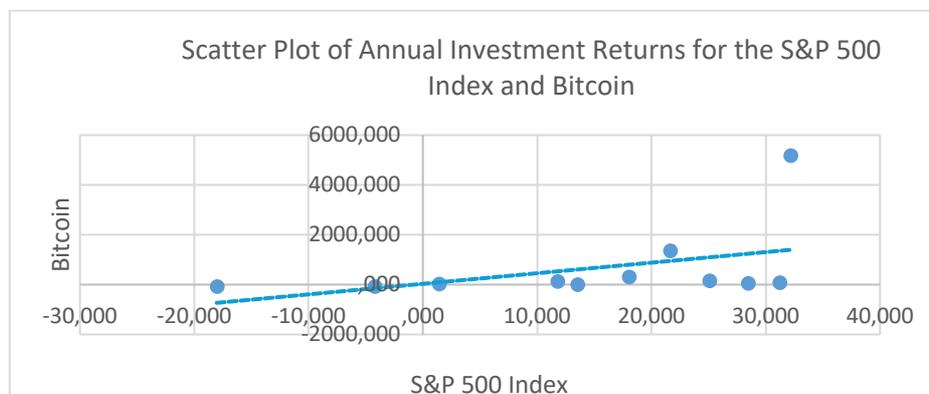


Figure 2: Scatter Plot of Annual Return on Investment for the S&P 500 Index and Bitcoin

The Spearman correlation coefficient for the relationship between the S&P 500 Index and Bitcoin is 0.700 ($\rho = 0.700$), indicating a moderately strong positive correlation. The analysis was conducted at a 5% significance level ($\alpha = 0.05$). The statistical significance of the coefficient is 0.016 ($p = 0.016$), which is less than the specified test significance level of $\alpha = 0.05$, indicating that the correlation coefficient is statistically significant. Data from the conducted analysis are presented in Figure 3.

		BITCOIN
SP500	Correlation Coefficient	0,700
	Sig. (2-tailed)	0,016
	N	11

Figure 3: Correlation Coefficient between the S&P 500 Index and Bitcoin

4.2. Correlation analysis of returns on investment in U.S. 10-year government bonds and Bitcoin

The scatter plot of annual return on investment for Bitcoin and U.S. 10-year government bonds is showed in Figure 4.

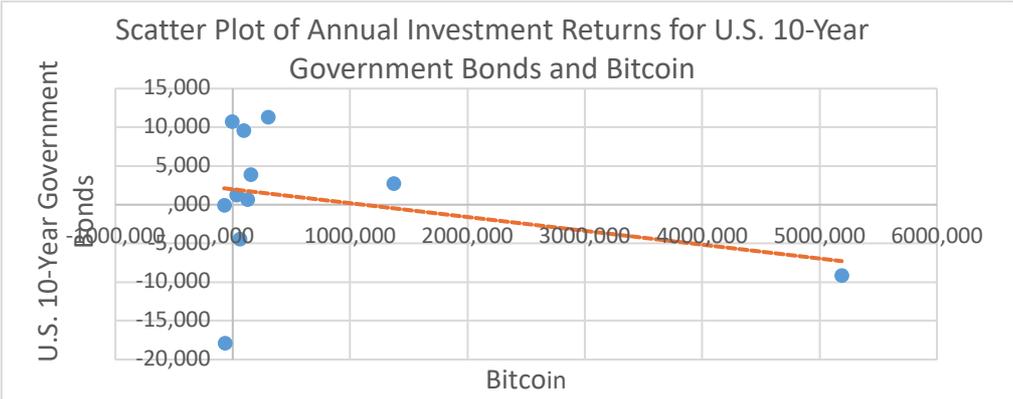


Figure 4: Scatter Plot of Annual Investment Returns for U.S. 10-Year Government Bonds and Bitcoin

The data are expressed in percentages, ranging from -17.83% to 11.33% for the U.S. 10-year government bonds, and from -64.27% to 5,189.37% for Bitcoin. Given that the analysis was conducted at a 5% significance level ($\alpha=0.05$), and the significance level of the calculated coefficient is 0.537 ($p = 0.537$), it can be concluded that the correlation is not statistically significant. In other words, there is no statistically significant relationship between the annual return on investment for Bitcoin and U.S. 10-year government bonds. The results of the analysis are shown in the following figure.

		BITCOIN
US BONDS	Correlation Coefficient	,209
	Sig. (2-tailed)	,537
	N	11

Figure 5: Correlation Coefficient between U.S. 10-Year Government Bonds and Bitcoin

4.3. Correlation analysis of returns on investment in Gold and Bitcoin

The scatter plot of annual returns on investment for Bitcoin and gold is shown in Figure 6. The data are expressed in percentages, ranging from -27.61% to 24.17% for gold and from -64.27% to 5,189.37% for Bitcoin.

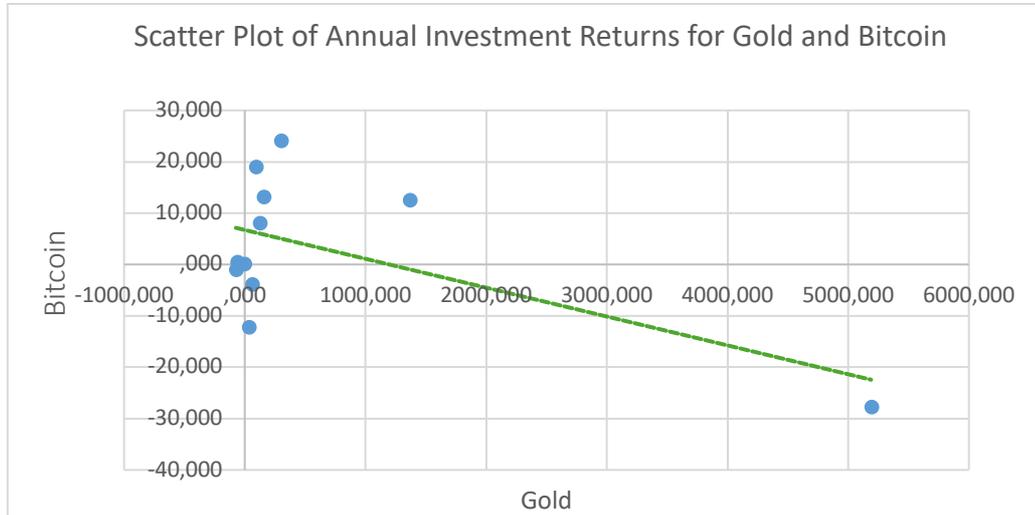


Figure 6: Scatter Plot of Annual Investment Returns for gold and Bitcoin

The Spearman correlation coefficient for the relationship between gold and Bitcoin is 0.264, indicating a weak positive correlation. Given that the analysis was conducted at a 5% significance level ($\alpha=0.05$), and the significance level of the calculated coefficient is 0.433 ($p = 0.433$), it can be concluded that the correlation is not statistically significant. The results are shown in Figure 7.

		BITCOIN
GOLD	Correlation Coefficient	,264
	Sig. (2-tailed)	,433
	N	11

Figure 7: Correlation Coefficient between Gold and Bitcoin

4.4. Correlation of traditional financial instruments

The following figures show scatter plots of annual returns on investment for stocks, bonds, and gold. Figure 8 shows the scatter plot for annual returns on investment for the S&P 500 Index and U.S. 10-year government bonds. The data are expressed in percentages, ranging from -17.83% to 11.33% for the bonds, and from -18.04% to 32.15% for the S&P 500 Index.

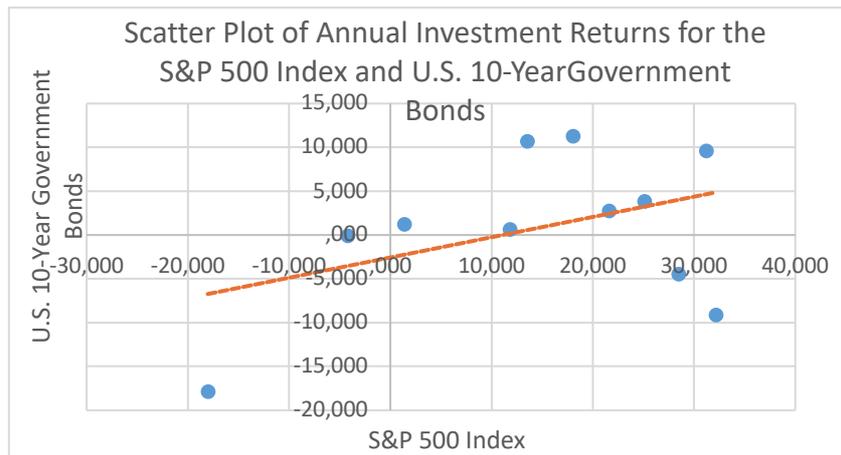


Figure 8: Scatter Plot of Annual Investment Returns for the S&P 500 Index and U.S. 10-Year Government Bonds

Figure 9 shows the scatter plot for annual returns on investment for the S&P 500 Index and gold. The data are expressed in percentages, ranging from -27.61% to 24.17% for gold, and from -18.04% to 32.15% for the S&P 500 Index.

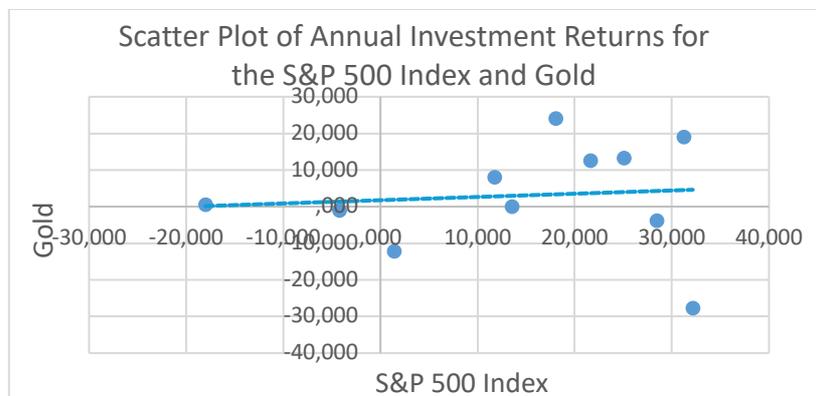


Figure 9: Scatter Plot of Annual Investment Returns for the S&P 500 Index and Gold

Figure 10 shows the scatter plot of annual returns on investment for gold and U.S. 10-year government bonds. The data are expressed in percentages, ranging from -17.83% to 11.33% for the bonds, and from -27.61% to 24.17% for gold.

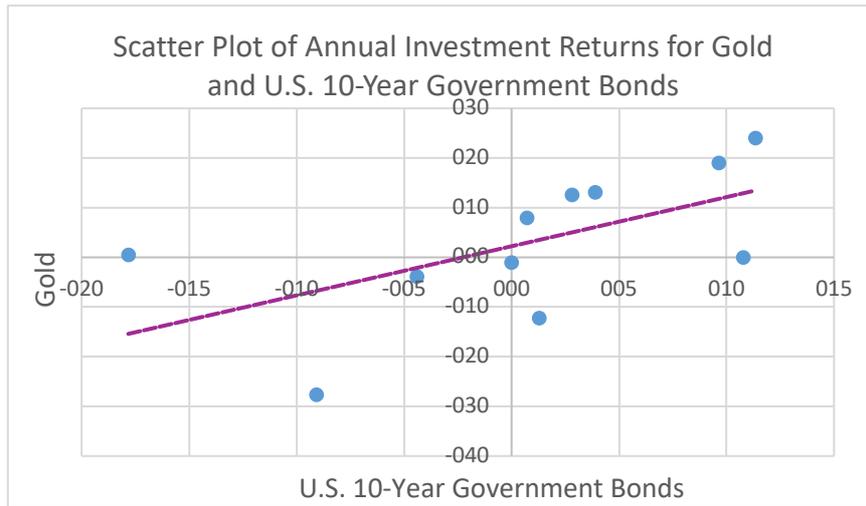


Figure 10: Scatter Plot of Annual Investment Returns for Gold and U.S. 10-Year Government Bonds

The results of all three analyses are shown in Figure 11. The Spearman correlation coefficient for the relationship between the S&P 500 Index and U.S. 10-year government bonds is 0.173, indicating a weak positive correlation. Since the analysis was conducted at a 5% significance level ($\alpha=0.05$), and the calculated coefficient's significance level is 0.612 ($p = 0.612$), the correlation is not statistically significant.

		SP 500	US BONDS	GOLD
SP 500	Correlation Coefficient	1,000	,173	,082
	Sig. (2 -tailed)	.	,612	,811
	N	11	11	11
US BONDS	Correlation Coefficient	,173	1,000	,664
	Sig. (2 -tailed)	,612	.	,026
	N	11	11	11
GOLD	Correlation Coefficient	,082	,664	1,000
	Sig. (2 -tailed)	,811	,026	.
	N	11	11	11

Figure 11: Correlation Coefficients and Statistical Significance among Traditional Financial Instruments

Therefore, there is no statistically significant relationship between the annual return on investment for the S&P 500 Index and U.S. 10-year government bonds. The correlation between the S&P 500 Index and gold is very weak and positive with a correlation coefficient of 0.082. The statistical significance of the correlation coefficient is 0.811 ($p = 0.811$), indicating that the correlation is not statistically significant. Thus, there is no statistically significant relationship between returns on investment in the S&P 500 Index and gold. The only statistically significant relationship in this part of the analysis is between gold and U.S. 10-year government bonds. Its statistical significance is below 0.05, at 0.026 ($p = 0.026$). The correlation is positive and of moderate strength, with a coefficient of 0.664.

4. CONCLUSION

The results of the correlation analysis conducted on investment return data for stocks, bonds, gold, and cryptocurrencies indicate that cryptocurrencies have a statistically significant correlation only with stocks. The resulting correlation is positive and of moderate strength. According to modern portfolio diversification theory, portfolios should include pairs with lower correlation coefficients because they carry less risk than pairs with higher correlation coefficients. This finding has implications for portfolio diversification, as the moderate positive correlation between cryptocurrencies and stocks suggests that cryptocurrencies do not offer a completely independent source of return from stocks. However, due to their low or non-existent correlation with bonds and gold, cryptocurrencies can still play a role in diversified portfolios. Therefore, cryptocurrencies would be a good option for portfolio diversification unless the portfolio consists solely of stocks. This research confirmed previous findings suggesting that including cryptocurrencies not only increases returns but also helps reduce overall risk through diversification. For a broader view of portfolio diversification potential with the inclusion of cryptocurrencies, correlations between traditional financial instruments were also analyzed. This analysis revealed a statistically significant correlation between gold and U.S. 10-year government bonds. The correlation itself is positive and of moderate strength. This result highlights that even traditional assets like gold and bonds can have useful diversification characteristics within a portfolio. According to the obtained correlations, the only portfolio options that would not optimally reduce risk and achieve diversification effects are stocks and cryptocurrencies, or bonds and gold. However, portfolios can include any combination, even incorporating all four investment options. Additionally, it is possible to form combinations of two instruments, with the best options being stocks and gold, bonds and cryptocurrencies, or bonds and stocks. Despite the absence of a clear correlation between stocks and bonds, such a combination deserves further examination using a larger data sample or alternative analytical methods. This recommendation is based on the fact that stocks and bonds are relatively similar instruments by definition. If a portfolio includes stocks and bonds from the same issuer, changes in both instruments are likely to occur simultaneously because they depend on the same issuer, industry, regulations, economic factors, etc. Therefore, it would be more optimal to separate such instruments into those from primarily different issuers, preferably from different, unrelated industries, and if possible, different parts of the world, to achieve minimal risk. Investing in bonds from one industry and stocks from a completely unrelated sector can reduce portfolio risk. Additionally, diversification by geographic region can further reduce risk, as market conditions, regulatory frameworks, and economic cycles differ across countries and regions. This approach allows investors to lower the correlation between instruments and better protect the portfolio from external risks. Previous studies have confirmed the significant potential of cryptocurrencies for optimizing investment portfolios. These studies also emphasize that the inclusion of cryptocurrencies not only increases returns but also reduces overall risk through diversification. Furthermore, existing research highlights the role of cryptocurrencies as a hedge against market risk and uncertainty, with stablecoins potentially serving as safer havens.

The weak correlation of cryptocurrencies with traditional assets makes them attractive to investors seeking better-balanced portfolios. Thus, cryptocurrencies expand modern portfolio theory, confirming their role in achieving better diversification and reducing risk in investment strategies. Ultimately, cryptocurrencies represent a new and dynamic instrument in the world of finance, with potential for further development and implementation in diversification strategies, but investors must also be aware of their high volatility and inherent instability. Future research is recommended to further explore the relationship between Bitcoin and traditional financial instruments, especially in the context of increasing institutional presence and the development of cryptoETFs. In the period 2024 and 2025, Bitcoin increasingly shows correlation with the stock market, gradually losing the characteristics of an alternative asset, and behaves like an established financial instrument. It would also be useful to investigate how the growth of institutional investment and regulatory clarity affect the stability and volatility of Bitcoin compared to traditional stocks.

LITERATURE:

1. Almeida, J., Gonçalves, T. C.: *Portfolio diversification, hedge and safe-haven properties in cryptocurrency investments and financial economics: A systematic literature review*. Journal of Risk and Financial Management, 16(1), 2022.
2. Buterin, D., Ribarić, E. i Savić, S.: *BITCOIN – NOVA GLOBALNA VALUTA, INVESTICIJSKA PRILIKA ILI NEŠTO TREĆE?*, Zbornik Veleučilišta u Rijeci, 3 (1), pp 130 - 142, Rijeka, 2015.
3. Demiralay, S. i Bayracı, S.: *Should stock investors include cryptocurrencies in their portfolios after all? Evidence from a conditional diversification benefits measure*, International Journal of Finance & Economics, 26(4), pp 6188 - 6204, 2021.
4. Fabozzi, F., Gupta, F., & Markowitz, H.: *The legacy of modern portfolio theory*,
5. Horvatić, H. i Tafra, V.: *Identifikacija komercijalne blockchain tehnologije te izazovi i opasnosti primjene kroz konkretne primjere*, Obrazovanje za poduzetništvo - E4E, 12 (2), pp 105 – 120, 2022.
6. Letho, L., Chelwa, G. i Alhassan, A. L.: *Cryptocurrencies and portfolio diversification in an emerging market*, China Finance Review International, 12(1), pp 20 – 50, 2022.
7. Mangram, M. E.: *A simplified perspective of the Markowitz portfolio theory*, Global journal of business research, 7(1), pp 59 – 70, 2013.
8. Markowitz, H.: *Portfolio Selection*, The Journal of Finance 7(1), pp. 77 - 91, 1952.
9. Megginson, W.: *A historical overview of research in finance*, Journal of Finance, 39(2), pp 323-346, 1996.
10. Mulyadi, M. S., Anwar, Y., Khalid, K., Shawa, K. C., Singh, G. i Ashraf, S. W. A.: *Gold versus stock investment: An econometric analysis*, International Journal of Development and Sustainability, 1(1), pp 1-7, 2012.
11. Pavković, A., Anđelinović, M. i Pavković, I.: *Achieving Portfolio Diversification through Cryptocurrencies in European Markets*, Business Systems Research, 10 (2), pp 85 – 107, 2019.
12. Sajter, D.: *Kriptovalute, bitcoin, blockchain i slične čudnovatosti*, Prilika, mjesečni prilog Glasa Koncila, 2017.
13. Schober, P., Boer, C. i Schwarte, L. A.: *Correlation coefficients: appropriate use and interpretation*, Anesthesia & analgesia, 126(5), pp 1763 - 1768, 2018.

Web sources

14. Bromberg, M. (2024). *7 Good Reasons to Own Gold*, <https://www.investopedia.com/articles/basics/08/reasons-to-own-gold.asp>, retrieved 10.09.2024.
15. Christian, R. (2024) *Best-performing stocks over the past decade*, <https://www.bankrate.com/investing/best-performing-stocks-over-past-decade/>, retrieved 11.09.2024.
16. DiLallo, M. (2024) *Top 8 Bonds to Invest in for the Long Term*, <https://www.fool.com/investing/how-to-invest/bonds/best-bonds/>, retrieved 11.09.2024.
17. Kenton, W. (2024) *S&P 500 Index: What It's for and Why It's Important in Investing*, <https://www.investopedia.com/terms/s/sp500.asp>, retrieved 11.09.2024.
18. McClure, B. (2010) *Modern portfolio theory: Why it's still hip*, <https://www.investopedia.com/managing-wealth/modern-portfolio-theory-why-its-still-hip/#axzz1g3JQY7nY>, retrieved 20.12.2024.
19. Robledo, V. E. O.: *The Ontological Sociology of Cryptocurrency: A Theoretical Exploration of Bitcoin*, doktorska disertacija, University of Central Florida, Florida, 2016.
20. Skilling Writers Team (2024) *Gold price chart over the past 10 years*, <https://skilling.com/eu/en/blog/commodities-trading/gold-price-chart-over-the-past-10-years/>, retrieved 20.12.2024.
21. <https://curvo.eu/backtest/en/market-index/bitcoin?currency=eur>
22. https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html

INTERNAL MARKETING AS A TOOL FOR DEVELOPING EMPLOYEE ENGAGEMENT AND SUSTAINABLE ORGANIZATIONAL COMMUNICATION

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ABSTRACT

In a contemporary business environment marked by rapid changes and global competition, internal marketing has become a key tool for strengthening employee engagement and creating a sustainable organizational culture. This paper explores the role of internal marketing in improving communication processes and motivational mechanisms within organizations, with special emphasis on the connection between internal communication and business performance. The theoretical section analyzes relevant models of internal marketing (Berry, Grönroos, Ahmed & Rafiq), while the empirical section presents research conducted among employees and human resource managers. The results indicate that effective internal communication, systematic employee motivation, and transparent leadership significantly increase employees' sense of belonging and engagement, which directly reflects on organizational efficiency and innovativeness. The paper emphasizes the need for a strategic approach to internal marketing that includes the development of two-way communication channels, continuous employee education, and the integration of technological solutions for monitoring and promoting engagement. It concludes that internal marketing, viewed as a long-term investment in human capital, represents a key factor in sustainable growth and competitive advantage for organizations.

Keywords: *internal marketing, internal communication, employee engagement, organizational culture, human resource management*

1. THEORETICAL OVERVIEW

Internal marketing represents a crucial instrument for effective organizational management, as it helps create an engaged, motivated, and aligned workforce oriented toward achieving organizational goals. Although originally developed as a response to challenges in the service sector, internal marketing is now applied across all types of organizations because it fosters a positive internal culture and improves interpersonal relationships within the workplace. It encompasses a variety of strategies—from communication and motivation to training and reward systems—aimed at helping employees understand their role in achieving organizational objectives, thereby enhancing their engagement and satisfaction (Ahmed & Rafiq, 2002). According to Kotler (2006), the primary objective of internal marketing is to motivate employees to work enthusiastically and perceive themselves as active participants in fulfilling the organization's mission and vision. This approach enables employees to better understand organizational goals, increasing their motivation and engagement.

Furthermore, internal marketing is not limited to enhancing motivation; it also strengthens trust within the organization, which has long-term implications for its success. By implementing internal marketing strategies, organizations can align their employees with external marketing goals, thus contributing to market competitiveness (Kotler & Keller, 2006). Recent studies confirm that effective internal marketing not only increases employee satisfaction but also has direct positive effects on customer satisfaction and the organization's long-term competitiveness. For instance, Bunea et al. (2025) emphasize that "learning and applying internal marketing strategies is essential for improving employee satisfaction, which subsequently leads to higher service quality and increased customer satisfaction." Brown (2025) similarly confirms that "internal marketing directly influences employee motivation and, consequently, the organization's ability to meet the needs of external customers," underscoring the link between employee engagement and service quality. Effective internal marketing is fundamentally rooted in communication. Sutomo (2024) stresses that "internal marketing cannot be successful without effective internal communication that enables employees to understand their tasks, the organization's mission, and their contribution to achieving those goals." Employees must be aware of the importance of their work for the organization's success, and clear communication helps them recognize their role within broader organizational objectives. Communication also enables organizations to establish a transparent work environment, increasing employee trust and engagement (Clampitt, 2016). Creating a positive work environment is also essential for successful internal marketing. Grönroos (1981) highlights that "employees should be involved in decision-making and trained so that their tasks reflect the organization's values." This model integrates the development of a service-oriented work culture, emphasizing the importance of cultivating relationships among employees as a foundation for organizational success.

According to Grönroos (1981), management must articulate a clear service vision and philosophy that is communicated throughout the organization, ensuring employees understand the significance of their contribution and remain motivated to achieve strategic goals. As noted by Heskett, Sasser, and Schlesinger (1997), "satisfied employees lead to satisfied customers," a link that is particularly evident in service industries where the quality of customer interaction is directly tied to employee engagement. Contemporary research reinforces these claims. Ramya (2025) concludes that "internal marketing is not merely a set of tools for employee motivation but a long-term mechanism for sustaining organizational success, as it helps create a positive internal culture aligned with external marketing goals." This approach increases employee loyalty and reduces turnover, enabling organizations to achieve better performance and sustainable growth. Research further indicates that "well-developed internal marketing programs can reduce employee turnover and increase productivity" (Berry, 1995). By applying marketing principles within the organization, it becomes possible to create an atmosphere in which employees feel valued, which strengthens their commitment and loyalty. This not only benefits workplace climate but also improves service delivery, thereby enhancing customer satisfaction (Trisninawati & Supardin, 2025). Internal marketing also helps organizations identify and direct their human resources toward achieving long-term goals. Berry (1981) and Brown (2025) emphasize that "internal marketing directly affects an organization's ability to satisfy external customers," as it aligns organizational practices with the needs and expectations of employees, who in turn perform their tasks more effectively. Similarly, recent studies confirm that "internal marketing assists organizations in developing competitive advantages by improving internal relationships and strengthening employee engagement" (Sutomo, 2024). In conclusion, internal marketing is more than a tool for motivating employees—it enables the development of an organizational culture that aligns the goals of employees with those of the organization.

Fostering a positive work environment, accompanied by clear and open communication, is essential for organizational success, especially in today's highly competitive business landscape. By implementing internal marketing strategies, organizations can ensure long-term stability, growth, and competitiveness.

2. RESEARCH OBJECTIVES

In today's globalized business environment, organizations face continuous challenges in maintaining competitive advantage and adapting to rapid market changes. In this context, internal marketing—an approach based on promoting organizational values and goals to employees—has become essential for ensuring long-term sustainability and business success. This study examines the role of internal marketing strategies in improving internal communication, employee motivation, and overall business performance. Given that employees are the primary drivers of business innovation and productivity, it is crucial to understand how organizations can utilize internal marketing initiatives to strengthen employee engagement, which is considered a key factor in achieving competitive advantage. This paper explores the relationship between internal communication, motivational mechanisms, transparent leadership, and business efficiency, with a particular emphasis on theoretical models of internal marketing strategies. The research problem addressed in this study concerns how different components of internal marketing strategies—such as the quality of internal communication, motivational mechanisms, and leadership transparency—affect employee engagement, their sense of belonging to the organization, and overall business performance. Additionally, the aim of this research is to determine whether there is a statistically significant relationship between these factors and organizational innovativeness and efficiency. Accordingly, the primary objectives of this study are to examine how the quality of internal communication influences employee engagement and to analyze the relationship between motivational mechanisms, transparent leadership, and business performance. Furthermore, it is essential to assess how the development of internal marketing initiatives can contribute to sustainable growth and competitive advantage. Based on theoretical models of internal marketing strategies (Berry, Grönroos, Ahmed & Rafiq) and previous research, the following hypotheses were formulated:

Hypothesis 1 (H1):

There is a positive relationship between the effectiveness of internal communication and employee engagement.

Explanation: Open, two-way, and transparent communication within an organization is associated with higher employee engagement, thereby enhancing their sense of organizational belonging.

Hypothesis 2 (H2):

Transparent leadership and systematic motivational mechanisms positively influence business performance and organizational innovativeness.

Explanation: Organizations in which managers apply transparent and systematic motivational strategies foster higher employee engagement, resulting in increased productivity and higher levels of innovation.

Hypothesis 3 (H3):

An internal marketing initiative strategy that includes two-way communication, continuous employee education, and the integration of technological solutions for engagement monitoring contributes positively to sustainable growth and the competitive advantage of the organization.

Explanation: Organizations that implement advanced technologies for monitoring engagement and continuously invest in employee development create a foundation for long-term growth and competitive advantage.

3. METHODOLOGY

To collect the data, a study was conducted on a sample of 240 participants, including 15 human resource managers and 225 employees from various organizations. The research was carried out over a three-month period, and data were gathered using both quantitative and qualitative methods.

Research Instruments:

Survey questionnaires were designed to collect data on the following variables: quality of internal communication, motivational mechanisms and employee engagement, leadership transparency, and organizational performance and innovativeness. The questionnaires were structured using a 1–5 Likert scale (ranging from “strongly disagree” to “strongly agree”). Quantitative data were analyzed using descriptive statistics, correlation analysis, and regression analysis to examine the relationships between the variables (internal communication, motivation, leadership, and business performance). Semi-structured interviews were conducted with 15 human resource managers. The purpose of the interviews was to gain deeper insights into subjective perceptions regarding the quality of internal communication, employee motivation, leadership transparency, and their impact on engagement and business performance. The interview topics included: sensitivity to internal communication and its importance; experiences with motivational systems and perceived engagement; attitudes toward leadership transparency and its influence on efficiency; and the use of technology for monitoring employee engagement. The interview data were analyzed using thematic analysis to identify key patterns and recurring themes among employees and managers, which served to enrich the quantitative findings.

4. RESEARCH RESULTS

This chapter presents the findings of the study conducted on a sample of 15 human resource managers and 225 employees, with the aim of examining the role of internal marketing strategies including the quality of internal communication, motivational mechanisms, leadership transparency, and the role of technology in enhancing employee engagement and organizational performance. Regression analysis was used to examine the effects of different variables on organizational performance, while correlations and descriptive statistics were applied for additional data analysis. To provide deeper insight into the demographic and perceptual characteristics of the surveyed group, key descriptive statistical data are presented for the sample consisting of 15 managers and 225 employees from various organizational sectors. The table includes indicators of central tendency, such as mean values and standard deviations, as well as demographic information, offering a detailed overview of sample distribution according to factors such as age, gender, education level, work experience, and organizational position. The sample represents a diverse group that includes various age categories, genders, education levels, and professional backgrounds, allowing for an analysis of perceptions from different sociodemographic perspectives. Based on responses to the survey questions, differences in attitudes between managers and employees are evident—particularly regarding the quality of internal communication and leadership transparency—where managers generally report somewhat more positive perceptions than employees. Mean values for most variables indicate moderately high ratings, while standard deviations reflect considerable variability within the sample, which is valuable for further analysis.

Through graphical representations of these data, it becomes possible to better understand how different groups within the organization perceive various aspects of internal communication and organizational performance. This provides a foundation for deeper analyses to follow within the regression analysis and other statistical methods.

Category	Managers (N = 15)	Employees (N = 225)	Total (N = 240)
Gender			
Male	8 (53.3%)	98 (43.6%)	106 (44.2%)
Female	7 (46.7%)	127 (56.4%)	134 (55.8%)
Age Group			
18–30	0 (0%)	60 (26.7%)	60 (25%)
31–40	4 (26.7%)	85 (37.8%)	89 (37.1%)
41–50	6 (40%)	55 (24.4%)	61 (25.4%)
51+	5 (33.3%)	25 (11.1%)	30 (12.5%)
Education Level			
High School	0 (0%)	30 (13.3%)	30 (12.5%)
University Degree	8 (53.3%)	150 (66.7%)	158 (65.8%)
Postgraduate Studies	7 (46.7%)	45 (20%)	52 (21.7%)
Work Experience (average)	12.5 years	6.4 years	7.1 years
Organizational Position			
Manager	15 (100%)	0 (0%)	15 (6.25%)
Middle Management	0 (0%)	100 (44.4%)	100 (41.7%)
Operational Staff	0 (0%)	125 (55.6%)	125 (51.4%)

Table 1: Descriptive Statistics of the Sample (Authors' Own Compilation)

The table below presents the basic statistical data for the variables used in the regression analysis:

Variable	Mean	Standard Deviation	Min	Max
Quality of Internal Communication	4.1	0.58	2	5
Motivational Mechanisms	3.9	0.65	2	5
Leadership Transparency	4.0	0.61	2	5
Technology for Monitoring Engagement	3.7	0.72	1	5
Organizational Performance	3.8	0.70	2	5

Table 2: Analysis of the Quality of Internal Communication (Authors' Own Compilation)

The data indicate that employees generally rated the quality of internal communication, motivational mechanisms, and leadership transparency within organizations positively, while perceptions of the use of technology for monitoring employee engagement were somewhat lower. The mean value for organizational performance was 3.8, suggesting that organizations maintain stable performance, though with potential for improvement.

To examine the relationships between variables, a regression analysis was conducted to assess how the quality of internal communication, motivational mechanisms, leadership transparency, and engagement-monitoring technology influence organizational performance. Table 3 presents the results of the regression analysis.

Variable	Coefficient (β)	Standard Error	t-value	p-value	R ²
Constant (Intercept)	0.350	0.102	3.43	0.001	
Quality of Internal Communication	0.45	0.075	6.00	0.000	
Motivational Mechanisms	0.38	0.067	5.67	0.000	
Leadership Transparency	0.32	0.060	5.33	0.000	
Technology for Monitoring Engagement	0.25	0.070	3.57	0.000	0.73

Table 3: Regression Analysis of the Impact of Internal Communication Quality, Motivational Mechanisms, Leadership Transparency, and Technology on Organizational Performance (Authors' Own Compilation)

The obtained regression coefficients indicate a strong relationship between the analyzed organizational factors and business performance. The intercept of 0.350 represents the baseline level of performance when all observed variables are set to zero, providing a reference point for assessing the relative contribution of each factor. The strongest effect is observed for the quality of internal communication: an increase of one point results in a 0.45-point increase in organizational performance, highlighting communication processes as a critical area of organizational management. Motivational mechanisms also show a significant contribution, with each additional point leading to a 0.38-point increase in performance, confirming the importance of well-designed employee incentives. Leadership transparency is likewise relevant, as a one-point increase raises performance by 0.32 points, implying that an open and clear managerial approach positively impacts organizational outcomes. Overall, the results suggest that improving communication, motivation, and leadership transparency can lead to substantial gains in business performance. Although the impact of technology for monitoring employee engagement is somewhat weaker compared to other predictors, it remains statistically significant: an increase in its application by one point corresponds to a 0.25-point rise in performance. Taken together, these findings confirm that the combination of high-quality communication, strong motivational systems, transparent leadership, and the appropriate use of technology forms a key foundation for achieving higher levels of organizational performance. The coefficient of determination ($R^2 = 0.73$) indicates that 73% of the variance in organizational performance can be explained by the variables included in the model. This high R^2 demonstrates that internal marketing strategies and engagement-monitoring technology are strong predictors of business performance. Based on the regression analysis, it can be concluded that all examined variables—quality of internal communication, motivational mechanisms, leadership transparency, and engagement-monitoring technology—are statistically significant predictors of organizational performance. The quality of internal communication emerged as the most important factor in enhancing performance, while motivational mechanisms and leadership transparency are also crucial for organizational success. The use of technology for monitoring employee engagement had a smaller, yet still significant, impact.

6. CONCLUSION

The combination of quantitative and qualitative findings in this study clearly supports the proposed hypotheses and highlights the critical role of internal marketing in strengthening organizational performance. The results show that the quality of internal communication is a fundamental determinant of employee engagement: regular communication with management and transparent information exchange foster higher motivation, better involvement in work processes, and stronger organizational commitment.

Additionally, motivational mechanisms and leadership transparency further contribute to greater organizational performance and innovativeness. Managers emphasized the importance of systematic training programs and recognition of employee contributions, while employees reported that transparent leadership facilitates understanding of strategic objectives and expectations, thereby enhancing clarity and alignment in daily operations. The importance of technology—particularly digital tools for monitoring engagement and continuous employee education—was also emphasized. Organizations that have integrated such solutions report higher levels of engagement and innovation, confirming that technological support can serve as a powerful catalyst for long-term development. These findings collectively suggest that high-quality internal communication, transparent leadership, systematic motivational mechanisms, and strategic use of technology are interrelated elements that directly influence employee engagement. Since engagement acts as a bridge between internal processes and organizational outcomes, organizations that continuously invest in their employees gain sustainable competitive advantages and lay the foundation for stable, long-term growth.

LITERATURE:

1. Abbana Bennani, C. (2024). The role of internal marketing practices on job satisfaction: Evidence from the service industry. *Review of Applied Management Journal (RAMJ)*. <https://www.emerald.com>
2. Aaker, D., & Moorman, C. (2017). *Strategic Market Management*. New Jersey: John Wiley & Sons.
3. Adhyayan: A Journal of Management Sciences. (2021). Internal marketing strategies and employee satisfaction: Perceived efficacy with workforce in New Normal. *Adhyayan: A Journal of Management Sciences*, Vol. ?, June. <https://www.researchgate.net>
4. Ahmed, P. K., & Rafiq, M. (2002). *Internal Marketing*. Oxford: Butterworth-Heinemann.
5. Berry, L. (1995). *On Great Service: A Framework for Action*. New York: Free Press.
6. Brown, D. M. (2025). Internal marketing and organizational performance. *Journal of Business Research*
7. Bunea, O.-I., Popescu, R.-I., Sabie, O.-M., & Truşcă, M. I. (2025). The influence of internal marketing on job satisfaction in the Romanian public sector and the mediating role of empowerment. *Journal of Business Economics and Management*, 26(1), 145–163. <https://journals.vilniustech.lt>
8. Clampitt, P. G. (2016). *Communicating for Managerial Effectiveness*. New York: SAGE Publications, Inc.
9. Grönroos, C. (1981). Internal marketing – An integral part of marketing theory. Chicago: American Marketing Association.
10. Heskett, J. L., Sasser, W. E., & Schlesinger, L. (1997). *Service Profit Chain: How Leading Companies Link Profit and Growth to Loyalty, Satisfaction and Value*. New York: Free Press.
11. Ramya, J. (2025). Internal marketing through HRM: Enhancing employee engagement for superior customer experience. *Advances in Consumer Research / ACR Journal*. <https://www.acrwebsite.org>
12. Sutomo, M. (2024). Exploring internal marketing, employee satisfaction, and organizational commitment in the Indonesian context. *International Journal of Social Sciences and Business*. <https://ejournal.undiksha.ac.id>
13. Trisninawati, & Supardin, L. (2025). The influence of internal marketing on job satisfaction through employee engagement as mediator. *Pakistan Journal of Life and Social Sciences*, 23(1), 4843–4852. <https://www.pjlss.edu.pk>

ANALYSIS OF THE INVESTMENT STRATEGY OF MANDATORY PENSION FUNDS IN THE REPUBLIC OF CROATIA

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ABSTRACT

This paper aims to examine the investment horizon of the portfolio management of mandatory pension funds in the Republic of Croatia. Namely, pension funds, especially mandatory ones, play a key role in ensuring the financial security of citizens after retirement. In the context of demographic changes, longer life expectancy and changes in the labor market, pension systems face challenges of sustainability and efficiency. Analysis of the investment strategies employed by mandatory pension funds is becoming increasingly crucial for understanding how these funds manage their members' assets and achieve their goals in terms of returns and investment security. The investment horizon of pension funds plays a key role in achieving their goals and those are a long-term investment horizon that enables funds to capitalize on long-term market trends, achieving stable returns and minimizing volatility risks. Accordingly, the results of previous research indicate that pension funds typically have a long-term investment horizon, aiming to secure returns and achieve continuous, small growth in share prices. This indicates a passive style of portfolio management used by the fund manager. Therefore, the goal of creating an investment portfolio implies an investment that ensures continuous returns, annual dividends observed over a longer time horizon, or maximization of the owner's wealth. As a measure of the investment time horizon, the portfolio turnover rate (Churn rate) will be used, which indicates how often an investor or mandatory pension fund changes the structure of the portfolio. The results of the research indicate that mandatory pension funds in the Republic of Croatia employ a predominantly conservative and passive investment approach, with an emphasis on capital security and the stability of returns.

Keywords: *Churn rate, Investment Horizon, Pension funds, Portfolio Management*

1. INTRODUCTION

Pension funds play a key role in ensuring citizens' financial security after retirement. In the context of demographic changes, longer life expectancy and changes in the labor market, pension systems face challenges of sustainability and efficiency. In the Republic of Croatia, as well as in most European Union countries, the pension system is based on a model with several pillars, including mandatory and voluntary pension funds. Namely, the 2002 reform resulted in significant changes to the structure of the pension system of the Republic of Croatia, where the single-part system based exclusively on intergenerational solidarity was replaced by a three-part system. In addition to the first pillar, which still represents mandatory pension insurance, the second and third pillars have been introduced, where the second pillar represents mandatory pension insurance based on individualized capitalized savings. In contrast, the third pillar represents voluntary pension insurance based on individualized capitalized savings (HANFA, 2025). The pension reform was driven by two fundamental reasons: demographic-organizational and financial-systemic (Bejaković, 2002), and its main goal was the transfer of social responsibility from the state to the individual.

Analysis of pension fund investment strategies is becoming crucial for understanding how voluntary funds manage their members' assets and achieve their goals in terms of returns and investment security. The investment horizon of pension funds plays a key role in achieving their goals. A long-term investment horizon enables funds to capitalize on market movements, achieving stable returns and minimizing volatility. For this reason, investment horizon analysis, which also includes measuring the portfolio turnover rate (Churn rate), helps in understanding the strategies funds use to achieve an optimal balance between returns and risk. Therefore, mandatory funds, in particular in the Republic of Croatia, have implemented passive investment strategies. The goal of these strategies is to protect the institution's overall financial stability from interest rate risk. (Bodie, et.al.2013, Đunđek, 2020, Đunđek, et. al. 2021) Pension funds, by nature and objective, often prefer more conservative investment strategies. These funds must ensure the stability and security of their investments to fulfill their future obligations to fund members. Therefore, a long-term investment horizon enables funds to overcome short-term market fluctuations and capitalize on long-term growth trends. By investing in high-quality stocks and bonds over the long term, funds can achieve stable returns and reduce volatility. Ultimately, by understanding investment horizons and portfolio management strategies, it is possible to identify best practices and recommendations to improve the efficiency of pension funds. Namely, the results of the investment horizon analysis of the mandatory pension funds will contribute to ensuring the long-term sustainability and stability of the pension system in the Republic of Croatia. Therefore, this paper aims to examine the investment horizon in the context of the mandatory pension fund portfolio management in the Republic of Croatia. Previous research suggests that these funds most often prefer a long-term investment horizon to ensure secure returns and continuous, though modest, share price growth. Such an approach implies a passive portfolio management style, in which fund managers strive for stability and risk minimization rather than an active trading style that involves frequent portfolio changes. Based on all of the above, this paper aims to examine and identify the investment horizon of mandatory pension funds in the Republic of Croatia and, consequently, to examine and identify the portfolio management style of fund managers within a mandatory pension fund management company. The research questions of this paper are formulated in accordance with the set objectives of the paper, and they are:

IP (1): Do mandatory pension funds prefer a long-term investment horizon?;

IP (2): Do fund managers of mandatory pension fund management companies use a passive investment strategy to secure returns and continuous, small growth in the value of financial instruments in the portfolio?

2. THEORETICAL BACKGROUND

From a theoretical perspective, the work is based on contemporary portfolio management models, as presented by Bodie, Kane, and Marcus (Investments, 2013). Their work offers a comprehensive framework for understanding the relationship between risk, return, and time, with a particular focus on institutional investing and portfolio performance evaluation. In the context of pension funds, these models emphasize the need for a conservative, long-term approach that maximizes the stability of returns. The question of choosing an investment strategy was further discussed in terms of active and passive portfolio management. Active strategies include continuous market analysis and frequent portfolio changes to outperform market returns. Passive strategies, more characteristic of pension funds, rely on long-term holding of selected assets, with minimal transactions and lower management costs. According to available research and data from European and American markets (Finax), the vast majority of actively managed funds fail to outperform market averages, which further encourages the preference for passive investment in the institutional sector.

The research results so far indicate that institutional investors typically have a long-term investment horizon, aiming for safe returns and gradual, steady growth in share prices. This indicates a passive portfolio management style among fund managers of institutional investors (Nix, 2012). Namely, the long-term investment horizon implies investments in shares that are intended to be held in the portfolio for more than one year, while the short-term investment horizon implies investments of only a few days and a maximum of one year (Carhart, 1997; Gaspar et.al., 2005; Cella, 2009). Previous research indicates that institutional investors prefer investments in large, established companies because they offer safer, higher-return opportunities (Agrawal, Knoeber, 1996; Holland, 1998; Mallin, 1999; Tam, Tan, 2007). Therefore, the goal of an individual institutional investor's investment portfolio is to invest in assets that ensure continuous returns and annual dividends over a longer time horizon, i.e., maximizing the owner's wealth. McCahery, Sautner, and Starks (2016) confirm the thesis that investors tend to have a long-term investment horizon and, therefore, are interested in corporate governance. Furthermore, Annuar (2015) points out that institutional investors tend to be more conservative, investing in assets that promise more stable returns with a lower level of risk. The decision to invest in a particular company depends on a clearly defined company development strategy and a detailed business plan, which investors consider important indicators of future returns and dividend policy, with an emphasis on continuous strategic assessment (Low, Arumugam, 2001). In contrast to short-term investments, in long-term investments, institutional investors contribute to improving corporate governance through a control role that is manifested in disciplining management to act in the interests of shareholders (Attig et al., 2012), and not in their own, and by reducing information asymmetry and agent costs (Elyasiani, Jia, 2010).

3. RESEARCH METHODOLOGY

In analyzing the investment strategies of the mandatory pension funds in the Republic of Croatia, with an emphasis on the investment time horizon and the frequency of changes in portfolio structure, the fundamental theoretical and methodological basis is drawn from the contemporary financial literature and regulatory sources. The focus is on measuring investment dynamics through the turnover rate and on understanding investment styles – active and passive portfolio management. The portfolio turnover rate is one of the key measurement units used to assess the intensity of changes in the portfolio structure. In the literature, this indicator is used to evaluate the investment horizon: the higher the coefficient, the higher the trading frequency and the shorter the investment horizon, suggesting a more active management approach. Lower values of the coefficient, on the other hand, indicate a more stable investment strategy with a long-term orientation. In this research, for the portfolio turnover Churn rate methodology represent by Gaspar et al. (2005) was used. This method enables the analysis of how often an investor changes the structure of their portfolio, thereby revealing the preferred investment strategy. This method can be applied to long-term and short-term investment horizons. According to Gaspar et al. (2005), the specified coefficient can be calculated:

$$CR_{i,t} = \frac{\sum_{j \in Q} |N_{j,i,t} P_{j,t} - N_{j,i,t-1} P_{j,t-1} - N_{j,i,t-1} \Delta P_{j,t}|}{\sum_{j \in Q} \frac{N_{j,i,t} P_{j,t} + N_{j,i,t-1} P_{j,t-1}}{2}}$$

(Izvor: Gaspar et.al., 2005)

In this formula, $P_{(j,t)}$ represents the price of common shares of company j at time t , and $N_{(j,i,t)}$ represents the number of common shares of company j owned by investor i at time t . In the analytical part of the paper, Churn Rate is calculated based on annual reports of pension funds and databases of the Croatian Financial Services Supervisory Agency (HANFA, 2024), the Regulation on the Establishment of the Central Registry of Affiliates (REGOS, 2024) and the Zagreb Stock Exchange (ZSE, 2024).

This ensures that the results are based on transparent and regulatory-verified data. Such an approach allows for a reliable quantitative evaluation of pension fund behavior over 10 years, accounting for differences across fund categories (A and B). Furthermore, the research sample consists of mandatory pension funds that are divided into three categories: A, B and C, and the research analyzed categories A and B, which are managed by four companies, namely AZ Mirovinski Fondovi, Raiffeisen Mirovinski Fondovi, Erste Plavi Mirovinski Fondovi and PBZ Croatia osiguranje mandatory pension funds. The category C is left out, since for those funds it is legally prohibited to invest in companies' shares as part of a portfolio investment strategy (Act on Mandatory Pension Funds (official Gazette 19/14, 93./15, 115/18, 58/20, 156/23). Therefore, the data used in this paper were collected from the official website of the Croatian Financial Services Supervisory Agency (HANFA, 2024), and from the official websites of mandatory pension funds (AZ Pension Funds, Raiffeisen Pension Funds, Erste Plavi Pension Funds and PBZ Croatia Insurance mandatory pension funds). The research covered 9 years from December 2015 to December 2024, enabling long-term trend monitoring and quality analysis of investment strategies. The sample was selected to obtain a representative overview of the management of the Croatian mandatory pension funds.

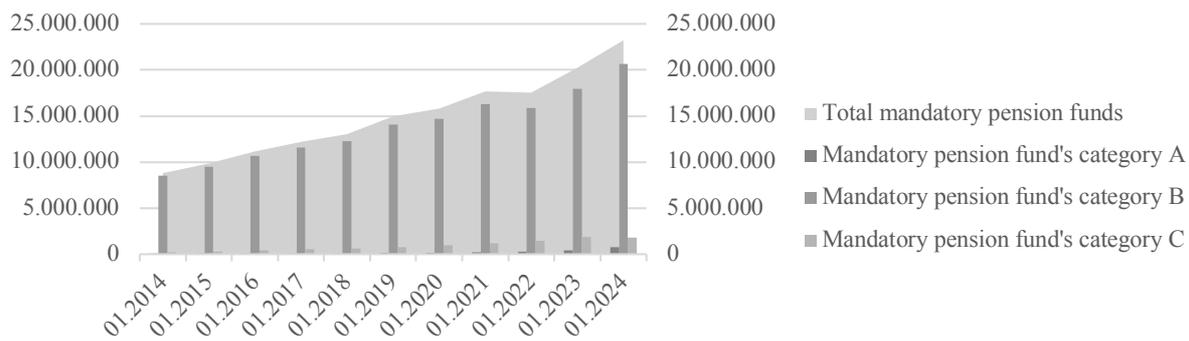
4. RESEARCH RESULTS

The analysis on investment strategies of mandatory pension funds in the Republic of Croatia provided a more detailed insight into the methods of managing insured assets and their effects on the long-term financial stability of the pension system. The main focus of this research is the time horizon, followed by the examination and identification of the portfolio management style of fund managers within the mandatory pension fund management company. Mandatory pension funds have the largest capital base, which is continuously growing relative to other types of institutional investors, making them the most important and fastest-growing segment of financial intermediation.

The net assets of mandatory pension funds have been continuously growing over the observed time horizon, mostly due to increases in members' payments and realized returns. As a result of the very conservative investment style, investments in category B mandatory pension funds are dominant, directing the largest part of their investments into government bonds (Picture 1), while investments in equity securities of domestic issuers and investments abroad accounted for a significantly smaller share. Such investment dynamics have been evident since the very beginning of mandatory pension fund operations.

Such a trend is expected to continue until better-quality securities are offered on the domestic market (Olgić, Draženović, 2012) or until insured persons' awareness of the possibilities of selecting a particular category of mandatory pension funds is raised (Đunđek Kokotec, 2020). This is confirmed by the analysis of the net assets of mandatory pension funds of categories A, B and C in the Republic of Croatia in the analyzed period, with an average of 1.32% of the total assets of mandatory pension funds invested in category A, 92.53% in category B, and 6.15% in category C.

The reason for this is the insured's lack of interest and ignorance, as well as the increased number of older members of the pension system who, in accordance with the legislative framework, are obliged to invest in somewhat safer categories, specifically categories B and C.



Picture 1: Pension funds' net assets t the end of period, in thousand EUR
(Source: Croatian Financial Services Supervisory Agency, 2025)

As already stated earlier in the paper, mandatory pension fund investments in the Republic of Croatia are significantly shaped by regulatory requirements, economic conditions and the funds investment strategy. During the observed period, it is clear that the funds are not inclined to change their portfolio structures significantly, as shown later in the paper. It is important to emphasize that according to the comprehensive report of Croatian Financial Services Supervisory Agency (HANFA), which shows the structure of pension fund investments, it is visible that category A funds, which should invest the most and at a much higher risk, continue to base the largest part of their investments on government bonds, followed by stocks (with an emphasis on the domestic market), and from the investing in a foreign market point of view, it is clear that more capital is invested in stocks than in government bonds. Looking at category B funds, it is noticeable that investments in government bonds are even greater, and that when investing in foreign markets, government bonds are preferred even more, unlike with category A funds. This data shows that the funds invest conservatively, which, on the one hand, ensures stability but, at the same time, limits the potential for yield growth. It is necessary to analyze the advantages and disadvantages of investing in government bonds or stocks. Namely, government bonds make up the largest part of the pension fund portfolio in Croatia. This allocation of funds should be viewed from two angles. As an advantage, they ensure stable, predictable returns, which are key to the long-term financial sustainability of pension funds. They are considered low-risk securities, especially domestic government bonds. Also, regarding the Republic of Croatia, it is clear that the state encourages on investing in government bonds and all others market participants to do the same. For this reason, the regulatory framework for investing in government bonds is much simpler and encouraging. When discussing disadvantages, the primary concern is the lower returns in periods of lower interest rates, which can negatively impact the growth of pension fund capital. One of the major problems is that risk diversification, which is crucial in the economy, is reduced. Excessive dependence on government bonds can reduce a fund's resilience to macroeconomic changes and political developments. When discussing stock investments, it can be said that stocks represent a riskier, but potentially more profitable, asset class. It was previously stated that pension funds in Croatia invest in stocks in different proportions, depending on the fund category. The main advantage of investing in stocks is the potential for higher returns than government bonds. Another major advantage is that it is much easier to diversify investments. Additionally, investing in stocks offers the opportunity to capitalize on growing industries such as IT and robotics, potentially yielding higher returns and contributing to market growth. The disadvantages of investing in stocks include higher volatility, restrictions and regulations that limit the possibility of more active and aggressive investment, and the underdeveloped state of the domestic capital market.

The analysis shows that the investment structure of pension funds in Croatia is conservative, emphasizing security and stability. Although this approach reduces risks, it also limits the potential for yield growth.

Year	Type of assets	Category A	Category B	Category C
31.12.2015.	Shares	0,02	1,84	-
	Government bonds	0,03	6,84	0,28
	Investment funds	0,00	0,58	0,00
	Corporate bonds	0,00	0,16	0,01
	Cash and Deposits	0,00	0,16	0,01
	Other assets	0,00	0,02	0,01
31.12.2016.	Shares	0,03	2,15	-
	Government bonds	0,03	7,62	0,36
	Investment funds	0,00	0,46	0,01
	Corporate bonds	0,00	0,18	0,02
	Cash and Deposits	0,00	0,32	0,01
	Other assets	0,00	0,04	0,01
31.12.2017.	Shares	0,03	2,01	-
	Government bonds	0,04	8,34	0,49
	Investment funds	0,01	0,70	-
	Corporate bonds	0,00	0,17	0,02
	Cash and Deposits	0,00	0,43	0,02
	Other assets	0,00	0,04	0,00
31.12.2018.	Shares	0,03	2,06	-
	Government bonds	0,04	8,47	0,56
	Investment funds	0,01	0,79	0,01
	Corporate bonds	0,00	0,19	0,03
	Cash and Deposits	0,01	0,65	0,05
	Other assets	0,00	0,18	0,01
31.12.2019.	Shares	0,04	2,60	-
	Government bonds	0,05	9,68	0,70
	Investment funds	0,01	1,11	0,00
	Corporate bonds	0,00	0,22	0,03
	Cash and Deposits	0,00	0,26	0,01
	Other assets	0,00	0,28	0,01
31.12.2020.	Shares	0,05	2,87	-
	Government bonds	0,05	9,59	0,81
	Investment funds	0,02	1,27	0,02
	Corporate bonds	0,00	0,28	0,04
	Cash and Deposits	0,01	0,48	0,09
	Other assets	0,00	0,28	0,01
31.12.2021.	Shares	0,07	3,66	-
	Government bonds	0,06	9,73	0,95
	Investment funds	0,03	2,00	0,02
	Corporate bonds	0,00	0,26	0,06
	Cash and Deposits	0,02	0,43	0,12
	Other assets	0,00	0,23	0,03

31.12.2022.	Shares	0,09	3,45	-
	Government bonds	0,09	9,71	1,18
	Investment funds	0,04	1,78	0,04
	Corporate bonds	0,00	0,10	0,05
	Cash and Deposits	0,04	0,68	0,14
	Other assets	0,00	0,14	0,02
31.12.2023.	Shares	0,13	4,37	-
	Government bonds	0,15	10,82	1,50
	Investment funds	0,06	2,07	0,03
	Corporate bonds	0,01	0,18	0,08
	Cash and Deposits	0,05	0,43	0,19
	Other assets	0,01	0,11	0,06
31.12.2024.	Shares	0,23	5,14	-
	Government bonds	0,27	11,98	1,51
	Investment funds	0,13	2,28	0,03
	Corporate bonds	0,03	0,25	0,07
	Cash and Deposits	0,06	0,72	0,17
	Other assets	0,02	0,33	0,05

*Table 1: Structure of assets of mandatory pension funds by type of investment
(At the end of period, in billion EUR)
(Source: Croatian Financial Services Supervisory Agency, 2025)*

By analyzing mandatory pension fund investments and their portfolios, it is clear that they have a long-term investment horizon, consistent with their basic purpose and investment structure, which ensures stable returns and reduces risk, therefore they tend to follow buy and hold strategy. Pension funds must ensure stability without excessive risk, because this concerns the future of a large number of people and their assets. The analysis also found that all analyzed pension funds invest in stable, large, and successful companies, which provides them with additional security when investing.

The goal of each pension fund is to create a portfolio that provides the highest possible returns with the lowest possible risk. It is clearly evident from the pension fund portfolio that they rarely change the structure of their investments, as can be seen from the Table 2. It is also important to emphasize that the structure of each pension fund's portfolio demonstrates maximum diversification by investing in a larger number of companies, which can help ensure stability. The results of the portfolio turnover rate calculation show that all pension funds in portfolio category A and portfolio category B are passively managed. The results of the analysis shown in table 2, represent the average portfolio turnover rate for a given mandatory pension fund and category.

In category A mandatory pension funds, obtained the following results: PBZ CO Mirovinski Fondovi 10,92% Raiffeisen Mirovinski Fondovi 8,61%, and Erste Plavi Mirovinski Fondovi 6,45% and AZ Mirovinski Fondovi 6,10%. In category B pension funds, the results are as follows: Raiffeisen Mirovinski Fondovi 5,14%, AZ Mirovinski Fondovi 4,33%, Erste Plavi Mirovinski Fondovi 3,63% and PBZ CO Mirovinski Fondovi 2,72%.

Mandatory Pension fund	Category A	Category B
AZ Pension Funds (AZ PF)	6,10%	4,33%
RAIFFEISEN Pension Funds (RBA PF)	8,61%	5,14%
ERSTE PLAVI Pension Funds (ERSTE PLAVI PF)	6,45%	3,63%
PBZ CO Pension Funds (PBZ CRO PF)	10,92%	2,72%

*Table 2: Average Churn Rate for the Analysed Mandatory Pension Funds per Category
(Source: Author's calculations)*

Generally, funds with a low turnover ratio have passive portfolio management, and on the other hand, funds with a high turnover ratio indicate significant buying and selling of securities, which have thus implemented and executed an active investment strategy. From the research results, it can be clearly concluded that Croatian mandatory pension funds have a very low portfolio turnover rate and hold their investments for a longer period. The results indicate that Croatian mandatory pension funds prefer a long-term investment horizon and they tend to follow buy and hold strategy. Analyzed pension funds choose a passive investment strategy to ensure safe returns and stability of their portfolio. The goal of such an investment is to generate returns through a small but steady increase in the value of the portfolio's financial instruments. It should be noted that these results are related to pension fund investments in the domestic stock market, i.e., domestic companies. For pension funds, this may be the only viable way to manage capital/assets, as they cannot afford to lose money that represents someone's future. It can also be said that one reason for the low portfolio turnover on the domestic market is that the Croatian market is underdeveloped and offers few investment opportunities. The research did not analyze portfolio category C; however, it is clear that this category has the lowest turnover rate because the vast majority of investments are in government bonds, and the law stipulates that practically any form of risk is unacceptable in this category. A low portfolio turnover rate has several positive aspects, including lower transaction costs. This is because fewer buying and selling activities reduce trading fees and administrative costs, thereby lowering volatility. After all, portfolios with infrequent changes are more stable and more resistant to short-term market fluctuations, and increased investment security when holding bonds for a long time reduces the risk of losses associated with market movements. There are also negative sides to this investment method, namely that funds are less adaptable to market changes and potentially miss opportunities for higher returns, long-term holding of the same instruments can lead to excessive concentration in certain sectors, especially in government bonds, and a passive strategy can result in lower returns compared to more active fund management, especially in periods of capital market growth. Although a passive investment strategy ensures the stability and security of pension funds, it limits their growth potential. Croatian pension funds use this strategy to protect insured capital and reduce volatility risk. However, these results raise numerous questions and offer significant room for improvement. When discussing areas for improvement, it is crucial to emphasize the need to diversify pension fund portfolios. Currently, fund investments, especially in categories B and C, are significantly concentrated in government bonds, which ensure stability but limit the potential for higher returns. Diversifying investments by increasing exposure to alternative investments, such as infrastructure projects, real estate, or private equity, could improve the long-term sustainability of funds and enable better risk management. Also, a stronger entry into foreign markets would enable higher returns and reduce dependence on the domestic economy. In addition to diversification, it is important to find a better balance between passive and active portfolio management. Although passive strategies offer low transaction costs and long-term stability, an overly conservative approach can lead to missed opportunities to grow the value of fund assets.

Funds, especially those in category A, could adapt more actively to market conditions and take advantage of opportunities in the capital market, thereby increasing potential returns for their investors, i.e. members. In addition to the investment strategy itself, it is of utmost importance to increase transparency and the availability of information to members. Simplifying reporting and providing better insight into the investment structure would contribute to greater trust in the pension fund system. Digital platforms that enable members to monitor their investments and simulate future returns could further improve understanding of pension savings and motivate citizens to save in the long term. The introduction of incentives for additional pension savings is also important for the long-term stability of the system. Tax breaks for voluntary investment in pension funds could encourage citizens to participate more in the system, thereby reducing pressure on the mandatory pension insurance pillar. Finally, although the existing pension fund investment model ensures the stability and protection of insured persons' capital, certain adjustments could significantly improve the system's efficiency. Greater portfolio diversification, a more balanced combination of active and passive investment management, increased transparency, and the development of incentive measures to encourage additional savings are key factors that could improve the system and ensure the long-term sustainability of the mandatory pension funds in the Republic of Croatia.

5. CONCLUSION

Research and analysis of mandatory pension fund investments in the Republic of Croatia lead to the conclusion that the funds apply a predominantly conservative, passive approach, with an emphasis on capital security and stable returns. It is evident that pension funds invest over a longer time horizon and hold their securities for the long term, i.e. implement the buy and hold strategy. Companies that manage pension funds prefer a passive investment strategy and rely on conservative investment methods. Pension funds, especially those in category B, predominantly invest in government bonds, while category A funds rely more on equity investments, though within a relatively low-risk framework. The passive investment method aims to deliver lower but stable returns and diversify risk. When investing in shares, pension funds always choose companies that are extremely stable and have a low possibility of losing their value. This approach provides predictable results and protects mandatory pension funds members from market fluctuations, but at the same time limits the potential for achieving higher returns and the long-term sustainability of the pension system. It is also important to emphasize that even when the mandatory pension funds receive a little more investment flexibility from the state, i.e. policymakers, they do not take full advantage of it and continue to rely on a passive strategy and base their investments on a longer-term horizon. It should be emphasized that all pension funds in the Republic of Croatia are operating positively and achieving high returns. Market liberalization is essential for pension funds to achieve the highest possible growth and reduce pressure on the entire pension system. One of the key conclusions of the paper is the importance of investment diversification to improve fund efficiency. Although investing in government bonds provides security, greater exposure to other asset classes could increase returns and reduce dependence on the domestic economy. A passive investment strategy reduces flexibility and the ability to adapt to market conditions, while a more actively managed portfolio could better exploit market opportunities. Pension funds in Croatia play a key role in ensuring the financial stability of citizens in old age. However, certain adjustments to investment strategies could further improve the system's long-term sustainability. Greater portfolio diversification, more balanced risk management, improved transparency, and the encouragement of additional savings could ensure greater resilience of the system and enable insured persons to be in better financial condition in the future. These conclusions indicate the need for continuous development and adjustment of pension funds to ensure the stability and adequacy of pensions in a dynamic financial environment.

LITERATURE:

1. Agrawal, A., Knoeber, C. R. (1996) Firm performance and mechanisms to control agency problems between managers and shareholders. *Journal of financial and quantitative analysis*, 31(3), str.377–397.
2. Annuar, H. A. (2015) Changes in ownership forms and role of institutional investors in governing public companies in Malaysia: a research note. *Journal of Accounting & Organizational Change*, 11(4), str.455–475.
3. Attig, N., Cleary, S., El Ghouli, S., Guedhami, O. (2012) Institutional investment horizon and investment–cash flow sensitivity. *Journal of Banking i Finance*, 36(4), str.1164–1180.
4. AZ Pension funds. (2024). *Investment strucutre*. Retrieved 01.08.2024. from <https://www.azfond.hr/obvezni-mirovinski-fond/kategorija-a/dodatne-informacije-o-fondu/>
5. Bejaković, P. (2002) Evazija doprinosa za mirovinsko osiguranje. *Financijska teorija i praksa*, 26(1), str.317–349.
6. Bodie, Z., Kane, A., Marcus, A. J. (2013.). *Investments* (10. izd.). New York: McGraw-Hill Education.
7. Carhart, M. M. (1997) On persistence in mutual fund performance. *The Journal of finance*, 52(1), 57–82.
8. Cella, C. (2009). *Institutional Investors and Corporate Investment*. Indiana University.
9. Corporate Finance Institute. (2025). *Portfolio Turnover Ratio*. Retrieved 04.02.2025. from <https://corporatefinanceinstitute.com/resources/career-map/sell-side/capital-markets/portfolio-turnover-ratio/>
10. Croatian Financial Services Supervisory Agency. (2025). *Monthly Market Overview FSS Oct 31, 2025*. Retrieved 03.12.2025. from <https://www.hanfa.hr/publications/monthly-market-overview/#:~:text=Monthly%20Market%20Overview%20FSS%20Oct%2031%2C%202025>
11. Đunđek Kokotec, I. (2020.). *INFLUENCE OF INSTITUTIONAL INVESTORS ON CORPORATE GOVERNANCE IN CROATIAN COMPANIES*. Doctoral Dissertation
12. Đunđek Kokotec, I., Orsag, S., Klačmer Člopa, M. (2021.). *The Role of Institutional Investors in Corporate Governance of Their Portfolio Companies – The Case of Croatia*. *Croatian economic survey*, 23 (2021), 2; 105-129. doi: 10.15179/ces.23.2.4
13. Elyasiani, E., Jia, J.J. (2008) *Institutional ownership stability and BHC performance*. *Journal of Banking i Finance*, 32(9), str.1767–1781.
14. Erste Plavi Pension Funds. (2024). *Investment structure*. Retrieved 01.08.2024. from <https://www.ersteplavi.hr/mirovinski-fondovi/obvezna-mirovinska-stednja/erste-plavi-a/>
15. Gaspar, J. M., Massa, M., Matos, P. (2005) *Shareholder investment horizons and the market for corporate control*. *Journal of financial economics*, 76(1), str.135–165.
16. Holland, J. (1998) *Influence and intervention by financial institutions in their investee companies*. *Corporate Governance: An International Review*, 6(4), str.249–264.
17. Low, K. L. T., Arumugam, S. (2001) *The sustainability of business corporate governance: evidence from the Malaysia public-listed companies*. British Accounting Association Special Interest Group on Corporate Governance.
18. Mallin, C. (1999) *Financial institutions and their relations with corporate boards*. *Corporate Governance: An International Review*, 7(3), str.248–255.
19. McCahery, J. A., Sautner, Z., Starks, L. T. (2016) *Behind the scenes: The corporate governance preferences of institutional investors*. *The Journal of Finance*, 71(6), str.2905-2932.

20. Nix, P., Chen, J. (2013) *The role of institutional investors in corporate governance: an empirical study*. Springer.
21. Olgić Draženović, B. (2012) *Uloga i utjecaj institucionalnih investitora na razvoj tržišta kapitala odabranih tranzicijskih zemalja i Republike Hrvatske*. Doctoral Dissertation.
22. PBZ CO Pnesion Funds. (2024). *Investement structure*. Retrieved 01.08.2024. from <https://www.pbzco-fond.hr/fondovi/fond-a/prikaz-ulaganja>
23. Raiffeisen Pnesion Funds. (2024). *Documentation*. Retrieved 01.08.2024. from <https://www.rmf.hr/dokumentacija/511>
24. Regos. (2024.). *Archive of accounting unit values by fund*. Retrieved 26.07.2024. from <https://regos.hr/mirovinski-fond/vrijednosti-obracunske-jedinice-za-dan-25-7-2024?d=25-7-2024>
25. Tam, O. K., Tan, M. G. S. (2007) *Ownership, governance and firm performance in Malaysia*. *Corporate Governance: An International Review*, 15(2), str.208–222.
26. Zakon.hr. (2024.). *Act on Mandatory Pension Funds (official Gazette 19/14, 93./15, 115/18, 58/20, 156/23)*. Retrieved 03.08.2024. from <https://www.zakon.hr/z/708/Zakon-o-obveznim-mirovinskim-fondovima>

PRODUCTS WITH ENVIRONMENTAL LABELS IN CROATIA: CONSUMER PROFILE ANALYSIS

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ABSTRACT

Sustainable Development Goal 12 aims to ensure sustainable production and consumption patterns with relevant specific targets for 2030. Among various dimensions of sustainability, this paper focuses on environmental sustainability elaborating the market exchange of environmentally friendly products in Croatia. Namely, such products can be often classified as credence goods due to very limited capacity of buyers to observe and inspect the claimed environmental friendly product properties. Therefore, the environmental labels are often applied as a tool for reducing described information asymmetry. This research focuses on providing additional insights about consumer profile in relation to products with environmental labels. Croatia is a small open economy that has been integrating into the EU market that also involves adoption of strongly promoted sustainable consumption and production patterns. Thus, the author tends to provide additional insights for entrepreneurs considering adoption of environmentally friendly measures and environmental labels, as well as for decision makers' shaping sustainable consumption and production patterns. The answers about buyers' characteristics of products with ecolabels in Croatia are obtained by applying logistic analysis on Flash Eurobarometer 535 dataset. The impacts of age, gender, occupation, and territorial context are investigated. The second chapter reflects on economic analysis of environmental labels and provides an overview of the existing empirical research on environmental labels focusing on the EU and Croatia while the third and the fourth chapter present empirical analysis and results supporting the conclusion in the final chapter.

Keywords: *Consumers, Croatia, Environmental Label, EU Ecolabel, Flash Eurobarometer 535*

1. INTRODUCTION

Sustainable Development Goal 12 aims to ensure sustainable production and consumption patterns with relevant specific targets for 2030. Among various dimensions of sustainability, this paper focuses on environmental sustainability elaborating the market exchange of environmentally friendly products in Croatia. Namely, such products can be often classified as credence goods due to the very limited capacity of buyers to observe and inspect the claimed environmentally friendly product properties. Therefore, the environmental labels are often applied as a tool for reducing described information asymmetry. The aim of this research is to shed light on the attributes of consumers who are likely to buy products with environmental labels in Croatia.

The answers about buyers' characteristics of products with ecolabels in Croatia are obtained by applying logistic analysis on Flash Eurobarometer 535 dataset. The impacts of age, gender, occupation, and territorial context are investigated. The second chapter reflects on economic analysis of environmental labels and provides an overview of the existing empirical research on environmental labels focusing on the EU and Croatia while the third and the fourth chapter present empirical analysis and results supporting the conclusion in the final chapter.

2. LITERATURE REVIEW

While a branch of literature dedicates to the EU SMEs and factors associated with their green environmental practices, supply and circular economy (for instance Bassi and Dias, 2019; de Andrade et al., 2025; Vasilescu et al., 2023; Ivanović-Đukić et al., 2025; Marti, 2025) Seifert et al. (2025) investigate if the certification affects farmland prices but by assessing the role of consumers in the market for green products. Finally, Kouider Aissa and Tampieri (2025) consider demand and supply side simultaneously and design a model market with firms adapting ECSR to study transition towards sustainable economy. The authors conclude that private rather than social incentives drive the green transition shifting the firms toward environmentally conscious production.

2.1. Economic analysis of environmental labels

A design of environmental label or ecolabel can be considered simply as a type of quality label often applied in the manufacturing or service sector. However, in the times of intense global strategic efforts to combat climate change, biodiversity loss and pollution, the role of environmental labels takes a prominent role. Already, Kijek (2015) recognized the role of eco labels for innovation diffusion. Application of an environmental management tool that should result with a sustainable product or service attributes presents the essence of environmental labelling. Thus, environmental labelling can be perceived as a tool that supports organizations in their transition to environmental sustainability. It has a role in environmental management that does not exclusively or directly come to profit maximization. Kabaja (2023) explores the role of EU Ecolabel as a mark of environmental excellence while He et al. (2021) point to the problem that environmental labeling may be connected with good performance in terms of revenues, but not to the final profit performance. Camilleri (2022) performed a systematic literature review on implementation of ISO 14001 as an environmental management tool applied in the organisations. Implementation of the system turns out to be associated with resource use and waste management efficiency, also improving relationships with stakeholders, but at the cost of demanding paper work and certification expenses. Also, Cordella et al. (2020) also investigates to what extent EU Ecolabel contributes to improvement of products material efficiency. The core of rigorous economic rationale for environmental labeling is outlined in Pavlinović Mršić (2024). Apart from the stakeholder and resources cost management addressed by Camilleri (2022), one of the main roles of environmental labellings is to transmit the missing information in the market. The readers are recalled to classifications of goods with respect to observability of attributes. Attributes of search goods are verifiable at the moment of exchange, experience goods attributes are verifiable after consumption while attributes of credence goods are not verifiable at all. In the case of markets for environmentally friendly products, goods can have environmental attributes that are relevant for consumer decision and price formation but that are not verifiable even after consumption. Environmental labels would serve to transmit the missing information between producers and consumers. Economic analysis of environmental labels is thus founded in the theory of information asymmetry (detail overviewed in Mas-Collel, 1995). While Milgrom and Roberts (1987) present information asymmetry games, Akerlof (1970) postulates the adverse selection problem. Information asymmetry refers to the limited buyer's knowledge about a product, but that knowledge is available to the seller. If the buyer expectations about product attributes are low, willingness to pay is reduced below sellers costs leading to losses and consequently market dissolves. Since environmentally friendly products are often characterised by credence attributes, economic theory dealing with information asymmetry becomes relevant in that context. Pavlinović Mršić (2024) lists mechanisms that can diminish information asymmetry and certification schemes and labelling is one of them.

For instance, Ikhsan et al. (2024) study the relationship between information asymmetry of green products and online reviews as a mechanism to decrease this asymmetry. Torres-Peña et al. (2025) conduct empirical study on extra virgin olive oil and find that in the context of multiple certificates, ecolabels mostly improve consumer beliefs about commitment to quality and producer honesty. Sengupta (2024) even connects ecolabels to reduced industry investments in cleaner technologies.

2.2. Studies of environmental labels in the EU and Croatia

Prieto-Sandoval et al. (2020) conduct study on application of EU Ecolabel in Spain and find positive relation between number of licences issued and regional GDP per capita. Dragomir et al. (2021) investigate the attitudes of stakeholders in the tourism industry about EU Ecolabel and suggest that there is no sufficient knowledge about possible contribution of ecolabeling to a destination. Landekić et al. (2021) examine the role of ecolabeling for forest management in the Croatian context while Šipić (2017) econometrically test the role of eco-label Blue flag on price of marine recreation services in Croatia. However, Kovač et al. (2025) study attitudes of consumers toward eco-labels in Croatia and find eco-label visibility, institutional support, as well as consumer knowledge as significant factors affecting consumer intentions to buy eco-labeled products. It can be concluded that the existing literature about attitudes of consumers on eco-labeling, and in particular about EU Ecolabel is scarce. Therefore, this research addresses this gap by focusing analysis on the Croatian subsample of Flash Eurobarometer 535 presented in the following chapter.

3. MATERIALS AND METHODS

The empirical part of this study relies on the Flash Eurobarometer 535 (The EU Ecolabel) collected in the period September 5 – 13, 2023 by Ipsos European Public Affairs (European Commission, 2023). The total study surveyed 26.630 individuals by non-probability quota sampling procedure. This research reports results on a subsample of responses referring to Croatia involving in total 1.108 responses. The mentioned dataset has been elaborated in a similar context by Recio-Roman et al. (2024:12). The same dataset was also addressed by Pavlinović Mršić (2024) but focusing on the problem of information asymmetry in the markets for environmentally friendly products. The impacts of age, gender, occupation, and territorial context are investigated. Based on the survey, the following variables are constructed:

Dependent variable is categorical and it is based on question *Q3_2 How often do you buy products with the EU Ecolabel?*

EU Ecolabel buying behavior is measured by variable *EU_Ecolabel* that takes value 1 if *Q3_2* answer is “Sometimes” or “Often”, and 0 otherwise (answers “Rarely”, “Never” or “Don’t Know”). This approach slightly diverges from Recio-Roman et al. (2024) who studied the accompanying question on purchase of ecolabel products and who decided to treat “don’t know” as missing data. In case of a question about the EU Ecolabel, this would refer to 34% of respondents. Thus, treating those observations as missing data would significantly distort the estimation results.

Explanatory variables:

- Age: in line with Recio-Roman et al. (2024:13) respondents were divided in four age groups 15-24 (12,08%), 25-39 (23,08%), 40-54 (27,21%), and 55 years or older (37,62%)
- Gender groups: male (48,23%) and female (51,77%)

- Employment: 38,21% of respondents are employed (“Self-employed”, “Employee” or “Manual worker”)
- Children: 288 (28,29%) respondents report at least one child up to 15 years old living in their household
- Residential setting: 212 (20,83%) respondents live in a rural area or village, 434 (42,63%) in a small or medium-sized town, and 372 (36,54%) in a large town or city

	Code	Categories	Summary
N			1,018
Dependent variable (y)			
Buying products with EU Ecolabel	EU_Ecolabel	1	375 (36.8%)
Explanatory variables (X)			
Age	d1r1	15 - 24 years	123 (12.1%)
		25 - 39 years	235 (23.1%)
		40 - 54 years	277 (27.2%)
		55 and older	383 (37.6%)
Gender	d1	male	491 (48.2%)
Employment	emp	employed	629 (61.8%)
Number of children	child	1 or more	288 (28.3%)
Type of community	d13	rural-village	212 (20.8%)
		s/m town	434 (42.6%)
		L town/city	372 (36.5%)

*Table 1: Summary statistics
(Source: Elaborated by authors)*

In line with presentation in Long and Freese (2006:227), logit model probability of buying products with EU ecolabel is estimated in STATA:

$$\ln \frac{\Pr(y = 1|\mathbf{X})}{1 - \Pr(y = 1|\mathbf{X})} = \mathbf{X}\beta \quad \text{i. e.} \quad \Pr(y_j = 1|\mathbf{X}) = \frac{e^{\mathbf{X}_j\beta}}{1 + e^{\mathbf{X}_j\beta}} \quad \text{equation (1)}$$

Logit econometric estimates are often applied in studies about organic products. For example, Pellegrini et al. (2025:937) employ logit analysis and find that consumers are willing to pay more for sustainable and healthy characteristics.

4. RESULTS

Table 2 presents the results of the logit analysis. Model 1 is initially estimated followed by Model 2 that does not include gender and type of community that were not statistically significant in Model 1.

Dependent variable: EU_Ecolabel VARIABLES	OR Model 1	OR Model 2
age = 2; 25 - 39 years (base: 15-24)	-0.0397 (0.242)	0.973 (0.235)
age = 3; 40 - 54 years	-0.0919 (0.238)	0.934 (0.221)
age = 4; 55 years and older	0.502** (0.237)	1.697** (0.397)
GENDER = 1, Male (base: Female)	-0.120 (0.133)	
emp = 1 (base:0)	0.612*** (0.170)	1.846*** (0.312)
child = 1 (base:0)	0.651*** (0.155)	1.916*** (0.297)
Type of community = 2, Small or medium-sized town (base:rural – village)	0.151 (0.181)	
Type of community = 3, Large town/city	0.0360 (0.185)	
EU_Ecolabel – Dependent variable		
Constant	-1.296*** (0.260)	0.274*** (0.0632)
Observations	1,018	1,018
LR chi2(5)	35,31	33,61
Pseudo R2	0.0264	0.0251

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

*Table 2: Logit Odd Ratios - Buying products with EU_Ecolabel
(Source: Elaborated by authors)*

	Model 2	Model 1	Difference
Log-likelihood of the model	-653.121	-652.274	-0.847
Chi-square LR(df=5/8/-3)	33.613	35.307	-1.694
R2 McFadden	0,025	0,026	-0,001
R2 McFadden (adjusted)	0,016	0,013	0,003
AIC	1318.243	1322.548	-4.306
BIC(df=6/9/-3)	1347.796	1366.879	-19.083

*Table 3: Measures of fitness - Model 1 and Model 2
(Source: Elaborated by authors)*

Table 3 compares measures of fit of initial Model 1 and reduced Model2. While McFadden R2 is higher for the initial model than for the new model, McFadden (adjusted) R2 is lower in the initial model. Also, AIC and BIC are lower in the new model providing a support for the selection of reduced Model 2 that is interpreted as follows.

Results of logit analysis of socio-demographic characteristics of consumers suggest that there are some individual traits that are associated with higher purchasing likelihood of EU Ecolabelled products. Namely, according to Model 2 belonging to age group 55 years or older is associated with an increase of odds ratio of buying EU Ecolabelled product by 70% at 5% statistical significance (OR=1,679 and $p<0,05$) compared to the baseline group of respondents 25 years old or below. Employment status increases the odds ratio of buying products with EU Ecolabel (against not buying) by 85% at 1% statistical significance (OR=1.846 and $p<0,001$). Also, a positive number of children 15 years old or below is associated with an increased odds ratio of buying products with EU Ecolabel by 92% (OR=1.916 and $p<0,01$). Finding that the oldest age group is associated with higher odds ratio of buying EU Ecolabelled product is consistent with finding of Recio-Roman et al. (2024:17) that the youngest group is less likely to shop products with ecolabels. Unlike Recio-Roman et al. (2024:17), this paper excluded education, but additional variables Employment and Number of children were employed in this study, which turned out to be statistically significant. Gender and Residential Setting that were statistically significant in Recio-Roman et al. (2024:17) were excluded in the selected Model 2 of this study. The results in this paper are also consistent with Smith Taillie et al. (2024:10) who find that adults above 25 decrease purchase if exposed to labels about unsustainable products.

5. CONCLUSION

Sustainable Development Goal 12 addresses responsible consumption and production. This paper dedicates to credence attributes and information asymmetry inherent in market exchange of environmentally friendly products. EU Ecolabel is a mechanism that is designed to support implementation of sustainable management systems in the organisations and to surmount information asymmetry by asserting environmental attributes of labeled products. It is recognized as a tool that can support green transition of the EU enterprises. However, since the economic literature about experience of EU Ecolabel application in Croatia is scarce, this research intended to provide additional insights about consumers' profile of consumers who are likely to purchase products with EU Ecolabels in Croatia. Results of econometric analysis indicate that buyers of products with EU Ecolabels in Croatia can be found more likely in age group 55 or above, among employed persons, and those with children 15 or less years old. On the other hand, gender and type of community does not represent determining factor for purchase of products with EU Ecolabel. These findings provide inform sustainability managers for decision-making about implementation, management and marketing of environmental labels in Croatia. However, modification and inclusion of additional variables and alternative econometric specifications can be considered for additional robustness check.

LITERATURE

1. Akerloff, G. A. (1970). 'The market for "Lemons": Qualitative uncertainty and the market mechanism', *Quarterly Journal of Economics*, 84, pp. 488–500. <https://doi.org/10.2307/1879431>
2. Bassi, F., & Dias, J. G. (2019). The use of circular economy practices in SMEs across the EU. *Resources, Conservation and Recycling*, 146, 523-533. <https://doi.org/10.1016/j.resconrec.2019.03.019>
3. Camilleri, M. A. (2022). The rationale for ISO 14001 certification: A systematic review and a cost-benefit analysis. *Corporate Social Responsibility and Environmental Management*, 29(4), 1067-1083. <https://doi.org/10.1002/csr.2254>
4. Cordella, M., Alfieri, F., Sanfelix, J., Donatello, S., Kaps, R., & Wolf, O. (2020). Improving material efficiency in the life cycle of products: a review of EU Ecolabel criteria. *The International Journal of Life Cycle Assessment*, 25(5), 921-935. <https://doi.org/10.1007/s11367-019-01608-8>

5. de Andrade, R. D., Benfica, V. C., de Oliveira, H. V. E., & Suchek, N. (2025). Investigating green jobs and sustainability in SMEs: Beyond business operations. *Journal of Cleaner Production*, 486, 144477. <https://doi.org/10.1016/j.jclepro.2024.144477>
6. Dragomir, L., Mazilu, M., Dobrescu, A., & Malmare, R. (2021, June). Certification and promotion of sustainable tourism: consumers attitude towards EU Ecolabel. In *Forum Geografic* (Vol. 20, No. 1). <https://doi.org/10.5775/fg.2021.143.i>
7. European Commission, Brussels (2023). Flash Eurobarometer 535 (The EU Ecolabel) (ZA8766; Version 1.0.0) [Data set]. GESIS, Cologne. <https://doi.org/10.4232/1.14212>
8. Ikhsan, R. B., Fernando, Y., Gui, A., & Fernando, E. (2024). The power of online reviews: Exploring information asymmetry and its impact on green product purchasing behavior. *International Journal of Consumer Studies*, 48(3), e13050. <https://doi.org/10.1111/ijcs.13050>
9. He, D., Ren, S., & Zeng, H. (2022). Environmental labeling certification and firm environmental and financial performance: A resource management perspective. *Business Strategy and the Environment*, 31(3), 751-767. <https://doi.org/10.1002/bse.2915>
10. Ivanović-Đukić, M., Janković Milić, V., Rađenović, T., & Radosavljević, M. (2025). What Drives the Turnover of SMEs in Europe Offering Green Products/Services?. *SAGE Open*, 15(2), 21582440251334273. <https://doi.org/10.1177/21582440251334273>
11. Kabaja, B. (2023). The EU Ecolabel as a mark of environmental excellence—a literature review. *Modern Management Review*, 28(1), 71-81. <https://doi.org/10.7862/rz.2023.mmr.04>
12. Kijek, T. (2015). Modelling of eco-innovation diffusion: The EU eco-label. *Comparative Economic Research. Central and Eastern Europe*, 18(1), 65-79. <https://doi.org/10.1515/ce-2015-0004>
13. Kouider Aissa, A., & Tampieri, A. (2025). Green Consumers and the Transition to Sustainable Production. *Environmental and Resource Economics*, 1-35. <https://doi.org/10.1007/s10640-025-01028-3>
14. Kovač, I., Dunković, D., & Kovač, B. (2025). Greenwashing and consumer skepticism toward eco-labels in Croatia: challenges and policy directions. *British food journal*. <https://doi.org/10.1108/BFJ-02-2025-0122>
15. Landekić, M., Gajšek, A., Seletković, G., & Šporčić, M. (2021). The role of ecological certification in the context of sustainable forest management in the Republic of Croatia. *Šumarski list*, 145(7-8), 379-389. <https://doi.org/10.31298/sl.145.7-8.8>
16. Long, J. S., & Freese, J. (2006). *Regression models for categorical dependent variables using Stata*. 2nd Ed. Texas: Stata press.
17. Marti, L. (2025). Heterogeneity in Green Markets: Barriers and Drivers Shaping Eco-Innovation Outcomes. *Sustainable Development*. <https://doi.org/10.1002/sd.70507>
18. Mas-Collel, A., Whinston, M. D., & Green, J. R. (1995). *Microeconomic Theory*, Oxford: Oxford University Press
19. Milgrom, P., & Roberts, J. (1987). Informational asymmetries, strategic behavior, and industrial organization. *The American Economic Review*, 77(2), 184-193.
20. Pavlinović Mršić, S. (2024). Does the EU Ecolabel Reduce the Information Asymmetry in Croatia? In *Conference Proceedings / Eighth International Scientific Conference ITEMMA 2024 Recent Advances in Information Technology, Tourism, Economics, Management and Agriculture*, Zayed University, Dubai, UAE October 24, 2024 ; [editors Andreea Grecu, Snežana Štetić, Viktória Kundi]. – Belgrade: Association of Economists and Managers of the Balkans - UdEkoM Balkan, 2025, pp. 295-302. <https://doi.org/10.31410/ITEMMA.2024.295>
21. Pellegrini, A., Scarpa, R., & Lombardi, G. V. (2025). Consumers' heterogeneity estimates for sustainable food attributes: Evidence from three European countries. *European Review of Agricultural Economics*, 52(4), 912-945. <https://doi.org/10.1093/erae/jbaf027>

22. Prieto-Sandoval, V., Mejía-Villa, A., Ormazabal, M., & Jaca, C. (2020). Challenges for ecolabeling growth: lessons from the EU Ecolabel in Spain. *The International Journal of Life Cycle Assessment*, 25(5), 856-867. <https://doi.org/10.1007/s11367-019-01611-z>
23. Recio-Román, A., Recio-Menéndez, M., & Román-González, M. V. (2024). Examining the Attitude–Behavior Gap in EU Ecolabel Adoption: A Mediation Path Analysis. *Sustainability*, 16(16), 7214. <https://doi.org/10.3390/su16167214>
24. Seifert, S., Hüttel, S., & Werwatz, A. (2025). Organic cultivation and farmland prices: Does certification matter?. *European Review of Agricultural Economics*, 52(4), 848-911. <https://doi.org/10.1093/erae/jbaf026>
25. Sengupta, A. (2024). Communicating clean technology: Green premium, competition, and eco-labels. *Journal of Economics & Management Strategy*. <https://doi.org/10.1111/jems.12587>
26. Šipić, T. (2017). Eco-labelling of marine recreation services: the case of Blue Flag price premium in Croatia. *Journal of Ecotourism*, 16(1), 1-23. <https://doi.org/10.1080/14724049.2016.1194848>
27. Taillie, L. S., Wolfson, J. A., Prestemon, C. E., Bercholz, M., Ewoldt, L., Ruggles, P. R., & Hall, M. G. (2024). The impact of an eco-score label on US consumers' perceptions of environmental sustainability and intentions to purchase food: A randomized experiment. *PloS one*, 19(6), e0306123. <https://doi.org/10.1371/journal.pone.0306123>
28. Torres-Peña, F. J., Parras-Rosa, M., Marano-Marcolini, C., & Torres-Ruiz, F. J. (2025). Ecolabels as Heuristic Cues: Exploring the Role of Ecolabels in Food Attribute Inferences. *Business Strategy and the Environment*. <https://doi.org/10.1002/bse.70175>
29. Vasilescu, M. D., Dimian, G. C., & Gradinaru, G. I. (2023). Green entrepreneurship in challenging times: a quantitative approach for European countries. *Economic research-Ekonomska istraživanja*, 36(1), 1828-1847. <https://doi.org/10.1080/1331677X.2022.2093767>

EVALUATION OF SUBSIDIES FOR HARD-TO-EMPLOY WORKERS IN SLOVENIA WITH PROPENSITY SCORE MATCHING

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ABSTRACT

In this paper, we evaluate one of the most important active labor market policy programs in Slovenia during the great recession, namely the subsidies for hard-to-employ workers. The quasi-experimental method of propensity score matching is applied. Performance of active labor market policy programs is measured with the average treatment effect on the treated. At the end of 2009, shortly after the subsidies had formally concluded, a moderate positive effect of this AMLP program was observed. When our study ended (at the end of the year 2010), the effect was almost zero and not statistically significant.

Keywords: *subsidies, active labor market policy, propensity score matching.*

1. INTRODUCTION AND LITERATURE REVIEW

The aim of this study is to evaluate an important active labor market policy (ALMP) program in Slovenia, namely Subsidies for hard-to-employ unemployed individuals. The main question that should be answered by analyzing the efficiency of active labor market policy is whether ALMP measures reduce unemployment. Unemployment is the result of imbalances in the labor market, namely the differences between the supply of labor, which is determined by demographic and social trends, and demand for labor that stems from economic activity. The unemployment rate is, at least in the short term, determined by fluctuations in economic activity, since the labor supply is rather stable. ALMP measures that would effectively reduce unemployment should affect labor supply and/or demand. Wage subsidies, which can be placed within the theoretical framework of Keynesian economic policy, take two forms: wage subsidies to workers or subsidies to firms. The subsidy is granted to workers after they have successfully obtained a job; its aim is to increase the supply of labor on the labor market. Wage subsidies to firms, on the other hand, aim to increase labor demand; the policy is appropriate if there are many unemployed people on the labor market and if the aim is to overcome a short-term crisis. The concept of wage subsidies to firms is simple; wage subsidies reduce labor costs without affecting the wages paid to workers, allowing firms to maintain employment and output. The direct employment effect at the firm level is determined by the wage elasticity of labor demand (or the elasticity of substitution in the case of multiple factor inputs) and the proportion by which wages are subsidized, and the benefits can spill over to the rest of the economy. Higher employment rates increase total household income, while subsidies lower average unit costs of production and hence consumer prices (assuming competitive markets). Wage subsidies can therefore stimulate demand, leading to a second-round increase in labor demand as firms increase output. Jaenichen and Stephan (2011) explain that long-term unemployment is a huge problem in Germany. The authors evaluate subsidies for hard-to-place workers and conclude that subsidies have a positive impact on employment prospects. Sianesi (2008) studies six main Swedish ALMP programs, including subsidies. All six programs decrease probability of employment in the short term (locking-in effect). Only subsidies yield a positive result in the long term.

Kluge (2006) carried out an extensive project for the European Commission, estimating the effectiveness of many European ALMP programs in a meta-analytical framework. In author's opinion, it is the program type that matters most for the success of the ALMP program. Wage subsidies, services and sanctions are effective in increasing the probability of employment. Caliendo and Künn (2010) examine long-term effects of start-up subsidies in Germany. Five years after start-up, more than 80% of participants are employed and more satisfied than in the previous job. Caliendo and Tübbicke (2020) apply propensity score matching to estimate long-term effects (up to 40 months) of start-up subsidies after the program was reformed. As the main finding, the authors point out the large and persistent positive effect of subsidies. In a recent study by Yeyati et al. (2025), the authors summarize the findings of 102 randomized controlled trials for evaluation of ALMP programs.

Their meta-analysis yields several important results. Approximately one third of the estimates are positive and statistically significant at the conventional level. High GDP growth and low unemployment are more likely to correspond to positive ALMP evaluation results. Significant positive impact is found for programs that build human capital, including wage subsidies. The rest of this paper is structured as follows. Chapter 2 describes the data and variables used in the study. Chapter 3 explains the methodological approach of propensity score matching. In chapter 4, the results of evaluating the subsidies programs are explained in detail. The implications of the empirical analysis are examined in chapter 5, Conclusion. The data and methodological approach sections are summarized from Kavkler (2019) and from Kavkler and Volčjak (2020).

2. DATA AND VARIABLES

The data for the empirical investigation was obtained from the Employment Service of Slovenia (ESS). The first database (called UNMPdata as abbreviation for unemployment spells database) consists of all unemployment spells that ended between 1st January 2007 and 31st December 2010, as well as all of the ongoing spells on 31st December 2010. For each of the unemployment spells, the start and end date and the variables gender, age, level of education, occupation and statistical region were made available for research purposes. Because ESS is not allowed to disclose personal data about the unemployed, only a personal ID number was added to enable identification of repeated spells. 411,338 unemployment spells with positive durations are included in this database. The second database stores data about ALMP program participants in Slovenia in the period from 2007 to 2010. This database is called ALMPdata. In addition to the variables from the UNMPdata database, ALMPdata also contains information about the type of ALMP program attended by the individual, source of financing and success of the individual at completing the program. From the initial 189,924 spells, the ALMP program ended in 166,166 cases. Since the ALMP program classification changed in 2007, the study only considers the 158,546 cases according to this classification. ALMP programs were successfully completed in 122,492 cases.

When estimating the models, the study used the following variables: employment status, age, gender, level of education, region, occupation and whether this is the first job. It is important to mention other variables that are often statistically significant in similar studies of other authors, for example health status, income, marital status and number of children. Unfortunately, we were not able to obtain the data on these variables for Slovenia. Within the Subsidies for hard-to-employ groups of unemployed individuals ALMP program, 10 sub-programs or sub-measures were implemented between 2007 and 2010, as described in Table 1. The number of participants in each sub-program per year is shown in Table 2.

Since at the end of 2010, when our observed period ends, the last two sub-measures were still being implemented, and the number of participants in some sub-programs is small, we analyzed the following sub-programs: Promotion of new employment for long-term unemployed individuals - recipients of the Financial Social Assistance in 2007 (321 participants), Promotion of employment for older unemployed individuals in 2008 (527 participants), and Employ.me in 2009 (3075 participants).

ID of Sub-program	Sub-program description
126	Promotion of new employment for long-term unemployed individuals - recipients of Financial Social Assistance in 2007
127	Promotion of new employment for older individuals in 2007
152	Promotion of employment for older unemployed individuals in 2008
153	Promotion of employment for young unemployed individuals
156	Promotion of employment for long-term unemployed individuals - recipients of Financial Social Assistance for 2008
157	Assistance in employment for long-term unemployed women 2
160	Employ.me
166	Promotion of employment for long-term unemployed individuals - recipients of Financial Social Assistance for 2009
187	Promotion of employment for long-term unemployed individuals - recipients of Financial Social Assistance for 2010
189	Employ.me 2

Table 1: Identifiers (IDs) and descriptions of sub-programs for the Subsidies for hard-to-employ groups of unemployed individuals ALMAP program in the period 2007-2010 (Source: Employment Service of Slovenia (2010))

Sub-program ID / Year	2007	2008	2009	2010
126	321	45	2	0
127	177	0	0	0
152	0	527	7	0
153	0	213	20	0
156	0	144	3	0
157	0	164	0	0
160	0	0	3075	885
166	0	0	19	0
187	0	0	0	148
189	0	0	0	2976

Table 2: Number of participants in each sub-program by year (Source: own calculations)

3. METHODOLOGICAL APPROACH

A statistical method of propensity score matching is used to measure effectiveness of a treatment in a population. A subset of non-treated individuals is called the control group, whereas the set of treated individuals is called the experimental group (or treatment group).

For applications of matching to the labor market, population is made up of all the unemployed in a given period of time, while the treatment group consists of all individuals participating in a specific ALMP program. Performance of ALMP programs is typically measured with the average treatment effect on the treated (ATT). ATT, simply put, represents the difference between the expected probability of employment for the experimental group and the probability in the case that given individuals from experimental group would not have participated in ALMP.

The second probability can only be approximately estimated. The first step involves logit or probit models with relevant explanatory variables to calculate the propensity for participation in the observed ALMP measure. In the second step, for each individual in the experimental group, one finds one or more persons in the control group with the same or at least a similar enough propensity for participation. With this subgroup of the control group, the study estimated the probability needed for ATT. A detailed description of the propensity score matching approach can be found in Sekhon (2011).

4. RESULTS

Results of the evaluation of the sub-program Promotion of new employment for long-term unemployed individuals - recipients of the Financial Social Assistance in 2007 are presented below. Detailed description of the sub-program, as given in Catalogue of Programs of Active Employment Policy in Slovenia (2010), can be found in Table 3.

GOAL AND OBJECTIVE:
The goal is to employ long-term unemployed individuals - recipients of Financial Social Assistance, in accordance with Article 36a of the Social Welfare Act. The purpose of inclusion is to provide assistance for the employment of individuals from the target group for an indefinite period or for a minimum of one year.
IMPLEMENTATION PROCEDURE:
It is implemented through subsidizing employment with selected employers through a public tender. Individuals from the target group must have a developed employment plan with guidance.
TARGET GROUP:
Long-term unemployed individuals - recipients of financial social assistance who have received financial social assistance for at least 12 months in the last 16 months.
DURATION OF PARTICIPATION:
Employment must be realized for a period:
<ul style="list-style-type: none"> • of at least one year (in the case of fixed-term employment) or <ul style="list-style-type: none"> • for an indefinite period, which is monitored for two years.

*Table 3: description of the sub-program (based on the Catalogue of Programs of Active Employment Policy, Employment Service of Slovenia)
(Source: Employment Service of Slovenia (2010))*

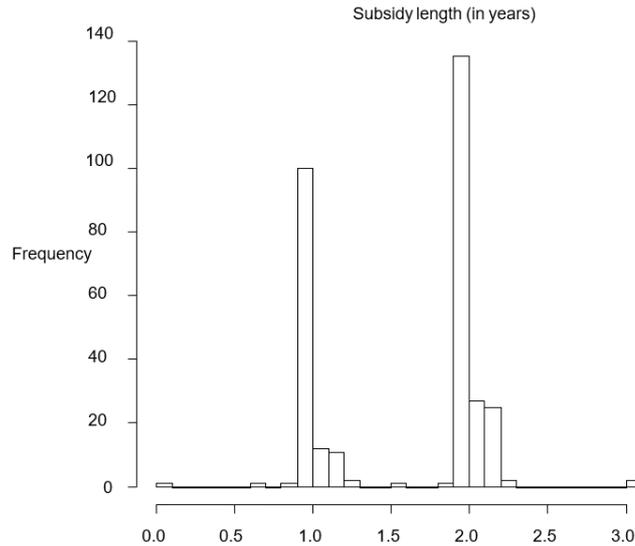


Figure 1: histogram for the duration of subsidies (in years)
 (Source: own calculations)

Out of 188 individuals from the experimental group, 90 (47.9%) returned to the unemployment spells database (UNMPdata) before the end of the study, i.e., before the end of 2010. The above figure, which shows a histogram of the duration of employment for 90 individuals for whom this employment has already ended, also indicates a deviation from the actual duration of employment compared to the formal or minimum duration, which was expected to be approximately 2 years. 23.4% of individuals from the experimental group re-enrolled in the unemployment spells database less than 1 month after the formal conclusion of the subsidy, while 35.1% re-enrolled within less than six months after its conclusion.

Subsidies for the 188 individuals from the experimental group started in 2007 and ended in 2009. At the end of 2008, when the subsidies were formally ongoing, the Average Treatment Effect on the Treated (ATT) was expectedly positive and amounted to 0.2955 (Table 4). At the end of 2008, 95.74% of individuals from the experimental group were not recorded in the unemployment spells database (UNMPdata), while among those who were matched in the matching process, this percentage was 29.55 percentage points lower, at 66.19%.

At the end of 2009, when the subsidies had formally concluded, a moderate positive effect was observed, as the ATT amounted to 0.0902 and was statistically significantly different from 0. In the experimental group, 78.72% of individuals were not recorded in the unemployment spells database at the observed moment, while among those from the control group who were matched in the matching process, this percentage was 9.02 percentage points lower.

Unfortunately, at the end of 2010, a zero effect is observed (ATT is 0.0057 and not statistically significant). At that time, approximately 70% of individuals from both the experimental group and the matched group were not recorded in the unemployment spells database, indicating that they were not considered registered as unemployed.

	At the end of 2008	At the end of 2009	At the end of 2010
ATT	0.2955	0.0902	0.0057
AI SE	0.0252	0.0322	0.0373
t-stat	11.706	2.8023	0.1536
p-value	0.0000	0.0051	0.8779

*Table 4: ATT calculations
(Source: own calculations)*

Note: AI SE represents the standard error using the method developed by Abadie and Imbens (2006)

5. CONCLUSION

Subsidies can be viewed as an attempt to reduce structural unemployment, increase employability, and flexibility on the supply side of the labor market. Within the Subsidies for hard-to-employ groups of unemployed individuals ALMP program in Slovenia, 10 sub-programs were implemented between 2007 and 2010. We analyzed the Promotion of new employment for long-term unemployed individuals - recipients of the Financial Social Assistance in 2007 ALMP sub-program with the propensity score matching approach. At the end of 2009, shortly after the subsidies had formally concluded, a moderate positive effect of this AMLP program was observed. When our study ended (at the end of the year 2010), the effect was almost zero and not statistically significant. Subsidies in the private sector targeting all unemployed individuals show, on average, a positive effect based on the meta-analysis results for EU countries (Card, Kluve, & Weber, 2010). Our calculations yield partially positive results, considering that the target group consists of hard-to-employ individuals, the most problematic subgroup of the unemployed population.

6. REFERENCES

1. Abadie, A., Imbens, G. (2006). Large Sample Properties of Matching Estimators for Average Treatment Effects. *Econometrica* Vol. 47: 235-267.
2. Card, D. Kluve, J., Weber, A. (2010). Active Labour Market Policy Evaluations. Analysis. *An Economic Journal*, Royal Economic Society, Vol. 120 (548): F452-F477.
3. Caliendo, M., & Künn, S. (2010). *Start-up subsidies for the unemployed: Long-term evidence and effect heterogeneity* (DIW Berlin Discussion Paper No. 985). DIW Berlin, German Institute for Economic Research.
4. Caliendo, M., & Tübbicke, S. (2020). New evidence on long-term effects of start-up subsidies: Matching estimates and their robustness. *Empirical Economics*, 59(4), 1605–1631.
5. Employment Service of Slovenia (ESS) (2010). Catalogue of Active Labour Market Policy Measures.
6. Jaenichen, U., & Stephan, G. (2011). The effectiveness of targeted wage subsidies for hard-to-place workers. *Applied Economics*, 43(10), 1209–1225.
7. Kavkler, A. (2019). Evaluation of work trial programs, verification and validation of national vocational qualification in Slovenia during the great recession with propensity score matching approach. In: Schaefer, T. M. (ed.). *Innovations in the modern world: monograph SEPIKE*. Poitiers (etc.): Association 1901 "SEPIKE", p. 70-79.
8. Kavkler, A., Volčjak, R. (2020). Effectiveness of active employment policy programs in European countries before the great recession. *IOSR journal of economics and finance: IOSR-JEF*. Vol. 2020 (1): 13-18.

9. Kluve, J. (2006). *The effectiveness of European active labor market policy* (RWI Discussion Paper No. 37). RWI – Leibniz Institute for Economic Research.
10. Sekhon, J.S. (2011). Multivariate and Propensity Score Matching Software with Automated Balance Optimization: The Matching package for R. *Journal of Statistical Software* Vol. 42 (7).
11. Sianesi, B. (2008). Differential effects of active labour market programs for the unemployed. *Labour Economics*, 15(3), 370–399.
12. Yeyati, E. L., Montané, M., Sartorio, L., & Gauna, A. (2025). What works for active labor market policies? A meta-analysis of RCT findings. *Economía*, 24(1), 81–104.

PR VS. PROPAGANDA: COMMUNICATION STRATEGIES OF THE GOVERNMENTS OF UKRAINE AND RUSSIA DURING THE WAR IN THE CONTEXT OF INFORMATION LITERACY

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ABSTRACT

The war in Ukraine is taking place not only on the frontlines, but also in the information space. Communication between the states, media and members of general public plays a crucial role in the information war. The communication strategies, propaganda and public relations have become part of modern conflict management and have a significant impact on shaping the public opinion at home and abroad. The level of media and information literacy of the audience, which determines the ability to distinguish between facts, interpretation and manipulation, is a key aspect of these processes. However, the line between public relations and propaganda is often very fine. This study focuses on the comparison of communication strategies of the governments of Ukraine and Russia during the war. The aim of our research was to identify the nature of the different approaches in the areas of international diplomacy, communication of heads of state, transparency and freedom of speech, and mobilization of the population. The results showed that Ukraine makes extensive use of modern PR strategies based on digital diplomacy, social networks and authentic communication, although especially the mobilization of population is also accompanied by elements of propaganda. Its balanced approach makes its communication effective both at home and abroad. Russia, on the other hand, relies mainly on classical propaganda characterized by disinformation, symbols, slogans and censorship; ethical PR activities are represented minimally.

Keywords: *Information Literacy. Propaganda. Public relations. Russia. Ukraine. War Communication.*

1. INTRODUCTION

Communication strategies play a key role in shaping the public opinion in modern society. They are an inseparable part of functioning governments, corporations, media and various social institutions. Public relations (PR) and propaganda are two of the most prominent forms of these strategies. Although these two terms are used in different contexts, their mutual differences can sometimes appear to overlap especially in situations where it is necessary to quickly and effectively win public support, as is the case in military conflicts. Hejlová (2015, p. 20) notes that “*The terms propaganda and PR are often confused – PR is sometimes even mistakenly considered an abbreviation for propaganda. The general meaning of propaganda is dissemination; it refers to a one-way flow of information in communication with a strong attempt to influence and persuade an individual or society. On the other hand, the term public relations, borrowed from English and already naturalized in Czech, emphasizes the element of relationships.* Based on the above, our intention is to point out the differences between these two concepts. We will focus on public relations and propaganda during the war in Ukraine, but we also want to emphasize the need to increase information literacy.

According to the Progress Report on Information Literacy, “*Information-literate people are prepared for effective decision-making, freedom of choice, and full participation in a democratic society*” (ACRL, 1998 in Džuganová, 2011, p. 79). And this is exactly where a strong parallel can be noticed between war, its communication and the decisions of individuals.

2. OBJECTIVES AND RESEARCH QUESTIONS IN AUTHORIAL RESEARCH

February 2022 marked the beginning of the military conflict in Ukraine, which continues to this day. As with any other war, government communication with the general public plays a pivotal role. A properly executed communication strategy can prevent the spread of panic and help maintain stability in the country. Wartime communication not only influences the domestic public but also plays an important role in gaining the support from other states. However, whether this communication is based on ethical principles of PR or contains elements of propaganda aimed at manipulating public opinion, is another question. Therefore, the aim of our study is to **identify the nature of the public relations (PR) of the governments of Ukraine and Russia during the ongoing war**. Based on the above research objectives, we have defined several research questions:

RQ1: What PR strategies and tools are used by the Ukrainian government when communicating with the public during the war?

RQ2: What PR strategies and tools are used by the Russian government when communicating with the public during the war?

RQ3: What role does transparent communication play in times of war compared to manipulative approaches (propaganda)?

2.1 Characteristics of the Method and Research Material

We used the **case study approach** to meet the objective of our study. Yin (2009) defines the case study as a research strategy that examines phenomena in depth and in their real-world contexts. Case studies are used in complex cases in which many factors need to be examined. To better understand the case, we use pieces of information from multiple sources and try to connect them in a way that they support each other. This approach is suitable for analyzing government communication during the war because it allows us to use various data and examine multiple aspects, such as political, social and media-related. We have focused on government communication during the war, which we illustrate with two specific cases: Ukraine and Russia. Particularly, **we used the case study of a comparative type** according to Kaarbo and Besley (1999), which helps us identify the differences in communication strategies, which is key for comparing the Ukrainian and Russian government communication. As part of our case study, we analyzed and subsequently compared the communication strategies of the Ukrainian and Russian governments since the beginning of the war according to four categories:

- **International diplomacy**
- **Communication of heads of state**
- **Transparency and freedom of speech**
- **Mobilization of citizens**

The selection of categories was carried out inductively based on research questions and an analysis of available materials. Each of the categories reflects an important aspect of government communication with the public during the war, and when combined, they provide a comprehensive view of the case. The analytical procedure included data collection from official government statements, presidential speeches, media outlets and reports from international organizations, qualitative assessment according to predefined categories and comparison of strategies based on the communication purposes, and methods and effectiveness of communication.

The research material consisted of publicly available sources and government communication outputs, especially official speeches and statements by heads of state, posts on official social media accounts, articles in news outlets, legislation and regulations of Ukraine and Russia, and existing research on the topic. The sources had to be relevant and directly related to government communication strategies (e.g. statements on the war, citizen mobilization). We preferred official sources (government accounts, legislation) over unverified reports and included different types of data to cover the communication in its entirety.

3. RESULTS OF AUTHORIAL RESEARCH

3.1 International diplomacy - state communication towards foreign audiences

In wartime, international diplomacy is closely linked to public relations and propaganda because the state purposefully influences foreign public opinion through diplomatic strategies. A positive international image can significantly contribute to gaining political and military support from other states (Lee, 2023). In the conflict between Russia and Ukraine, diplomacy plays a key role during all phases of the war, which create various conditions for diplomatic activity (Fischer, 2023). The first phase of the war (February - autumn 2022) was characterized by intensive contacts between the parties, including the negotiations in Istanbul in March 2022 where a peace treaty with Ukraine's neutrality was drafted. This process was interrupted in April 2022 due to Russia's unwillingness to back down from its maximalist goals, the strengthening of Ukraine's military capabilities thanks to international support and a significant decline in Ukraine's willingness to compromise after the revelation of Russian war crimes (Fischer, 2023; Lechner, 2024). In the subsequent phases, direct diplomatic contacts were limited mainly to humanitarian issues, primarily the exchange of prisoners, while both sides focused on mobilizing international support in their favor.

Table 1: Basic differences in the diplomatic approaches of Ukraine and Russia during the war

<i>Factor</i>	<i>Ukraine</i>	<i>Russia</i>
<i>Communication goals</i>	<ul style="list-style-type: none"> - win military and economic support - strengthen international solidarity with Ukraine - strengthen international isolation of Russia 	<ul style="list-style-type: none"> - minimize the impact of sanctions - strengthen the diplomatic and economic relations with states that support Russia's military goals - weaken Western unity
<i>PR strategy</i>	<ul style="list-style-type: none"> - negotiations with Western leaders - digital diplomacy - presentation of the "Peace Formula" - building a positive image through the president 	<ul style="list-style-type: none"> - economic diplomacy (cooperation with China, India and Iran) - strengthening the relations with countries of the Global South - maintaining the relations with some European allies
<i>Efficiency</i>	<ul style="list-style-type: none"> - high level of support from the West - adoption of UN resolutions condemning Russia - large financial and military support 	<ul style="list-style-type: none"> - partial circumvention of sanctions, but continued isolation from the West - limited number of allies who have their own interests

Source: own processing

Comparison of strategies¹

¹ The full analysis and its results are available in the following study: Safonova, A. – Števcát Szabóová, V., *Public relations versus propaganda in times of war* [Diploma thesis]. Nitra: Constantine the Philosopher University in

A comparison of the diplomatic strategies of Ukraine and Russia shows significant differences in approaches and their effectiveness. Ukraine has focused on building a positive international image, active public and digital diplomacy and the personalization of communication through the president. On the contrary, Russia has focused on maintaining its strategic partnerships outside the Western bloc and mitigating the consequences of international isolation. The effectiveness of Ukrainian diplomacy was reflected in extensive political, military and humanitarian support and in the adoption of UN resolutions condemning the Russian aggression. In 2025, 93 member states voted in favor of this resolution, confirming the broader international legitimacy of Ukraine's diplomatic strategy (UN, 2025).

3.2 Communication of heads of state - leadership in a crisis

Crisis and leadership are two closely related phenomena; it is most natural for people to turn to leaders in tense situations and expect them to take the necessary steps. A properly chosen communication strategy is very important in times of war. When leaders manage to reduce tensions and restore normalcy, they gain social recognition. However, when a crisis persists for a longer period of time, leaders often become targets of criticism (Boin - 't Hart, 2003). The effectiveness of communication of the heads of state plays a key role in times of war and helps maintain public trust. In the previous section, we stated that Ukraine actively uses its president to build its public image. In the following section, we focus on the communication strategies used by the presidents of Ukraine and Russia during the war.

3.2.1 Communication of the president of Ukraine

Immediately after the outbreak of war on February 24, 2022, president Volodymyr Zelensky made a short video statement addressed to Ukrainian citizens in which he called for resistance and mobilization of society: *“Join the ranks of the Armed Forces of Ukraine and Territorial Defense Units. Any civilian with combat experience would be useful now. Whether the enemy succeeds in advancing further into the territory of our independent state depends on us...Politicians and community leaders, help the people live normal lives as much as possible. Everyone should take care of their loved ones, their neighbors and acquaintances who need it.”* (Zelensky, 2022a). From the first days of the war, his communication was characterized by an appeal to national pride, collective responsibility and the defense of democratic values, while repeatedly emphasizing that Ukraine did not start the war but was defending its freedom: *“Ukraine did not choose the path of war. However, Ukraine offers a return to the path to peace”* (Zelensky, 2022a).

Zelensky purposefully presented himself as a leader who stands with the people and shares their fate. His speech from the streets of Kyiv on February 25, 2022, in which he refuted the claims about fleeing the country, became symbolic: *“We are all here. Our soldiers are here, our citizens are here. We are all here. We are defending our independence, our state. And it will continue to be this way”* (Zelensky, 2022a). This image was also supported by his informal military attire, which visually reinforced identification with the military and citizens. The criticism of his dress style during the visit to the White House in 2025 was dismissed by Zelensky who stated that he would only put on the “costume” after the war is over (Wendling in BBC, 2025). In his public appearances, Zelensky often works with emotions and specific stories of victims. An example is his appearance at the Venice Film Festival where he described war as “a horror that doesn't last 120 minutes, but 189 days” (Zelensky, 2022b), emphasizing its long-lasting and civilian effects.

Nitra, Faculty of Arts, Department of Mass Media Communication and Advertisement, 2025. Available at: <https://opac.czup.sk/?fn=detailBiblioFormChildABDB&sid=27E63CCD114FFEB6D1D5B0F88AF5> (cit. 14. 12. 2025).

3.2.2 Communication of the president of Russia

Since the beginning of the war, the communication of Russian president Vladimir Putin has been based on blaming the West and legitimizing the military actions through a security narrative. In his speech on February 24, 2022, he presented the war as a reaction to the expansion of NATO: “*However, our proposals have always been met either with cynical lies and deception, or with attempts at pressure and blackmail, while the North Atlantic Alliance continues to expand despite our protests and concerns. The military machinery is moving and – I repeat – approaching very close to our borders.*” (Putin, 2022a). This way, Putin is trying to present Russia as a victim of Western aggression and justify his actions. Putin also claimed that the goal of the “special military operation” was to protect the population and “demilitarize and denazify Ukraine” while denying the intention to occupy Ukrainian territory (Putin, 2022a). However, this narrative was contradicted by reality after the declaration of annexation of four Ukrainian regions in September 2022, which was rejected as illegal by the international community. The UN General Assembly subsequently adopted a resolution condemning the violation of territorial integrity of Ukraine (UN, 2022). The avoidance of the term “war” and the use of the euphemism “special military operation” is a characteristic feature of Putin's communication. The exception was the speech in December 2022 in which he used the word “war” when he stated that Russia's goal was to “*end this war*” (Putin, 2022b). Nevertheless, his narrative has not changed over time and continues to describe Russia’s actions as protecting the “fellow citizens” in the occupied territories (Putin, 2024). The key differences in the communication strategies of both presidents are listed in Table 2.

Table 2: Basic differences in the communication of presidents of Ukraine and Russia during the war

<i>Factor</i>	<i>Ukraine</i>	<i>Russia</i>
<i>Communication goals</i>	<ul style="list-style-type: none"> - mobilize citizens - strengthen national unity - gain international support 	<ul style="list-style-type: none"> - maintain control over the domestic population - justify the war in the eyes of the public - present Russia as a victim of Western aggression
<i>PR strategy</i>	<ul style="list-style-type: none"> - personal and emotional expressions - encouragement of patriotism and national identity - active use of social media 	<ul style="list-style-type: none"> - presentation of NATO and Western countries as aggressors - accusations of the Ukrainian government of genocide - dissemination of misinformation (a sign of propaganda)
<i>Efficiency</i>	<ul style="list-style-type: none"> - success in domestic politics - high efficiency at the international level 	<ul style="list-style-type: none"> - success in domestic politics - lower efficiency at the international level

Source: own processing
Comparison of strategies²

² The full analysis and its results are available in the following study: Safonova, A. – Števcát Szabóová, V., *Public relations versus propaganda in times of war* [Diploma thesis]. Nitra: Constantine the Philosopher University in Nitra, Faculty of Arts, Department of Mass Media Communication and Advertisement, 2025. Available at: <https://opac.crzp.sk/?fn=detailBiblioFormChildABDB&sid=27E63CCD114FFEB6D1D5B0F88AF5> (cit. 14. 12. 2025).

The presidents of Russia and Ukraine chose two very different strategies during the war. While Zelensky appeals to national pride and citizen mobilization in his speeches, Putin has chosen a strategy of blaming the West and spreading disinformation. He labels the war as a “special military operation” and emphasizes that Russia’s goal is to protect the people.

3. 3 Transparency and freedom of speech

Although Vladimir Putin won the election and has significant support among the citizens of Russia according to opinion polls, this may be affected by the low level of transparency and limited freedom of speech in the country. Ivančik (2024, p. 312) holds that “*The right of public access to information, together with freedom of expression, can be perceived as the absolute foundation of basic human rights and freedoms of citizens.*” According to Ivančik (2024), public awareness is based on a broad access to information, but there are limits that require special attention in every country. For example, Russia’s direct military attack on Ukraine in 2022 significantly changed the perspective on national security and defense. The question remains: is it possible to obtain accurate and reliable information from the government during a time of war? If so, to what extent is it appropriate to disclose it and what factors might influence it?

The legal framework of Ukraine’s information policy is based on the Law of Ukraine on Information (1992), which emphasizes citizen access to information, transparency of public authorities and integration into the global information space. However, under martial law, *Act no. 389-viii On the Legal Regime in the State of War* (2015) allows for temporary restrictions on these rights in the interest of national security, including regulation of the media, use of communication channels for military purposes and strengthening the protection of state secrets. Although freedom of expression is guaranteed by Article 34 of the *Constitution of Ukraine*, its exercise may be legally restricted in a war. In the Russian Federation, the legal situation is very different as martial law has only been formally declared in the annexed regions of Ukraine and high alert regimes are in place in the rest of the country. Although Article 29 of the *Constitution of the Russian Federation* guarantees freedom of thought, speech and dissemination of information, the “*Martial Law*” act (in Federal Constitutional Law no. 1-fkz, 2002) allows for extensive media and military censorship, including the control of media, telecommunications systems and private communications. This way, the state has ensured complete control over the public information space. The comparison implies that freedom of speech is restricted during the war in both countries, but censorship in Russia is systemic and centralized, while the restrictions in Ukraine are formally anchored in legislation and framed as temporary security measures. This difference begs the question of the extent to which public relations in times of war can become a tool of transparent communication or an instrument of censorship and propaganda, which was the subject of a subsequent analysis of government media outputs in both countries.

3.3.1 Ukraine’s PR strategies in relation to transparency and freedom of speech

The PR strategy of Ukrainian government during the war puts an emphasis on transparency. The government communicates quickly and efficiently and regularly informs the public through official channels, social networks and press briefings. President Volodymyr Zelensky publishes his video addresses daily on his social networks. The Ministry of Defense regularly publishes official reports, which is a major distinction between Ukraine’s approach and Russia’s complete non-transparency. Independent media continue to operate during the war, but with certain restrictions in place regarding military information. For example, journalists are prohibited from publishing location data on troop movements or shellings (Law of Ukraine no. 2160-ix).

Measures against pro-Russian media were also imposed, e.g. the shutdown of TV channels associated with Viktor Medvedchuk in 2021 (Decree of the President of Ukraine no. 43/2021). However, these steps were justified by protection against propaganda rather than censorship. The Ukrainian government presented these restrictions as a necessity to ensure national security and not as an attack on freedom of speech. The government also emphasized that these are only temporary war-time measures. In March 2022, the Ukrainian government created a unified telemarathon, which is broadcast on major television channels (Ministry of Culture and Information Policy of Ukraine, 2022).

The goal was to shape a unified narrative of resilience and victory to strengthen the morale of the population. However, these measures have limited the space for dissenting opinions in the media. Overall, the restrictions on transparency and freedom of speech in Ukraine result from wartime needs, and unlike Russia, the independence of the media is largely preserved in Ukraine.

3.3.2 Russia's PR strategies in relation to transparency and freedom of speech

A much lower level of transparency can be observed in Russia. The Russian government regulates the dissemination of information related to military activities. Unlike Ukraine, they restrict the publication of official military reports and data on casualties during the war. Press secretary of the Russian President Dmitry Peskov stated that the Ministry of Defense would refrain from publishing the data on the losses of the Russian Armed Forces, citing the law on state secrets and the special regime for the dissemination of information (TASS, 2024a).

Freedom of speech is also severely restricted during the war, as confirmed by some of the laws introduced by the Russian government during the war. For example, on March 4, 2022, Vladimir Putin signed a law that introduced penalties of up to 15 years in prison for spreading “misinformation” about the Russian military (Law of the Russian Federation no. 32-FZ). The Russian government subsequently stated that they wanted to protect themselves from “Western propaganda” and “disinformation”. Thousands were arrested after the adoption of this law for protesting the war and subjected to brutal treatment by the police (Human Rights Watch, 2022). The state-controlled media, such as TASS, are calling these protests “unauthorized events” and claim that the police are restoring public order and taking measures to suppress them (TASS, 2022a).

However, these media outlets do not provide any details about police brutality. The Russian government also tries to suppress the dissenting views by blocking independent media. According to governmental requirements, all Russian media outlets may only use information from official Russian sources when preparing materials about the “military operation” (TASS, 2022b). It is prohibited to publish materials that refer to this operation as an attack, invasion or war. If these rules are violated, the outlet may be fined or even blocked.

For example, Russia blocked access to the most well-known independent media outlets such as Meduza, Dzhed, Novaya Gazeta, etc. (TASS, 2022c) in March 2022. Table 3 summarizes the main differences in strategies of both countries.

Table 3: Basic differences in the level of transparency and freedom of speech in Ukraine and Russia during the war

<i>Factor</i>	<i>Ukraine</i>	<i>Russia</i>
<i>Communication goals</i>	<ul style="list-style-type: none"> - ensure that residents are informed - preserve the independence of the media and freedom of speech within the limits of martial law 	<ul style="list-style-type: none"> - control the information disseminated in the media - maintain public support - suppress dissenting opinions
<i>PR strategy</i>	<ul style="list-style-type: none"> - fast and daily communication with the public - creation of a unified narrative 	<ul style="list-style-type: none"> - blocking of independent media - controlling the media content through state media - introduction of legal restrictions
<i>Efficiency</i>	<ul style="list-style-type: none"> - higher level of citizen trust in state institutions - maintaining media pluralism (with certain restrictions) 	<ul style="list-style-type: none"> - increased control over the public - lower level of trust (especially in the international context)

Source: own processing

Comparison of strategies³

Complete transparency is close to impossible during the war. For example, information about troop movements may pose a security threat because it could be used by the adversary. However, we found that the level of transparency and freedom of expression in Ukraine and Russia greatly differs. While Ukraine is striving for greater transparency through official channels, regular reporting and open communication, Russia has imposed strict censorship and is actively restricting independent media. Although Ukrainian legislation has imposed restrictions during martial law, freedom of expression and media independence have largely remained intact. On the contrary, the Russian government has enacted laws that punish the dissemination of information about the war and allow for control over all media, including private communications of the citizens.

3.4 Mobilization of the population

Mobilization of the population is an important communication goal for governments during the war. Lasswell (1938) states that in times of war, the mobilization of people and resources is not sufficient, and it should be also accompanied by the mobilization of opinions; he also connects this phenomenon with propaganda. Lutz (1933) argues that war-time propaganda seeks to mobilize the public opinion in support of the country and maintain the morale of the armed forces. However, this raises the question of whether the mobilization of the public during the war should solely rely on propaganda. PR was originally understood as a tool for manipulating and directing public opinion by the elites, but this notion has changed in modern times.

³ The full analysis and its results are available in the following study: Safonova, A. – Števčat Szabóová, V., *Public relations versus propaganda in times of war* [Diploma thesis]. Nitra: Constantine the Philosopher University in Nitra, Faculty of Arts, Department of Mass Media Communication and Advertisement, 2025. Available at: <https://opac.crzp.sk/?fn=detailBiblioFormChildABDB&sid=27E63CCD114FFEB6D1D5B0F88AF5> (cit. 14. 12. 2025).

Contemporary academic discourse increasingly distinguishes between propaganda and public relations. Unlike propaganda, modern PR focuses on people’s needs and interests, and its main features are transparency, objectivity and two-way communication. Therefore, given the new definitions, could we argue that the mobilization of public opinion during the war is intrinsically linked to propaganda? Or can modern governments achieve their communication goals through ethical PR activities?

3.4.1 Activities of the Ukrainian government to mobilize its citizens

Since the beginning of war, the Ukrainian government has focused on expanding the ranks of soldiers through mobilization, which includes support for volunteerism, fund-raising and boosting the morale of the population. However, this goal required tighter legislation. New laws on military conscription and mobilization were adopted in April 2024 with the aim to lower the age for military conscription from 27 to 25 years (Law of Ukraine no. 3127-IX, 2023) and abolish the status of “capable with limitations”, leaving only the categories of “capable” and “incapable” (Law of Ukraine no. 3621-IX, 2024). Mobilization also includes the obligation to carry military registration documents, which has sparked a significant controversy in Ukraine. There have been allegations of human rights violations during the conscription, including illegal detentions, coercion and concealment of information about detainees (Romanenko, 2025). At the same time, men under the age of 60 have been prohibited from leaving the country since the beginning of the war, and there is no demobilization mechanism in place, which effectively translates into unlimited military service (Hockenos, 2024). This negatively affects the morale of soldiers and the willingness of citizens to join the army. The government uses extensive communication campaigns to support mobilization, including billboards, telemarathons, social media and mobile apps. These activities bear the hallmarks of propaganda because they employ strong emotions, suppress alternative views and control the narrative through a centralized information telemarathon (Maksymiv, 2022). Selective reporting of casualties is similar: the data on Russian casualties are regularly published but information on Ukrainian losses is kept secret in order to maintain the morale of the population (Maksymiv, 2022).

Figure 1 Example of an advertising campaign to promote the military



Source: BBC, 2023.

Translation: «It's scary to feel guilt for people's deaths. Admitting fear is brave – and we need the brave. Anastasia Blyshchyk joined the Armed Forces of Ukraine after the death of her fiancé.

The ad text makes strong use of emotional appeal and evokes fear and guilt. This approach is typical of propaganda. However, the Ukrainian government also uses ethical public relations tools aimed at transparency and two-way communication. An example is the launch of the Air Alert app in March 2022, which informs the citizens in real time about air strikes (Ministry of Digital Transformation of Ukraine, 2022). The government institutions actively communicate with the public through Telegram and Instagram, engaging in the fight against disinformation and enabling feedback from citizens, which is a typical feature of public relations.

3.4.2 Activities of the Russian government to mobilize its citizens

Propaganda is a key tool of mobilization in Russia. The aim of this propaganda is to shape public opinion and motivate the citizens to participate in the war. An example of such a propaganda strategy is to portray an image of the enemy in order to justify the war in the eyes of the population. The Russian state media, such as TASS (2024b), Ria Novosti (2022), Regnum (2025) and many others, are actively promoting the narrative of “Nazis” in Ukraine. The narrative about a threat from the West has gained lots of traction in the Russian media, for example Rosbalt (2024), Ria Novosti (2023), etc. Russia thus presents mobilization as a defense of national interests. Russian propaganda emphasizes the heroism of Russian soldiers through various campaigns, which often use symbols and slogans. For example, the letter Z, which first appeared on Russian military equipment shortly before the start of the war, was probably used as a tactical designation. However, it soon became the main symbol of Russian propaganda. The Russian Ministry of Defense has not provided an official explanation of its meaning but has begun using the Z in various slogans such as “Za mir” (For peace) and “Zakanchivajem vajny” (We are stopping the wars). The symbolism of letter Z has also spread widely on social media. It was also used in propaganda campaigns (Meduza, 2022). Limited access to independent media significantly boosts the effects of propaganda as it creates an information vacuum and suppresses the criticism of mobilization. Propaganda thus becomes the main source of information for the majority of the population (Amnesty International, 2023). Propaganda is also present in educational institutions. For example, in 2023, a new History textbook was introduced in Russian schools that presents the military conflict as inevitable and reflects the official views of the Russian government. This textbook has become a mandatory part of the curriculum. Schools also organize classes to teach children about the meaning of the “special military operation”. Teachers who disagree and speak out against the war are fired or fined (Stewart, 2023). It is much more difficult to talk about PR in the case of Russia. We could mention, for example, the financial incentives of the Russian government to volunteers for signing the military contract. Interestingly, such a strategy is more often used in poor regions where financial motivation can be a decisive factor for volunteers. We conclude that ethical PR strategies in mobilization are practically non-existent in Russia as the mobilization process is largely based on propaganda.

Table 4: Basic differences in the strategies to mobilize the citizens in Ukraine and Russia during the war

<i>Factor</i>	<i>Ukraine</i>	<i>Russia</i>
<i>Communication goals</i>	- mobilize the public - boost the morale - compensate for Russia’s superiority on the battlefield	- mobilize the public - justify the war in the eyes of the public
<i>PR strategy</i>	- partial use of propaganda to expand the army - endeavor for transparency in communication (albeit with certain limitations)	- active use of propaganda - suppression of public criticism
<i>Efficiency</i>	- polls show growing dissatisfaction with the government	- polls show growing trust in government institutions (however, this may be a consequence of censorship and restrictions on freedom of speech)

Source: own processing
Comparison of strategies⁴

⁴ The full analysis and its results are available in the following study: Safonova, A. – Števčat Szabóová, V., *Public relations versus propaganda in times of war* [Diploma thesis]. Nitra: Constantine the Philosopher University in Nitra, Faculty of Arts, Department of Mass Media Communication and Advertisement, 2025. Available at: <https://opac.crzp.sk/?fn=detailBiblioFormChildABDB&sid=27E63CCD114FFEB6D1D5B0F88AF5> (cit. 14. 12. 2025).

Table 4 summarizes the main differences in strategies of both countries. The mobilization of public opinion during the war probably requires the use of propaganda to maintain the morale and unity of the population. Many ethical principles of PR, such as accuracy of information and two-way communication, can be greatly compromised during a military conflict. However, even the use of propaganda can be limited. In the case of Ukraine, elements of propaganda are becoming an important tool for mobilizing the population mainly due to Russia's superiority in numbers. However, propaganda is used to a lesser degree compared to Russia where it is active and systematic despite the larger population. However, polls show that people are increasingly dissatisfied with the government in Ukraine. Kyiv International Sociological Institute (2025) asked the respondents about their opinion on the current government and listed 12 emotions, of which the respondents had to choose a maximum of three. It turned out that most respondents (32%) felt disappointed. On the contrary, surveys in Russia show that the level of trust in the government is growing. For example, the All-Russian Center for Public Opinion Research (2025) reports that 78.7 percent of surveyed Russians trust Vladimir Putin. These differences in levels of trust in the government can be logically explained by the political situation in both countries. In Ukraine, freedom of opinion is stronger and censorship weaker, and the survey results probably reflect the reality. The decline in trust in the Ukrainian government may be related to public fatigue from the long-running conflict. The long-lasting war, high casualty rates and insecurity contribute to a growing sense of frustration. On the contrary, the propaganda, media control and restrictions on freedom of speech in Russia create the conditions in which the high support for the government can be a consequence of social pressure.

4. CONCLUSION

Our paper provides insights into the communication strategies during the war when the lines between ethical PR and propaganda are often blurred. However, certain limitations need to be taken into account when interpreting the results: the analysis was only based on publicly available sources, the four monitored categories – international diplomacy, communication of the heads of state, transparency and mobilization of population – might have omitted other relevant aspects, and given the ongoing conflict, government strategies might have changed and affected the validity of conclusions over time. Our analysis showed that Ukraine uses a balanced approach combining modern PR principles with limited propaganda. Digital diplomacy and the positive image of President Zelensky have supported global aid and UN resolutions condemning Russia. However, the heroization of soldiers and other elements of propaganda are part of the communication strategy, while the decline in domestic trust is more of a consequence of the long-lasting conflict and high casualty rates. On the contrary, Russia uses manipulative propaganda, censorship and media control, which maintains high domestic support but weakens its global influence. Our paper provides an explanation of the differences between PR and propaganda and their impact on public opinion. The Ukrainian example shows that effective communication combines authenticity and transparency with limited propaganda, while the Russian approach illustrates the limits of a manipulative strategy. These findings may be valuable for governments, NGOs and the media in developing the communication strategy during a conflict and crises, including strengthening the media literacy and using social networks for an open communication with the public. Our results correspond to the study by Alekseeva et al. (2023), which analyzed Russian narratives in information warfare. They also noted the manipulative nature of Russian communication and the effective and authentic narratives of Ukraine. However, unlike our study, they didn't identify elements of propaganda in Ukrainian communication, which may be related to the different time frame of their analysis – they only focused on the earlier phases of the war and paid attention to Russia's communication narratives.

Overall, our findings confirm that authenticity, transparency and an ethical approach to the public are key to a successful communication not only during the war, but also in any crisis where the trust of the domestic and foreign public determines the effectiveness of the strategy.

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LITERATURE:

1. ALEKSEJEVA, N., et al., 2023. Narrative warfare: How the Kremlin and Russian news outlets justified a war of aggression against Ukraine. Online. Washington, DC: Atlantic Council, 60 p. ISBN 978-1-61977-483-4. [Accessed 2025-04-06]. Available from: <https://www.atlanticcouncil.org/wp-content/uploads/2023/02/Narrative-Warfare-Report-020123.pdf>
2. AMNESTY INTERNATIONAL, (2023). *Ukraine/Russia: New history textbook is a blatant attempt to unlawfully indoctrinate school children in Russia and Russian-occupied Ukrainian territories*. Online. [Accessed 2025-04-16]. Available from: <https://www.amnesty.org/en/latest/news/2023/09/ukraine-russia-new-history-textbook-is-a-blatant-attempt-to-unlawfully-indoctrinate-school-children-in-russia-and-russian-occupied-ukrainian-territories/>
3. BBC (2023). Ukraine war: The men who don't want to fight. Online. [Accessed 2025-03-07]. Available from: <https://www.bbc.com/news/world-europe-66542065>
4. BOIN, A., T HART, P., (2003). Public leadership in times of crisis. Online. *Public Administration Review*, vol. 63, no. 5, pp. 544-553. ISSN 1540-6210. [Accessed 2025-03-04]. Available from: <https://doi.org/10.1111/1540-6210.00318>
5. DŽUGANOVÁ, D. (2011). *Informačná gramotnosť ako kľúčová kompetencia vzdelávania na slovenských vysokých školách*. Available from: <https://journals.phil.muni.cz/proinflow/article/view/2011-1-6/15366>
6. Federal Constitutional Law no. 1-fkz, (2002). *On Martial Law*, Article 7. Moscow: Office of the President of the Russian Federation.
7. FISCHER, S., (2023). Diplomacy in the context of the Russian invasion of Ukraine: continuation of war by other means. Online. *SWP Comment*, no. 53/2023. [Accessed 2025-03-17]. Available from: <https://doi.org/10.18449/2023C53>
8. HEJLOVÁ, D., (2015). *Public relations*. Prague: Grada Publishing, 256 p. ISBN 978-80-247-9876-9
9. HOCKENOS, P., (2024). Military Conscription Is Breaking the Spirit of Ukraine's Men in the Fight Against Russia. Online. *Foreign Policy*. [Accessed 2025-03-17]. Available from: <https://foreignpolicy.com/2024/10/28/conscription-ukraine-military-men-russia-war/>
10. HUMAN RIGHTS WATCH, (2022). *Russia: Brutal Arrests and Torture, Ill-Treatment of Anti-War Protesters*. Online. [Accessed 2025-03-17]. Available from: <https://www.hrw.org/news/2022/03/09/russia-brutal-arrests-and-torture-ill-treatment-anti-war-protesters>
11. IVANČÍK, J., (2024). Prístup verejnosti k informáciám o obrane štátu. Slovenská skúsenosť a komparatistika. Online. *Právny obzor*, vol. 107, no. 3, pp. 312-334. ISSN 0032-6984. [Accessed 2025-03-09]. Available from: <https://doi.org/10.31577/pravnyobzor.2024.3.06>
12. KAARBO, J., BEASLEY, R. K., (1999). A practical guide to the comparative case study method in political psychology. Online. *Political Psychology*, vol. 20, no. 2, pp. 369-391. ISSN 0162-895. [Accessed 2025-03-18]. Available from: <https://www.jstor.org/stable/3792081>

13. KYIV INTERNATIONAL SOCIOLOGICAL INSTITUTE, (2025). *Public opinion poll: Trust in politicians and institutions in Ukraine*. Online. [Accessed 2025-04-15]. Available from: <https://kiis.com.ua/?lang=ukr&cat=reports&id=1507&page=1>
14. LASSWELL, H. D., (1938). *Propaganda Technique in the World War*. New York: Peter Smith, 244 p. ISBN: 978-1614275060
15. LEE, S. T., (2023). A battle for foreign perceptions: Ukraine's country image in the 2022 war with Russia. Online. *Place Branding and Public Diplomacy*, vol. 19, pp. 345-358. ISSN 1744-9859. [Accessed 2025-03-17]. Available from: <https://doi.org/10.1057/s41254-022-00284-0>
16. LECHNER, Z., (2024). Turkey's response to the war in Ukraine in the context of systemic changes and regional dynamics. Online. *Polarities*, vol. 5, no. 1, pp. 72-94. [Accessed 2025-03-17]. Available from: <https://doi.org/10.15170/PSK.2024.05.01.06>
17. LUTZ, R. H., (1933). Studies of World War Propaganda, 1914-33. Online. *The Journal of Modern History*, vol. 5, no. 4, pp. 496-516. ISSN: 1537-5358 [Accessed 2025-03-17]. Available from: <http://www.jstor.org/stable/1872083>
18. MAKSYMIV, S. (2022). How Strategic Communications Are Managed In Wartime Ukraine: Pros and Cons. Online. *Ukraine World*. [Accessed 2025-03-15]. Available at: <https://ukraineworld.org/en/articles/opinions/strategic-communications>
19. MEDUZA, (2022). *The letter Z – official (and sinister) symbol of the Russian invasion of Ukraine. We wanted to find out whose idea it was — and this is what we've found*. Online. [Accessed 2025-04-06]. Available from: <https://meduza.io/feature/2022/03/15/bukva-z-ofitsialnyy-i-zloveschiy-simvol-rossiyskogo-vtorzheniya-v-ukrainu-my-popytalis-vyyasnit-kto-eto-pridumal-i-vot-chto-iz-etogo-poluchilos>
20. MINISTRY OF DIGITAL TRANSFORMATION OF UKRAINE, (2022). *With the support of Mincifri, the "Air Readiness" app for operational response to the start and end of air raids is being launched*. Online. [Accessed 2025-03-17]. Available from: <https://thedigital.gov.ua/news/za-pidtrimki-mintsifri-zapuskayut-zastosunok-povitryana-trivoga-dlya-operativnoi-reaktsii-na-pochatok-i-zakinchennya-trivog>
21. MINISTRY OF CULTURE AND INFORMATION POLICY OF UKRAINE, (2022). *On February 16, a Unity Telemarathon "#UArazom" will be broadcast on all television channels in the country*. Online. [Accessed 2025-03-01]. Available from: <https://mcsc.gov.ua/news/16-liutoho-na-vsikh-telekanalakh-krainy-proyde-marafon-yednannia-uarazom/>
22. UN, (2022). *The UN General Assembly calls on Moscow to revoke the decision regarding the status of certain districts of the Donetsk, Zaporizhzhia, Luhansk, and Kherson regions in Ukraine*. Online. [Accessed 2025-03-15]. Available from: <https://news.un.org/ru/story/2022/10/1433377>
23. UN (2025). *At Three-Year Mark of Russian Federation's Invasion, General Assembly Upholds Ukraine's Territorial Integrity, Adopting Two Resolutions*. Online. [Accessed 2025-03-07]. Available from: <https://press.un.org/en/2025/ga12675.doc.htm>
24. PUTIN, V. (2022a). *Presidential address of the President of Russian Federation of February 24, 2022*. Online. Available at: <http://kremlin.ru/events/president/news/67843> [viewed 2025-03-02].
25. PUTIN, V. (2022b). *Presidential address of the President of Russian Federation of Thursday, December 22, 2022*. Online. Available at: http://kremlin.ru/events/president/transcripts/press_conferences/70170 [viewed 2025-03-02].
26. PUTIN, V. (2024). *Presidential address of the President of Russian Federation of Thursday, February 29, 2024*. Online. Available at: <http://kremlin.ru/acts/bank/50431> [viewed 2025-03-02].
27. REGNUM (2025). *Lavrov called the Kiev regime Nazis, raised for war against Russia*. Online. [Accessed 2025-03-07]. Available from: <https://regnum.ru/news/3955304>

28. RIA NOVOSTI, (2022). Chynstejn announced the imminent liberation of the Kursk region. Online. [Accessed 2025-04-06]. Available from: <https://ria.ru/20250403/khinshteyn-2009139423.html>
29. RIA NOVOSTI, (2023). Russia is taking measures to ensure security due to NATO expansion. Online. [Accessed 2025-04-06]. Available from: <https://ria.ru/20230406/nato-1863435550.html>
30. ROMANENKO, A., (2025). *Lubinets: Illegal detentions and beating by army officials have become a viral trend*. Online. [Accessed 2025-03-17]. Available from: <https://www.pravda.com.ua/news/2025/03/26/7504676/>
31. ROSBALT, (2024). *Putin declared that Russia would not allow anyone to threaten it*. Online. [Accessed 2025-04-06]. Available from: <https://www.rosbalt.ru/news/2024-05-09/putin-zayavil-chto-rossiya-nikomu-ne-pozvolit-ey-ugrozhat-5078061>
32. STEWART, C., (2023). Kremlin propaganda is part of the curriculum in Russia, and many have no choice but to teach it. Online. CBC News. [Accessed 2025-04-06]. Available from: <https://www.cbc.ca/news/world/russia-schools-propaganda-1.6957957>
33. TASS, (2022a). *In Russia, 3500 people were detained at illegal events*. Online. [Accessed 2025-03-07]. Available from: <https://tass.ru/obschestvo/10615359>
34. TASS, (2022b). *Roskomnadzor has urged the media to rely on official Russian sources regarding the situation in Ukraine*. Online. [Accessed 2025-03-07]. Available from: <https://tass.ru/obschestvo/13835715>
35. TASS, (2022c). *Roskomnadzor has warned against fake news about the operation in Ukraine in several Russian media outlets*. Online. [Accessed 2025-03-09]. Available from: <https://tass.ru/ekonomika/13873523>
36. TASS, (2024a). *Peskov emphasized that the data on losses in the special military operation are provided only by the Ministry of Defense*. Online. [Accessed 2025-03-15]. Available from: <https://tass.ru/politika/23238257>
37. TASS, (2024b). TASS and “Kribrum” prepared a report on the introduction of Nazism in Ukraine. Online. [Accessed 2025-03-07]. Available from: <https://tass.ru/politika/21153913>
38. Constitution of the Russian Federation. Article 29. Everyone is guaranteed freedom of thought and expression.
39. All-Russian Center for Public Opinion Research (2025). Rankings of trust in politicians, evaluation of the work of the president and government, support for political parties. Online. [Accessed 2025-04-06]. Available from: <https://wciom.ru/analytical-reviews/analiticheskii-obzor/reitingi-doverija-politikam-ocenki-raboty-prezidenta-i-pravitelstva-podderzhka-politicheskikh-partii-07032025>
40. DECLARATION OF THE PRESIDENT OF UKRAINE No. 43/2021, (2021). *On the decision of the National Security and Defense Council of Ukraine “On the application of special economic and other restrictive measures (sanctions)”*. Kyiv: Office of the President of Ukraine.
41. WENDLING, M., (2025). How criticism of Zelensky’s clothing made it to the Oval Office. Online. BBC. [Accessed 2025-03-09]. Available from: <https://www.bbc.com/news/articles/c1d4r9yvqzpo>
42. YIN, R. K., (2009). *Case study research: Design and methods*. CA: SAGE Publications, 240 p. ISBN 978-1-4129-6099-1
43. Law of the Russian Federation no. 32-FZ. On Amendments to the Criminal Code of the Russian Federation and Articles 31 and 151 of the Code of Criminal Procedure of the Russian Federation
44. Law of Ukraine no. 2657-xii, (1992). *On information*. Bulletin of the Verkhovna Rada of Ukraine, no. 48, Art. 650.

45. Law of Ukraine no. 389-viii, (2015). *On the legal regime under martial law*. Bulletin of the Verkhovna Rada of Ukraine, no. 28, Art. 250.
46. Law of Ukraine no. 2160-ix, (2022). *On amendments and additions to the Criminal Code and Code of Criminal Procedure of Ukraine to ensure the fight against unauthorized dissemination of information about the shipment and movement of weapons, armaments and ammunition to Ukraine, movement and deployment of the Armed Forces of Ukraine or other military formations created in accordance with the laws of Ukraine committed in the conditions of war or a state of emergency*. Bulletin of the Verkhovna Rada of Ukraine.
47. Law of Ukraine no. 3127-ix, (2023). *On Amendments to the Law of Ukraine "On Military Duty and Military Service"*. Bulletin of the Verkhovna Rada of Ukraine, no. 18, p. 75.
48. Law of Ukraine no. 3621-ix, (2024). *On amendments to certain laws of Ukraine relating to the rights of military personnel and police officers to social protection*. Bulletin of the Verkhovna Rada of Ukraine, no. 22, p. 196.
49. ZELENSKY, V. (2022a). *Presidential address of the President of Ukraine of February 24, 2022*. Online. [Accessed 2025-03-02]. Available at: <https://www.president.gov.ua/news/zvernennya-prezidenta-ukrayini-73137>
50. ZELENSKY, V. (2022b). *The Ukrainian President addressed the participants and guests of the Venice Film Festival*. Video; online. Available at: YouTube, https://www.youtube.com/watch?v=LY_gcGQ-xhQ [viewed 2025-03-15].

EXPLORING POLISH CONSUMERS' PERCEPTIONS OF AUTONOMOUS VEHICLES: INSIGHTS FROM A PILOT STUDY

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ABSTRACT

The main objective of this article is to identify and analyze the attitudes of Polish consumers toward autonomous vehicles (AVs). In order to achieve the objectives, the method used in the research process was a diagnostic survey using a questionnaire technique. The research was conducted in November 2024 and covered the entire area of Poland. 51 correctly completed questionnaires were returned. Research indicated that respondents have basic knowledge of autonomous vehicles and a neutral attitude. They doubt rapid adoption, though some see potential. They are concerned about safety, although many believe accidents could be reduced. They are curious and willing to use the service. The main benefits include greater mobility for the elderly and disabled, better traffic flow, and fewer accidents. Concerns focus on cyberattacks, data privacy, trust, and high costs. Up-to-date knowledge of consumer attitudes toward autonomous vehicles is particularly important for both the business and government communities.

Keywords: *autonomous vehicles, consumer behavior, , logistic*

1. INTRODUCTION

In recent years, the topic of developing autonomous vehicles (AVs) has been gaining attention. They are increasingly becoming the subject of research and work to improve technology and increase their efficiency. Indeed, they have the potential to become a solution to many of today's transportation challenges. As the literature indicates, fully autonomous cars may appear on the roads within the next decade, and within 50 years a significant proportion of vehicles will be equipped with systems that enable fully autonomous driving (Hörl et al., 2016, pp. 2; Nadeem, 2024, p. 63). An autonomous vehicle is a vehicle capable of moving autonomously from point A to point B without human intervention, thanks to the use of advanced technologies. Depending on the degree of automation, these vehicles are subject to various classifications. One of the most recognized is the National Highway Traffic Safety Administration (NHTSA) classification, which distinguishes five levels of autonomy. At level zero, the vehicle has no driver-assist systems, meaning that full control of driving rests solely with the human driver. At level one, basic automation technologies are introduced, but the driver remains fully responsible for driving. Level two vehicles are already equipped with more advanced systems that can independently perform selected tasks to assist the driver in driving. At level three, the vehicle's systems allow the driver to take control of driving under certain conditions, but the driver must be ready to intervene immediately. At levels four and five, autonomous systems eliminate the need for human intervention - at level four under certain conditions, while at level five the vehicle is fully autonomous, regardless of the situation on the road (Neumann, 2018, p. 788). The main objective of this article was to identify and analyze the attitudes of Polish consumers toward autonomous vehicles. The specific objectives were to find out the degree of consumer knowledge about autonomous vehicles and their general attitudes toward them, as well as to understand their opinions on the safety, benefits and concerns of using autonomous vehicles. The paper is divided into the following sections. The first is dedicated to some benefits and problems associated to autonomous vehicles.

Next part presents the methodology and data collection, while the third presents the empirical results and discussion. The conclusion provides a summary and indicates applications of the work, further research directions and limitations.

2. BENEFITS AND COST OF AUTONOMOUS VEHICLES

The rapid development of autonomous technologies and their implementation in the transportation sector raise many hopes, but also challenges. One of the key advantages of autonomous vehicles is their potential to increase road safety. By eliminating the human factor, they can significantly reduce the number of accidents and thus the number of fatalities (Luo, 2023, p. 65). Moreover, the launch of autonomous vehicles would also have another important impact on personal transportation in cities (Luo, 2023, p. 66). First of all, it could reduce road congestion, including by reducing the number of trips, increasing road capacity, and reducing delays due to collisions and accidents (Neumann, 2018, p. 787; Hörl et al., 2016, p. 9). Secondly it could reduce many costs, such as insurance, fuel, parking, vehicle maintenance and time spent behind the wheel (Luo, 2023, p. 65; Hörl, Ciari, Axhausen, 2016, p. 9). For example, reducing the risk of accidents would result in lower insurance rates. Additionally, these vehicles could autonomously search for free parking spaces after a trip, which would significantly reduce parking costs (Litman, 2024, p. 10; Neumann, 2018, p. 789). What is more, by eliminating the need for drivers, cab services could become cheaper, making them more accessible. The development of autonomous vehicles could also contribute to the popularization of car-sharing systems, while reducing the costs associated with private car ownership and reducing the number of vehicles circulating in cities (Litman, 2024, p. 19; Neumann, 2018, p. 788). Thirdly, it is worth mentioning that currently, driving is a significant mental burden for many drivers. Autonomous vehicles could help reduce the stress of driving, which would have a positive impact on users' health and comfort. Eliminating the need to hold the same driving position for long periods of time would also improve travel ergonomics (Litman, 2024, p. 9). Fourthly, one of the undoubted advantages of the development of autonomous vehicles is also to increase the mobility of people with disabilities, seniors, children, and those who are unable to drive themselves. In addition, the technology can improve access to transportation for lower-income people who cannot afford their own cars (Bagloee, Tavana, Asadi & Oliver, 2016, p. 285; Litman, 2024, p. 9). Anticipated benefits for these populations include greater independence, reduced feelings of isolation and easier access to key services. It is worth noting that the introduction of autonomous vehicles could be more cost-effective than adapting traditional public transportation to the needs of people with disabilities. It is estimated that public transport companies spend between 14% and 18% of their budgets on adapting vehicles for passengers with limited mobility (Neumann, 2018, p. 788). An additional advantage is that autonomous vehicles do not experience fatigue and can move without interruptions, which is particularly beneficial in freight transport, where truck drivers currently have to comply with regulations on mandatory rest (Neumann, 2018, p. 789). Despite the numerous advantages of autonomous vehicles, their implementation comes with a number of challenges. Key concerns include security issues, data privacy and the risk of cyber attacks. Autonomous vehicles generate data on trip mileage, trip duration and destinations, which can raise serious privacy concerns. This information is sensitive data and is particularly vulnerable to misuse, which can put users at risk (Litman, 2024, p. 19). Heavy-duty vehicles carrying valuable cargo can be particularly vulnerable to cyberattacks, which can make them targets for theft (Neumann, 2018, p. 790). Another major risk is the safety of autonomous systems. Over-reliance on technology runs the risk of failure, which can lead to unexpected and potentially dangerous situations on the road (Luo, 2023, p. 66; Litman, 2024, p. 19).

The operation of autonomous vehicles relies heavily on sensors and optical systems, such as radar and lidar, which can have limited effectiveness in severe weather conditions, such as during heavy snowfall, fog or in the presence of floating dust (Neumann, 2018, p. 790). Additional challenges include unexpected situations on the road, such as road works, a police officer directing traffic or the appearance of a priority vehicle. Autonomous vehicles must be able to properly interpret such events and respond accordingly, which requires further development of artificial intelligence and decision-making systems (Neumann, 2018, p. 790).

One of the most complicated issues facing autonomous vehicles is compliance with the law and the question of liability for accidents. Currently, traffic incidents carry a high cost - both in terms of public health and property damage. The lack of clear legal regulations regarding liability for collisions involving autonomous vehicles poses a significant legislative challenge (Noussia, 2020, pp. 253-270). It is also worth noting that much of the public equates autonomous vehicles with green technologies and assumes that they are environmentally friendly. In reality, however, studies indicate that the development of autonomous driving technologies may lead to increased greenhouse gas emissions and increased consumption of natural resources. In addition, improperly managed autonomous systems can threaten smart city infrastructure, further compounding the challenges of implementation (Luo, 2023, p. 66).

Additional issues associated with the deployment of autonomous vehicles include rising infrastructure costs due to the need to meet higher road design and maintenance standards. There are also social equity issues - the implementation of autonomous transportation may reduce the availability of cheaper forms of mobility, such as public transportation, cycling and walking. Another issue is the potential impact on the labor market - transportation automation could lead to job cuts for professional drivers (Litman, 2024, p. 19).

3. RESEARCH METHODOLOGY

The main objective of the study was to determine the attitudes of Polish consumers toward autonomous vehicles. In order to achieve the objectives and verify the hypotheses, the method used in the research process was a diagnostic survey using a questionnaire technique. The survey used the technique of CAWI (Computer Assisted Web Interview) – a computer-assisted interview through [survio.pl](https://www.survio.pl).

The link with the questionnaire was distributed using social media and email addresses, using snowball sampling methods. It consisted of a short introduction, instructions for the respondents, fourteen relevant questions, and a metric to characterize respondents (Table 1). The questions focused on consumers' attitudes towards autonomous vehicles, as well as their impact on the environment, society and their features which could engagement consumer to using them.

In the next section of this work each question is presented in detail, and the results are discussed. The research was conducted in November 2024 and covered the entire area of Poland. 51 correctly completed questionnaires were returned. The choice of the research method, the selection of the sample, as well as the method of analyzing the collected information was determined by the objectives and scopes of direct research.

VARIABLE	CHARACTERISTICS
GENDER	Women – 43.1%, men – 56.9%
AGE	18–24 years – 74.5%, 25–34 years – 7.8%, 35–44 years – 9.8%, 45–54 years – 3.9 %, 55–59 years – 0.0%, 60–64 years – 3.9%, > 65 years – 0.0%
RESIDENCE	City – 78.0%, rural – 22.0%
EDUCATION	Higher – 39.2%, secondary – 60.8%,
HAVE A DRIVER'S LICENSE	Yes – 88.2%, No –3.9%, While obtaining – 7.8%

Table 1: Characteristics of the research sample
(Source: Own elaboration)

4. RESULTS AND DISCUSSION

Respondents are asked to rate their familiarity with autonomous vehicles (figure 1). Researches generally indicate that most respondents are aware of autonomous vehicles, however their knowledge is limited. As the figure 1 illustrates, the majority of respondents have heard of the concept but do not know much about it, followed by a smaller percentage who have basic knowledge. Very few people are well-versed in the subject or actively follow the development of the technology (11,8%). 3,9% of respondents have never heard of driverless cars. This results are in line with other researches, which also show that the majority of consumers had heard about vehicles with autonomous driving capabilities (Panagiotopoulos, Dimitrakopoulos, 2018, p. 777; Wu et al. 2020).

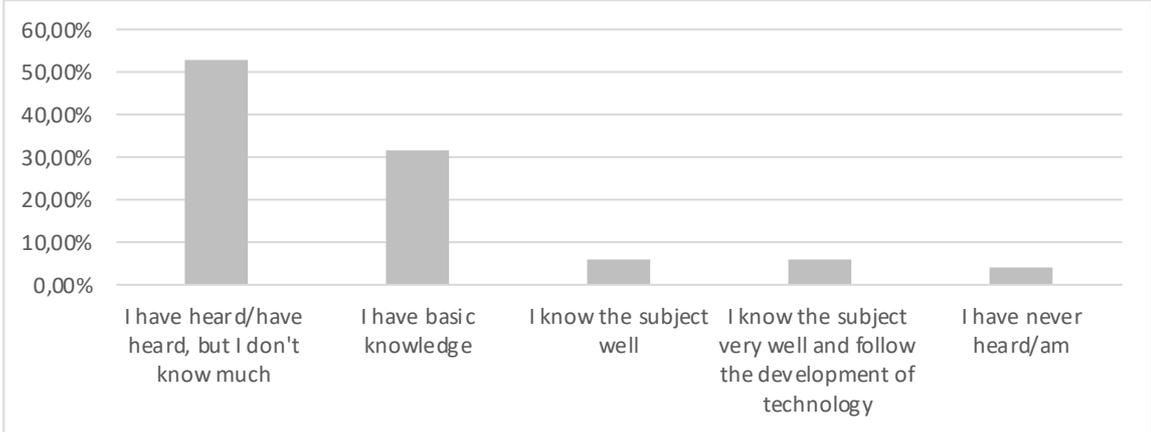


Figure 1: Familiarity with autonomous vehicles – survey Results
(Source: Own elaboration based on the conducted surveys)

In this study, respondents were asked about their general attitude toward autonomous vehicles. The figure 2 presents that the largest part of respondents is neutral about the technology. This is followed by 26%, who are rather negative and 23% who are rather positive. A small percentage are very positive or very negative (4%). These results are in opposite to researches conducted in other countries such as UK, China or India. It is indicated by Hasan at al. (2022) that English hold generally positive attitudes towards AVs and they intend to use them when they become available (Hasan et al., 2022, p. 537).

Similarly, research shows that Chinese consumers also have a positive attitude towards AVs, reflecting a high level of acceptance and enthusiasm for this technology (Wu et al., 2020). Likewise, the study reveals that Indian consumers are positive about AVs and are optimistic about the potential benefits of this technology (Jana, 2019,p. 189). The divergence may stem from cultural, infrastructural, or regulatory differences, highlighting the need for targeted efforts to build public trust and awareness in regions where skepticism prevails.

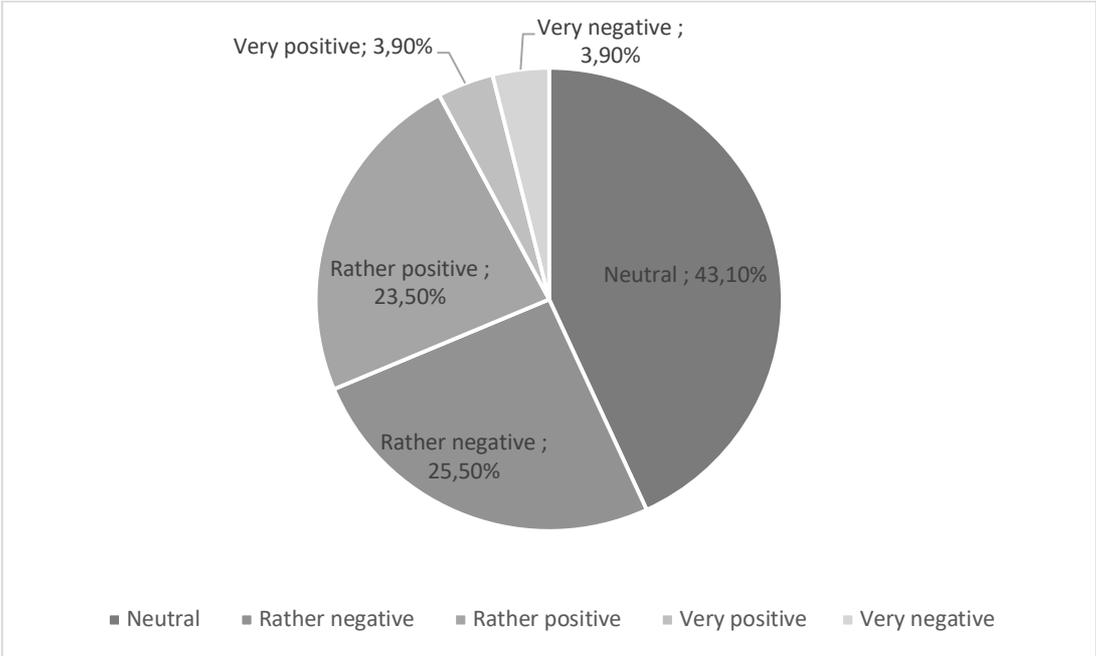
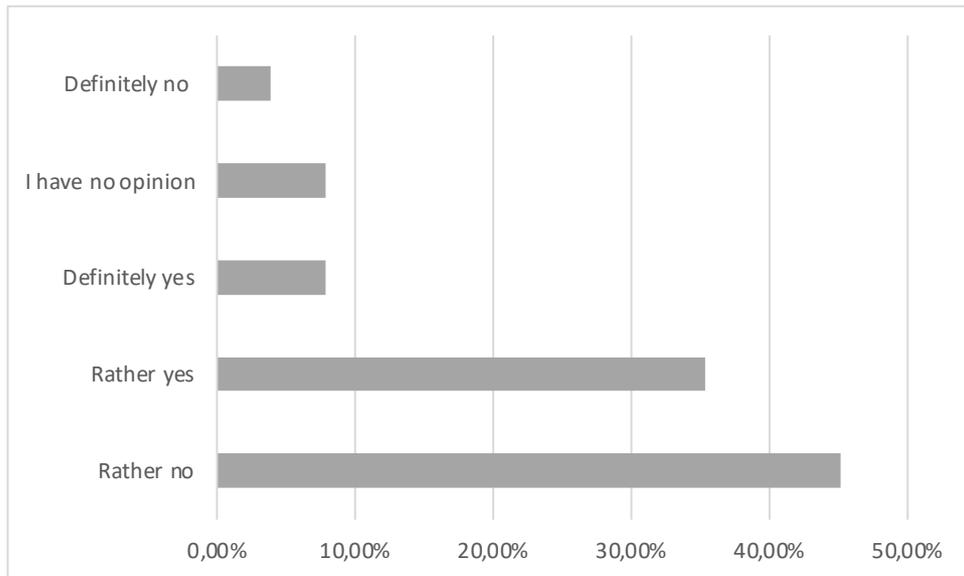


Figure 2: General attitude of respondents toward autonomous vehicles (Source: Own elaboration based on the conducted surveys)

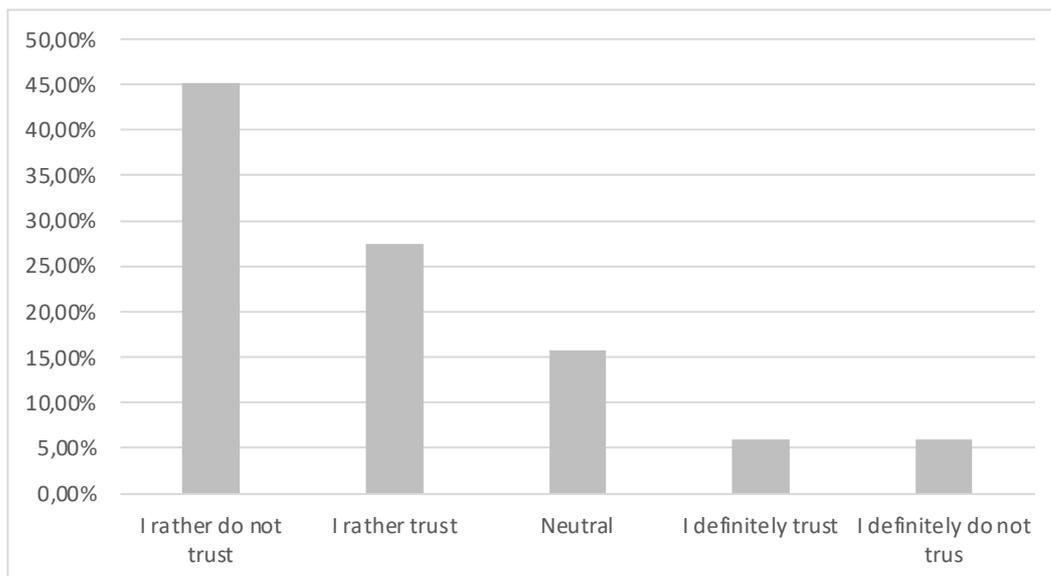
Respondents are also asked if they think autonomous vehicles would be widely used in the next 10 years. The majority of people are somewhat skeptical about the widespread use of autonomous vehicles in the next 10 years. The largest group of respondents think that “rather no”, 35% answered “rather yes”. The figures reflect that while there is cautious optimism, people are not yet fully confident that these vehicles will become a widespread reality in the near future.

Researches are in line with a recent survey of 5,000 participants from 109 countries conducted by Kyriakidis et al. (2015) revealed that one-third of respondents do not believe fully-automated vehicles will achieve a 50% market share by 2050 (Kyriakidis et al., 2015, p.128). The survey results suggest that while technological advances continue, public confidence in large-scale AV adoption remains limited, likely due to concerns about infrastructure, regulation and security.



*Figure 3: Consumer Predictions on Autonomous Vehicle Adoption (2025-2035)
(Source: Own elaboration based on the conducted surveys)*

Safety is one of the most important technical challenges for the successful commercialization of AVs, which is why respondents were asked to share their opinions on whether they trust autonomous vehicles to be safe for passengers. As many as 45% are unlikely to trust autonomous vehicles. Nearly a third rather trust, and almost 16% are neutral on the statement. Only 6% of respondents strongly distrust that driverless vehicles can be safe (figure 4). Also the results of research conducted by Begg (2014) among more than 3,500 people, incorporating a broad cross-section of transport experts, show that 36% of English respondents agreed, and 24% strongly agreed, that automated vehicles would enhance safety for all road users. These results suggest that while confidence in autonomous vehicles may increase, addressing safety issues through technological advances and public awareness will be key to widespread acceptance.



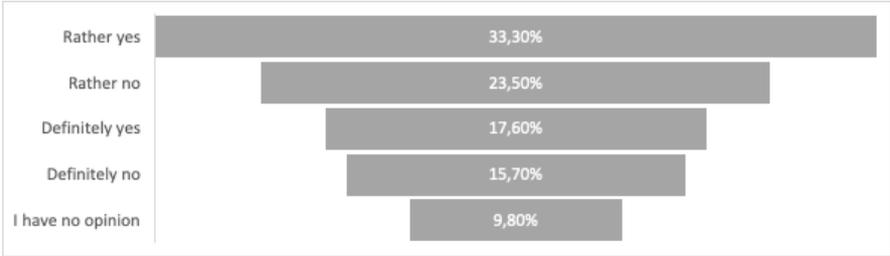
*Figure 4: Public Trust in Autonomous Vehicle Safety
(Source: Own elaboration based on the conducted surveys)*

The survey results on how autonomous vehicles will impact traffic accidents reveal varied opinions among participants. A significant group of respondents believed that autonomous vehicles will “rather reduce” traffic accidents, which can suggest some optimistic attitude to the safety potential of these vehicles. However, it is also indicated that 23,5% think that rather increase” accidents, reflecting concerns about the technology's reliability or unforeseen risks. It should be noted that a considerable 25,5% of participants think that autonomous vehicles “will not change” the frequency of accidents (table 2). Researches conducted by other authors show that AVs could significantly reduce traffic accidents, which are predominantly caused by human error (Wang et al., 2020; Gantsho, 2022; Mróz, 2017, p. 143). For instance, it has been estimated that if 90% of vehicles in the U.S. were fully autonomous, approximately 25,000 lives could be saved annually, with annual economic savings estimated at more than \$200 billion in the United States (Rojas-Rueda et al., 2020, p. 332). However it should be noted that the transition to AVs also is associated with challenges related to accident responsibility, such as the determination of fault in incidents involving AVs (Yao et al, 2023, p. 58; Rajasekaran, 2023, p. 2.) These concerns underscore the need for further regulatory and technological advances to increase public confidence in AV security.

Answer	Number	Share
Rather, they will reduce	21	41,20%
They will not change	13	25,50%
Rather, they will increase	12	23,50%
They will significantly decrease	4	7,80%
They will significantly increase	1	2,00%

*Table 2: Predicted Reduction in Traffic Accidents with Autonomous Vehicles
(Source: Own elaboration based on the conducted surveys)*

As the figure 5 show a significant group of respondents are open to the idea of using an autonomous vehicle as part of a service, e. g. autonomous taxi (50,9% total for “rather yes” and “definitely yes”), but there are also concern (39,2% total for “rather no” and “definitely no”). This shows that curiosity about new technologies is high, but people may still have concerns regarding safety, reliability, or the unknowns of autonomous systems. Those results are in line with Silvestri et al. who indicated that a lot of consumers have a desire to experiment with autonomous driving, but consumers are more willing to ride or share autonomous vehicles, rather than purchasing some for personal use (Silvestri et. al, 2024, p. 1). This suggests that mobility-as-a-service (MaaS) models can play a key role in the early deployment of AV technology, serving as a starting point for broader public acceptance.



*Figure 5: Consumer Willingness to Use Autonomous Vehicle Services
(Source: Own elaboration based on the conducted surveys)*

The results of research show that respondents believe that the main social benefits of autonomous vehicles include greater mobility for the elderly and disabled, which is seen as the top advantage (60,8% answers), allowing more independence for those with mobility challenges. Better traffic management (37,3%) and fewer accidents (33,3%) are also important. Nearly 30% of respondents believe that the introduction of autonomous vehicles is good for the environment, while less than 10% believe it can help change traffic jams and save time (table 3). Other researchers have also dedicated their studies to analyzing the benefits of autonomous vehicle implementation from the consumers' perspective. Jana et al. (2019) indicated that consumers see several key benefits of autonomous vehicles (AVs). Among male respondents, the vast majority agreed that autonomous vehicles will reduce traffic accidents, as well as reduce the severity of collisions and provide better emergency response. In contrast, female respondents highlighted greater fuel efficiency and lower emissions as the main benefits. Overall, the most consensus benefit was better emergency response, attributed to artificial intelligence-based vehicle control systems. Also, reducing the severity of accidents was a widely recognized benefit, as respondents believed that advanced AV sensors would help prevent serious accidents. In addition, AVs were seen as a fuel-saving solution, with more than half of respondents agreeing. In terms of environmental impact, the benefit of reduced emissions was supported by more than half of respondents. However, nearly a quarter of respondents disagreed that AVs would lead to shorter travel times or reduced traffic jams, indicating skepticism about AVs improving traffic flow (Jana et al., 2019, p. 189). In contrast, Greaves et al. (2018) noted that the most important benefits of AVs in consumer' s perspective are lower emissions, safer roads, less congestion, quicker travel and lower insurance cost (about 40% of respondents reflected a positive outlook on these benefits). However about one fifth are somewhat reserved on these benefits (Greaves et al., 2018, p. 4-5). On the other hand, a survey by Schoettle and Sivak (2014) investigated that the main expected benefits of autonomous vehicles included reduced accidents (70% of responses), reduced emissions (64%) and reduced fuel consumption (72%). People did not believe that such technology would improve traffic congestion (48%) and travel time (43%) (Schoettle and Sivak, 2014, p. 689). Studies unanimously indicate that the most important benefits of autonomous vehicles are improved road safety, reduced emissions and fuel savings, as well as greater mobility for the elderly and disabled. Better response by emergency services thanks to advanced control systems is also highlighted. In contrast, opinions are divided on the reduction of traffic jams and travel times, with some respondents seeing the potential, but many remaining skeptical.

Answer	Number	Share
Greater mobility for the elderly and disabled	31	60,80%
Better traffic management	19	37,30%
Fewer accidents	17	33,30%
Greater environmental protection	15	29,40%
Reduction of traffic jams	5	9,80%

*Table 3: Expected Social Benefits of Autonomous Vehicles
(Source: Own elaboration based on the conducted surveys)*

The survey reveals several significant concerns people have about autonomous vehicles (table 4). The biggest worry is cyber attacks and hacking threats (52.9%), with people fearing that these vehicles could be vulnerable to malicious interference. Safety (47.1%) is another top concern, particularly regarding accidents or technical failures that could jeopardize passengers and others on the road.

Data privacy issues (41.2%) and concerns over trust in the technology(41.2%) are also notable, with people worried about surveillance, tracking, and the reliability of the technology itself. The high cost of implementation and use (41.2%) and the potential loss of jobs for drivers (37.3%) are additional concerns, while lack of regulation (21.6%) is also a factor for some, reflecting uncertainty about how these vehicles will be governed (table 4). All of the aforementioned concerns probably contribute to the fact that the vast majority of respondents (92.2%) believe that humans should always have the ability to manually take control of autonomous vehicles. This suggests a strong preference for maintaining human oversight and control, even if autonomous driving technology becomes more advanced.

Other researchers have also shown that consumers have many concerns about the introduction of autonomous vehicles. For example researches conducted by Greaves et al. (2018) noticed that cybersecurity risks, particularly the possibility of system hacking, emerged as the top concern, with approximately 40% of respondents expressing serious worry. Additionally, respondents showed significant concern about insurance and liability issues (64% were at least moderately concerned) and road safety (68%). Interestingly, opinions were divided on the loss of driving pleasure, while 30% were not concerned at all, 20% viewed it as a major issue (Greaves et al., 2018, p. 5-6). On the other hand, Kyriakidis et al.(2015) cited researches from Schoettle and Sivak (2014) that indicated that 26% of respondents from the United States were “very concerned” about system/equipment failure and vehicle performance in unexpected situations, while the corresponding percentages for the UK and Australia were 15% and 16%, respectively. However, the figure rose to 75% for all countries when all levels of concern (“very/moderately/slightly concerned”) were taken into account.

Legal liability, hacking of automated systems and privacy resulting from data sharing are other areas of concern. For example, more than 90% of respondents expressed at least some concern (on a scale of “very concerned,” “moderately concerned,” “slightly concerned”) about the legal liability of drivers/owners of autonomous vehicles. Finally, the survey found that women expressed a higher level of concern about autonomous vehicles than men and were more cautious in their expectations about the benefits of autonomous vehicles (Kyriakidis et al., 2015, p. 130).

In summary, the main concerns that appear in all the surveys are security (especially in the context of malfunctions and accidents), cyber-security (including the threat of hacking attacks), data privacy and trust in technology. These are the main elements where the studies agree. In addition, lack of regulation and fear of losing their jobs are other important factors that also appear in some of the surveys.

Answer	Number	Share
Cyber attacks and hacking threats	27	52,90%
Safety (accidents, technical failures)	24	47,10%
Data privacy (tracking, surveillance)	21	41,20%
Trust in the technology	21	41,20%
High cost of implementation and use	21	41,20%
Loss of jobs (e.g., for drivers)	19	37,30%
Lack of regulation	11	21,60%

*Table 4: Top Consumer Concerns About Autonomous Vehicles
(Source: Own elaboration based on the conducted surveys)*

5. CONCLUSION AND IMPLICATIONS

The main objective of this article was to identify and analyze the attitudes of Polish consumers toward autonomous vehicles (AVs). The specific objectives were to find out the degree of consumer knowledge about autonomous vehicles and their general attitudes toward them, as well as to understand their opinions on the safety, benefits and concerns of using autonomous vehicles. It was shown that respondents generally have a basic knowledge of autonomous vehicles, and their attitudes are mostly neutral. The majority of respondents do not believe in the rapid spread of this technology, but a sizable group still sees the possibility. Skepticism about the safety of autonomous vehicles is prevalent. While many respondents believe they can help reduce accidents, a sizable number remain skeptical or even fear the negative consequences of their implementation. Many respondents show curiosity about autonomous vehicles and would be willing to use them as part of a service. Among the most frequently cited benefits were increased mobility for the elderly and disabled, better traffic management and reduced accidents. The biggest concerns are the risks of cyber attacks and hacking, security, data privacy, trust in the technology, and the high cost of implementation and use. This research provided a lot of practical information that can be used in the business environment. Firstly, a neutral or skeptical attitude among consumers means investing in information and education campaigns. Companies should emphasize real benefits, such as increased security and fewer accidents, and allay concerns about cyber security and privacy. Secondly, since not everyone is convinced by autonomous vehicles, companies should focus on the groups that are most open to the new technology, as well as begin deploying them in closed environments (e.g., campuses, airports) before full integration with traffic. Thirdly, due to the fact that a large group of respondents would be willing to use autonomous vehicles as a service (e.g., robotaxi, public transportation). Companies could focus on the mobility-as-a-service model instead of selling vehicles to individual users. Fourthly, skepticism about safety requires investment in safety technologies and working with regulators to develop standards and norms. Future research should delve deeper into the characteristics of consumers, taking into account their socioeconomic backgrounds, in order to develop more targeted marketing strategies related to promoting autonomous vehicles. Limitations of the study include the small sample size of the empirical study, the choice of databases and specific time frames, which may affect the comprehensiveness of the analysis, and the limited scope of the survey questionnaire.

LITERATURE:

1. Bagloee, S.A., Tavana, M., Asadi, M. and Oliver, T. (2016). Autonomous vehicles: challenges, opportunities, and future implications for transportation policies. *Journal of Modern Transportation*, 24(4), pp.284–303.
2. Gantsho, L. (2022). God does not play dice but self-driving cars should. *AI Ethics*, 2(2), pp.177–184.
3. Greaves, S., Smith, B., Arnold, T., Oлару, D. and Collins, A.T. (2018). Autonomous vehicles down under: an empirical investigation of consumer sentiment. *Transportation Research Part A: Policy and Practice*, 118, pp.1–15.
4. Hasan, O., McColl, J., Pfefferkorn, T., Hamadneh, S., Alshurideh, M. and Al Kurdi, B. (2022). Consumer attitudes towards the use of autonomous vehicles: Evidence from United Kingdom taxi services. *International Journal of Data and Network Science*, 6(2), pp.537–550.
5. Hörl, S., Ciari, F. and Axhausen, K.W. (2016). Recent perspectives on the impact of autonomous vehicles. *Arbeitsberichte Verkehrs- und Raumplanung*, 1216, pp.1–22. Zurich: ETH Zürich.

6. Jana, A., Sarkar, A., Kallakurchi, J.V. and Kumar, S. (2019). Autonomous vehicle as a future mode of transport in India: analysing the perception, opportunities and hurdles. *Proceedings of the Eastern Asia Society for Transportation Studies*, 12, pp.185–193.
7. Kyriakidis, M., Happee, R. and De Winter, J.C. (2015). Public opinion on automated driving: Results of an international questionnaire among 5000 respondents. *Transportation Research Part F: Traffic Psychology and Behaviour*, 32, pp.127–140.
8. Litman, T. (2024). Autonomous vehicle implementation predictions: Implications for transport planning. Victoria: Victoria Transport Policy Institute, p.19. Retrieved 10.10.2025 from <https://www.vtpi.org/avip.pdf>.
9. Luo, Z. (2023). The impact of autonomous vehicles on cities. *Advances in Economics, Management and Political Sciences*, 27, pp.64–69.
10. Mróz, B. (2017). Konsument a wyzwania technologiczne XXI wieku. *Studia Ekonomiczne*, 330, pp.139–149.
11. Nadeem, M. (2024). AI in autonomous vehicles: state-of-the-art and future directions. *International Journal of Advanced Engineering Technologies and Innovations*, 1(2), pp.62–79.
12. Neumann, T. (2018). Perspektywy wykorzystania pojazdów autonomicznych w transporcie drogowym w Polsce. *Autobusy: Technika, Eksploatacja, Systemy Transportowe*, 19(12), pp.787–794.
13. Noussia, K. (2020). Autonomous vehicles: legal considerations and dilemmas. In: *InsurTech: a legal and regulatory view*, pp.253–270. London: Springer.
14. Panagiotopoulos, I. and Dimitrakopoulos, G. (2018). An empirical investigation on consumers' intentions towards autonomous driving. *Transportation Research Part C: Emerging Technologies*, 95, pp.773–784.
15. Rajasekaran, S. (2023). Review and analysis of autonomous vehicles – current state and challenges. *Journal of Engineering and Applied Sciences Technology*, 5(1), pp.1–3.
16. Rojas-Rueda, D., Nieuwenhuijsen, M.J., Khreis, H. and Frumkin, H. (2020). Autonomous vehicles and public health. *Annual Review of Public Health*, 41, pp.329–345. <https://doi.org/10.1146/annurev-publhealth-040119-094035>.
17. Schoettle, B. and Sivak, M. (2014). A survey of public opinion about connected vehicles in the US, the UK, and Australia. In: *2014 International Conference on Connected Vehicles and Expo (ICCVEx)*. IEEE, pp.687–692.
18. Silvestri, F., De Fabiis, F. and Coppola, P. (2024). Consumers' expectations and attitudes towards owning, sharing, and riding autonomous vehicles. *Case Studies on Transport Policy*, 15, Article 101112, pp.1–12.
19. Wang, J., Zhang, L., Huang, Y., Zhao, J. and Bella, F. (2020). Safety of autonomous vehicles. *Journal of Advanced Transportation*, 2020, pp.1–13. <https://doi.org/10.1155/2020/8867757>.
20. Wu, J., Liao, H. and Wang, J.W. (2020). Analysis of consumer attitudes towards autonomous, connected, and electric vehicles: a survey in China. *Research in Transportation Economics*, 80, p.100828.
21. Yao, Q., Li, T., Yan, C. and Deng, Z. (2023). Accident responsibility identification model for Internet of Vehicles based on lightweight blockchain. *Computational Intelligence*, 39(1), pp.58–81.

THE LOCAL COMMUNITY PERCEPTIONS OF THE IMPACT OF THE MASS TOURISM ON THE SUSTAINABILITY OF SPLIT AS A DESTINATION

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ABSTRACT

Introduction: *Tourism plays a vital role in the economic development of urban destinations, yet mass tourism often leads to environmental, social, and infrastructural challenges. In Split, Croatia, a significant rise in tourist arrivals, particularly during the summer, has brought economic benefits but also raised concerns about overcrowding, infrastructure strain, and reduced residents' quality of life.*

Methodology: *This study uses a mixed-method approach. Quantitative data were collected via an online questionnaire administered to Split residents to assess their perceptions, attitudes, and suggestions regarding the sustainability of tourism. Additionally, qualitative in-depth interviews with structured questions were conducted with business entities operating in the city.*

Findings: *Results indicate a complex balance between tourism's economic benefits and its negative impacts on the destination's sustainability. While participants recognize tourism's role in creating jobs and business opportunities, they also express concerns about environmental damage, housing unaffordability, traffic congestion, and a loss of local identity. Business representatives particularly highlight the pronounced seasonality and mass character of tourism in Split, which pressures infrastructure and daily life. Labour shortages and difficulty retaining qualified workers were also identified as key challenges. Both residents and businesses agree that the current model is unsustainable and emphasize the need to shift toward a tourism strategy based on quality, diversification, and improved regulation.*

Conclusion: *The findings underscore the need to incorporate local perspectives into tourism planning. Ensuring Split's long-term sustainability as a destination requires policies that balance economic interests with the protection of community well-being and urban resources. Targeted strategies such as managing visitor flows, upgrading infrastructure, and supporting community-based tourism are essential.*

Keywords: *local community, mass tourism, perception, Split, sustainable development*

1. INTRODUCTION

Tourism is among the most dynamic global industries and represents a key driver of urban economic development. Its influence extends beyond income generation to include the shaping of social relations, spatial organisation, and environmental conditions. In many destinations, tourism growth has primarily followed a mass-tourism model, characterised by high visitor concentration, standardised services, and pronounced seasonality. Although economically attractive, such development frequently exceeds the social, environmental, and infrastructural capacities of urban destinations, resulting in growing sustainability challenges.

Split is one of Croatia's most prominent urban tourist destinations and a UNESCO World Heritage Site. Tourism growth in the city has been continuous over the past decade, followed by a rapid recovery after the COVID-19 pandemic. Visitor numbers now peak during the summer months, intensifying pressure on urban infrastructure and public space. At the same time, dissatisfaction among the local population has increased. Residents increasingly report rising living costs, congestion, and a declining quality of life, while businesses face instability stemming from pronounced seasonality and labour shortages. Mass tourism in urban destinations presents a structural paradox, generating significant economic benefits while simultaneously producing environmental, social, and infrastructural pressures that threaten long-term sustainability (Biagi et al., 2019; Pinto da Silva et al., 2019). Recent studies across Mediterranean cities document residents' growing concerns about overcrowding, housing affordability, and reduced access to public services, even though tourism remains an important source of employment and income (Aria et al., 2023; Caro-Carretero et al., 2025). These findings suggest that economic growth alone is insufficient as a measure of sustainable destination development. Despite the expanding body of research on tourism impacts, local perspectives remain insufficiently integrated into tourism planning and governance processes. This gap undermines the effectiveness of sustainability-oriented destination management and contributes to growing tensions between tourism development and community well-being (Vodeb et al., 2021). Empirical evidence increasingly highlights the importance of incorporating residents' and business stakeholders' perceptions as indicators of destination resilience and social sustainability. Split exemplifies these challenges. Previous research has shown that although a substantial share of residents derives income from tourism, the prevailing perception is that the current tourism model is unsustainable. While economic indicators are generally evaluated positively, social and environmental dimensions of quality of life are assessed negatively (Relja et al., 2022). Similar patterns have been identified in other Croatian destinations, where residents express intense demands for greater involvement in tourism-related decision-making and improved regulation of tourism development (Abbasian et al., 2020; Vukić et al., 2021). Given these challenges, the present study aims to analyse the impact of mass tourism on destination sustainability in Split by examining the perceptions of residents and tourism-related business stakeholders. By combining quantitative survey data with qualitative insights from in-depth interviews, the study contributes to sustainability research by emphasising local perceptions as essential indicators of urban tourism resilience. In doing so, it addresses the identified gap between tourism growth-oriented development practices and community-centred approaches to sustainable destination management.

1.1 Mass tourism and urban sustainability

Mass tourism developed alongside industrialisation, increased mobility, and rising disposable income. Urban destinations became particularly attractive due to their cultural heritage, accessibility, and diversity of services. At the same time, spatial constraints make cities especially vulnerable to tourism pressure. High visitor density often results in overcrowding, functional transformation of public spaces, and growing conflicts between tourists and residents. Consequently, sustainability literature increasingly frames mass tourism as a risk factor rather than a development advantage, particularly in historic urban contexts. Research on the relationship between mass tourism and urban sustainability has expanded significantly in recent years, with a strong focus on Mediterranean and European destinations experiencing intense visitor pressure. Empirical studies conducted in cities such as Split, Dubrovnik, Naples, Porto, Zagreb, and Cáceres, as well as comparative analyses across Mediterranean destinations, consistently identify a structural tension between the economic benefits of tourism and its negative social and environmental effects (Biagi et al., 2019; Abbasian et al., 2020; Pinto da Silva et al., 2019; Relja et al., 2022; Aria et al., 2023; Badurina et al., 2022; Caro-Carretero et

al., 2025). While residents generally recognise tourism as an important source of income, employment, and urban revitalisation, prevailing findings indicate a decline in perceived quality of life. This decline is commonly associated with overcrowding, rising housing costs, reduced access to public services, and the erosion of local identity. In Split, for example, although a substantial proportion of residents benefit economically from tourism, the dominant perception is that the existing tourism model is unsustainable, with economic indicators evaluated positively and social and environmental dimensions assessed negatively (Relja et al., 2022). Comparable patterns are observed in Porto and Cáceres, where residents support tourism development in principle but express growing concerns about gentrification and rising living costs (Pinto da Silva et al., 2019; Caro-Carretero et al., 2025). The literature further reveals fragmented resident attitudes toward tourism, ranging from hospitality and tolerance to indifference and hostility. These differences reflect the uneven distribution of tourism-related costs and benefits within urban communities (Relja et al., 2022; Aria et al., 2023). Across destinations, key obstacles to urban sustainability repeatedly include infrastructure overload, traffic congestion, environmental degradation, and pronounced seasonality. These challenges are often intensified by cruise tourism and spatial limitations in historic city centres (Abbasian et al., 2020; Vodeb et al., 2021). In addition to physical and environmental pressures, several studies emphasise governance-related challenges. Limited involvement of local communities in tourism decision-making and insufficient knowledge of sustainable development principles among residents and business stakeholders are identified as significant barriers to sustainability-oriented destination management (Vukić et al., 2021; Vodeb et al., 2021). From a methodological perspective, most studies rely on quantitative surveys to measure residents' perceptions, often complemented by interviews with key stakeholders. However, recent research has introduced more advanced analytical approaches, including structural equation modelling and a critical reassessment of assumptions in Social Exchange Theory, offering more nuanced insights into perception-based sustainability dynamics (Badurina et al., 2022; Aria et al., 2023). Overall, the literature converges on the conclusion that mass tourism, despite its economic advantages, poses substantial risks to urban sustainability. Addressing these risks requires a shift in governance frameworks toward more balanced, community-centred, and sustainability-oriented destination management models.

1.2 Sustainability and local perceptions

Sustainable tourism development seeks to balance economic benefits with environmental protection and social well-being. Within this framework, carrying capacity represents a key analytical concept, as resident dissatisfaction often signals that social or spatial limits have been exceeded. Alongside residents, business stakeholders' perceptions reflect levels of economic resilience and vulnerability. Taken together, these perspectives provide a comprehensive basis for assessing destination sustainability. In contemporary tourism research, local perceptions have become a central analytical lens, particularly in urban destinations exposed to mass tourism pressures. A growing body of literature demonstrates that residents' attitudes, evaluations, and everyday experiences offer critical insights into the social dimension of sustainability and function as early indicators of structural imbalance. One of the most influential contributions is provided by Biagi et al. (2019), who examine the relationship between tourism intensity and residents' perceptions of urban quality of life across Mediterranean destinations. Their findings indicate that negative tourism impacts predominate when sustainability is assessed through lived experience. Notably, the study demonstrates that accessibility to services and amenities is more important for perceived quality of life than their mere availability, highlighting how congestion and competition for urban resources undermine social sustainability. Subsequent studies reinforce the argument that community support is a foundational pillar of sustainable tourism development.

Vodeb et al. (2021) show that residents' perceptions directly influence their willingness to support sustainability-oriented policies and planning measures. Notably, residents who are economically involved in tourism often express more substantial criticism of its impacts, challenging simplified assumptions within Social Exchange Theory and suggesting that closer engagement with tourism activities may increase awareness of negative externalities rather than generate unconditional support. The preventive value of local perceptions is further demonstrated by Pinto da Silva et al. (2019) in their study of Porto. Although residents generally acknowledged improvements in living conditions and supported tourism growth, early concerns related to housing affordability and rising living costs informed the development of preventive sustainability guidelines. This highlights the strategic importance of incorporating resident feedback before destinations reach overtourism thresholds. Recent advances extend perception-based sustainability models by linking residents' attitudes to socio-demographic variables. Caro-Carretero et al. (2025) show that understanding variations in local perceptions enables proactive identification of gentrification risks and supports responsible integration of tourism infrastructure. Their findings suggest that sustainability governance must move beyond reactive mitigation and adopt perception-driven planning approaches. Empirical evidence consistently confirms that residents play an active role in shaping sustainability outcomes. Vodeb et al. (2021) emphasise a strong demand for resident inclusion in tourism-related decision-making processes, identifying governance deficits as a key barrier to sustainable development. The multidimensional nature of sustainability is further validated by Aria et al. (2023), who apply Structural Equation Modelling to demonstrate that residents' perceptions across economic, environmental, cultural, social, and political dimensions provide a comprehensive assessment of tourism sustainability.

These findings confirm that local perspectives capture complex interdependencies often overlooked by purely economic indicators. In addition to residents, tourism employees represent an important yet underutilised source of sustainability knowledge. Abbasian et al. (2020) show that local tourism workers demonstrate a high level of awareness of overtourism problems and propose practical solutions, including stricter quality standards and limits on cruise tourism. This underscores the value of experiential knowledge in sustainable destination management. Similarly, Relja et al. (2022) identify sustainability tolerance thresholds in Split, finding that residents perceive the existing tourism model as unsustainable despite clear economic benefits. This reinforces the role of local perceptions as diagnostic tools for identifying when carrying capacity limits have been exceeded. Methodologically, recent studies have refined approaches to capturing local perceptions. Badurina et al. (2022) challenge traditional Social Exchange Theory by segmenting residents into sceptics, neutrals, and believers, demonstrating that perceived positive impacts may play a more decisive role than negative impacts in destinations not yet experiencing overtourism. Such contributions enable more nuanced and context-sensitive sustainability models. Overall, the literature converges on the conclusion that local perceptions are not merely feedback mechanisms but integral components of sustainable tourism systems. They function simultaneously as indicators of current sustainability performance and predictors of future destination resilience. As emphasised by Begolli Dauti et al. (2021), enabling residents and businesses to articulate concerns and influence the pace and form of tourism development is essential for achieving sustainable outcomes. Despite significant progress, research gaps remain. Recent studies call for the systematic integration of perception-based indicators into formal planning frameworks and for longitudinal research designs capable of capturing changes in attitudes over time. Addressing these gaps is critical for shifting from reactive to proactive sustainability governance in urban tourism destinations.

2. METHODOLOGY

A mixed-method research design was employed to capture diverse stakeholder perspectives. Quantitative data were collected through an online questionnaire distributed to residents of Split via social media. The survey consisted of 30 questions addressing tourism impacts, quality of life, infrastructure, and future development preferences. A total of 51 valid responses were collected. Participation was anonymous. Qualitative data were obtained through structured in-depth interviews with two representatives of tourism businesses. Interview questions focused on seasonality, labour availability, tourism trends, and sustainability challenges. Quantitative data were analysed descriptively. Qualitative responses were thematically interpreted to identify recurring patterns.

3. RESULTS

Until the mid-2000s, Split functioned primarily as a transit destination. Many visitors stayed only briefly, using the city as a gateway to the Central Dalmatian islands. Since that period, no substantial improvements in urban or tourism infrastructure have been implemented that would adequately accommodate the rapid growth in tourism demand or the needs of other user groups.

2019.	2020.	2021.	2022.	2023.	2024.
950.000	200.000	500.000	800.000	950.000	1.050.000

Table 1: Tourist Arrivals in Split (2019–2024)

(Source: Author's calculation based on data from Statistical analysis of tourist traffic in the area of the city of Split in 2024, Split Tourist Board, available at: <https://visitsplit.com/hr/6608/2024-godina>)

Between June and September, more than 70% of overnight stays and approximately 68% of total tourist arrivals are recorded. Such an intense concentration of visitors within a short temporal window significantly contributes to spatial overcrowding. As a result, the destination's carrying capacity has been exceeded. Tourism in Split is recording national- and county-wide growth in arrivals, owing to its favourable location in Southeast Europe and the Mediterranean, whose markets are experiencing steady growth. However, the tourism sector experienced difficulties in 2020 due to the COVID-19 pandemic, resulting in a significant decline in tourist traffic. The table shows there was a full recovery after two and a half years. The graph shows the structure of arrivals from 2019 to 2024 in the area of the city of Split. In 2019, the town of Split recorded 950,560 arrivals, of which 871,478 were foreign arrivals, and 79,082 were domestic arrivals. In 2020, the city of Split experienced a significant decline in the number of guests. There were 208,951 arrivals, a decrease of 78%, of which 161,586 were foreign arrivals, and 47,365 were domestic arrivals. In 2021, tourism in Split experienced a slight recovery, with 489,655 arrivals, a 134% increase over 2020, of which 416,910 were foreign arrivals, and 72,745 were domestic. The growth trend in arrivals continued in 2022, with the city of Split recording 801,443 arrivals, a 63% increase, of which foreign guests accounted for 714,027 and domestic guests 87,416. In 2023, the increase in arrivals weakened but still exceeded the 2020 pre-pandemic level. 965,405 arrivals were achieved, of which 868,579 were foreign guests, and 96,824 were domestic guests. Continuous growth continued in 2024, with a record 1,050,582 arrivals, of which 943,255 were foreign guests, and 107,327 were domestic guests. The above data indicate that Split's tourism depends on foreign visitors and is therefore highly sensitive to external disasters, whereas domestic visitors constitute a smaller but more stable segment.

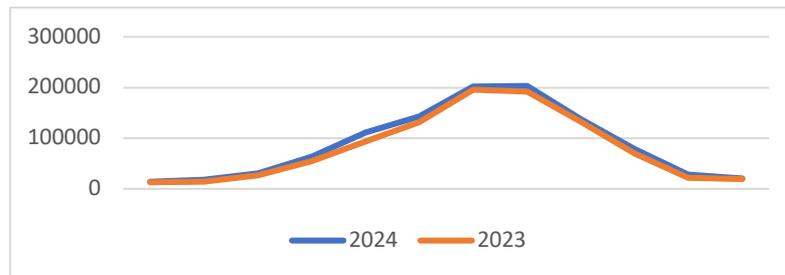


Chart 1: Number of guest arrivals by month in 2023 and 2024

Source: Author's calculation based on data from Statistical analysis of tourist traffic in the area of the city of Split, Split Tourist Board, available at: <https://visitsplit.com/hr/6608/2024-godina>

Data on monthly guest arrivals indicate continuous growth in tourist traffic in 2024 relative to 2023. Compared with 2023, a higher percentage of growth was observed in the months preceding the season in 2024. The graph also shows pronounced seasonality in the summer months, although the indicators suggest a shift in guest preferences when visiting Split, with arrivals outside the primary season increasingly preferred. In 2024, the highest number of arrivals was recorded in August (203,113), followed by July (202,343). The lowest number of arrivals was recorded in January, at 14,014. The highest number of arrivals is recorded by guests from the United States of America, followed by guests from European countries such as the United Kingdom, France and Germany. Looking at the age structure, the largest share of guests is in the 25-34 age group, indicating Split's attractiveness to younger populations. According to the 2021 census, the city of Split has 160,577 inhabitants. When comparing the number of inhabitants and the number of guest arrivals, it is evident that in the summer months, tourist arrivals exceed the city's resident population, raising questions about the city's carrying capacity.

3.1 Residents' perceptions

A total of 51 respondents from Split participated in the survey. The first part of the questionnaire focused on identifying basic sociodemographic characteristics, specifically gender and age. Of the total sample, 36 respondents (70.6%) were female, and 15 (29.4%) were male. In the sample, the most significant proportion of respondents (39.2%) had completed secondary education. This was followed by respondents with a completed undergraduate degree (31.4%). A further 29.4% of respondents had obtained a master's degree or doctoral qualification. Educational level is an important factor in the research, as it significantly influences attitudes and perceptions toward tourism. Individuals with higher levels of education tend to demonstrate greater awareness of sustainable development concepts. In contrast, those with lower levels of education are more likely to emphasize the economic benefits of tourism. The results clearly indicate that the local population recognizes tourism as the dominant economic activity that most strongly shapes the city's economic life. A total of 39.2% of respondents perceive tourism as hurting the city of Split. This is followed by 33.3% of respondents who consider tourism to have a positive impact on the city. A further 25.5% of respondents perceive tourism's impact as neutral, while the smallest proportion (2%) believes it has a very negative impact on Split. Residents of Split do not perceive tourism as a sufficiently strong driver of infrastructural investment. The majority of respondents recognise tourism's positive contribution to the city's cultural and entertainment offerings. Based on the research results, it can be concluded that a significant proportion of Split's local population perceives tourism as a threat to peace and the quality of everyday life. Tourism in Split does not enhance perceptions of safety; rather, it contributes to a sense of insecurity among a substantial proportion of respondents.

The results indicate that excessive tourism pressure negatively affects the quality of life of the local community. Overcrowded public spaces, traffic congestion, and pressure on urban infrastructure constrain daily activities. These effects are most pronounced during the summer months, when many residents avoid the city centre due to severe congestion. The results clearly indicate that the local population intensely perceives mass tourism as directly contributing to rising housing costs. The local population holds a strong belief that mass tourism affects the prices of basic goods essential for daily life. Residents largely acknowledge tourism as an essential economic activity. Income generation and employment opportunities are recognized as key benefits. Nevertheless, dissatisfaction with current tourism development is strong. Rising living costs, particularly housing prices and daily expenses, are identified as the most serious problem. Overcrowding is frequently mentioned. Public spaces, transport systems, and cultural sites are perceived as excessively congested during peak seasons. Infrastructure inadequacy is another primary concern. Traffic congestion, waste management issues, and limited public services reduce the quality of life. Social impacts are also highlighted. Residents report inappropriate tourist behaviour and a gradual loss of local identity. The local population does not perceive the economic benefits of tourism as being directly reflected in improvements to their standard of living. Instead, residents view tourism as a factor that undermines their quality of life, while tourism revenues are perceived to be concentrated among private accommodation providers and hospitality businesses. The research results indicate a pronounced sense of exclusion among the local community from tourism-related decision-making processes. Despite criticism, residents do not oppose tourism itself. Instead, they call for stronger regulation, improved planning, and sustainability-oriented development.

3.2 Business stakeholders' perceptions

A qualitative study was conducted to examine business stakeholders' perceptions of the impact of mass tourism on sustainability in Split, using structured in-depth interviews. The research included two tourism-related business actors: a tourism agency manager and a former hostel owner who currently operates private accommodation. This summary focuses on the interview with the private accommodation provider. The interviewee described a small accommodation business that has operated for over ten years, employs one staff member, and hosts exclusively foreign guests, predominantly older couples. He stated that tourism in Split has reached its peak and is currently experiencing a mild decline. Business adjustments in recent years have focused primarily on online marketing platforms and regular property maintenance, with promotion limited to Booking.com and Airbnb. Cooperation with the local community was described as minimal and mainly transactional, involving tourist agencies and restaurants. Seasonality was not perceived as a problem, as the business operates only eight months per year, and the interviewee saw no value in attracting off-season tourists. Labor shortages were identified as a growing challenge, with difficulties in finding qualified staff regardless of employment conditions. Sustainable tourism was defined narrowly, primarily in terms of maintaining service quality and managing guest expectations. While tourism was seen as financially beneficial in the short term, the interviewee emphasized its long-term negative effects on residents' quality of life, particularly rising prices and overcrowding, and stressed the need for greater responsibility and coordination by local institutions. The second interview was conducted with an anonymous manager of a tourism agency operating in the city center of Split, specializing in one-day excursions and activities. Established in 2016, the agency employs more than 30 staff members during the summer season and five permanent employees during the winter, serving primarily international guests seeking active and experiential tourism. The interviewee described tourism in Split as well-developed but predominantly mass- and seasonality-oriented, which generates significant pressure on infrastructure and the local community.

Unlike the private accommodation provider, the agency has actively adapted its business model through relocation, staff expansion, product diversification, dynamic pricing, and extensive use of digital sales and promotional platforms. Seasonality was identified as a significant challenge, with approximately 90% of annual revenue generated between April and October. To mitigate off-season demand, the agency develops smaller-scale packages for domestic and nearby regional markets and cooperates with hotels and event-based tourism initiatives. Labour shortages were highlighted as a persistent problem, addressed through employee training and improved working conditions. The interviewee emphasized that the current tourism model is not sustainable in the long term and advocated a shift toward quality-oriented, regulated, and environmentally and socially responsible tourism development. A comparative analysis of business interviews indicates a high degree of convergence in stakeholder perceptions. Both interviewees emphasize pronounced seasonality, with revenues heavily concentrated in the summer months and limited demand during the off-season. Labour shortages emerge as a persistent challenge, particularly in recruiting and retaining qualified staff. The current tourism model is widely perceived as unsustainable, as infrastructure pressure and declining service quality threaten long-term competitiveness. At the same time, tourism is recognized as essential for local economic viability. Consequently, stakeholders stress the need for a strategic shift toward qualitative development rather than continued growth based on visitor numbers.

4. DISCUSSION

The findings of this study are consistent with sustainability-oriented tourism research, which highlights the coexistence of economic benefits and increasing social, environmental, and infrastructural costs in urban destinations exposed to mass tourism. In Split, tourism continues to contribute significantly to employment and income generation; however, these benefits are increasingly offset by pressures on urban infrastructure, public space, housing affordability, and residents' quality of life. From a sustainability perspective, the results indicate that Split exhibits several characteristics commonly associated with overtourism.

The pronounced seasonal concentration of tourist arrivals suggests that carrying capacity thresholds are repeatedly exceeded during peak periods, particularly in the historic city centre. Resident dissatisfaction related to overcrowding, congestion, and perceived declines in safety and everyday comfort signals erosion of social sustainability. Similar patterns have been documented in other Mediterranean cities, reinforcing the interpretation that these challenges are systemic rather than destination-specific. Business stakeholders' perceptions further complement these findings by revealing underlying economic vulnerabilities. Strong dependence on seasonal demand and increasing difficulties in recruiting and retaining qualified labour reduce the resilience of tourism-related businesses and increase their exposure to external shocks, such as economic crises or sudden shifts in travel demand. While tourism is viewed as economically indispensable, stakeholders recognise that continued reliance on a volume-driven model undermines long-term competitiveness and service quality. A critical implication of the findings concerns tourism governance.

Although sustainability principles are widely acknowledged at a conceptual level, the results suggest that they are insufficiently operationalised through concrete policies and regulatory mechanisms. The pronounced sense of exclusion expressed by residents indicates a governance gap in which local voices remain marginalised in decision-making processes. This gap weakens community support for tourism development and increases the risk of social conflict. In this context, the study reinforces the argument that local perceptions should be treated as strategic indicators of destination sustainability rather than as secondary or subjective opinions.

Residents' and business stakeholders' experiences provide early warnings of capacity exceedance and declining resilience, offering valuable guidance for adaptive and preventive policy interventions. Integrating perception-based indicators into planning frameworks could support a transition toward more balanced, inclusive, and sustainability-oriented tourism development in Split and comparable urban destinations.

5. CONCLUSION

This study examined whether the current mass tourism model in Split supports long-term destination sustainability, with particular emphasis on the perceptions of local community and business stakeholders. Responding to an identified research gap in the limited integration of local perspectives into sustainability-oriented tourism planning, the study combined quantitative and qualitative methods to capture a comprehensive assessment of tourism impacts. The findings demonstrate that, while tourism continues to generate significant economic benefits for the city, these benefits are increasingly outweighed by social, infrastructural, and environmental pressures. Both residents and business stakeholders perceive the existing tourism model as unsustainable in the long term, citing overcrowding, infrastructure strain, rising living costs, and pronounced seasonality as key challenges. The convergence of perceptions across stakeholder groups strengthens the validity of these findings and highlights the systemic nature of the sustainability issues facing Split. Importantly, the results confirm that local perceptions serve as critical indicators of destination resilience and of carrying-capacity thresholds. The widespread sense of exclusion from tourism-related decision-making further underscores governance shortcomings that limit the effectiveness of current development strategies. These findings reinforce the argument that sustainability cannot be achieved through economic growth alone, but requires balanced consideration of community well-being and urban resource limits. From a practical perspective, the study suggests that tourism policy in Split should shift from a growth-oriented approach toward a sustainability-driven framework. Priority measures include regulating visitor flows, investing in urban infrastructure, addressing housing affordability, reducing seasonal concentration, and diversifying tourism activities beyond the historic city core. Such measures are essential for restoring balance between tourism development and residents' quality of life. Despite its contributions, the study has limitations related to sample size and its cross-sectional design. Future research should therefore employ larger and more diverse samples, longitudinal approaches to monitor changes in perceptions over time, and comparative analyses across Mediterranean urban destinations. Such research would further strengthen the understanding of how perception-based indicators can inform proactive and resilient tourism governance. The study concludes that sustainable tourism development in urban destinations such as Split requires a fundamental transition from quantity-driven growth toward resilience-oriented, community-centred planning. Without such a shift, the long-term sustainability and social legitimacy of tourism development remain at risk.

LITERATURE:

1. Abbasian, S., Lundberg, E. and Öström, Å. (2020) 'Overtourism and the local community: Residents' and tourism employees' perceptions of overtourism impacts', *Journal of Destination Marketing & Management*, 15, pp. 1–10.
2. Aria, M., D'Ambrosio, A. and Misuraca, M. (2023) 'Residents' perceptions of tourism sustainability in urban destinations: A structural equation modelling approach', *Sustainable Cities and Society*, 92, pp. 1–13.
3. Badurina, J. Đ., Tomljenović, R. and Pejić Bach, M. (2022) 'Revisiting social exchange theory in tourism: Resident segmentation and perceptions of tourism impacts', *Tourism Management Perspectives*, 41, pp. 1–12.

4. Begolli Dauti, M., Dauti, B. and Gashi, B. (2021) 'Residents' and business stakeholders' perceptions of sustainable tourism development', *Tourism and Hospitality Management*, 27(2), pp. 245–262.
5. Biagi, B., Brandano, M.G. and Pulina, M. (2019) 'Tourism and the city: The impact on residents' quality of life', *International Journal of Tourism Research*, 21(2), pp. 168–181.
6. Caro-Carretero, R., García-Hernández, M. and Calle-Vaquero, M. (2025) 'Residents' perceptions, gentrification and sustainable urban tourism: Evidence from historic cities', *Journal of Sustainable Tourism*, 33(1), pp. 1–20.
7. Pinto da Silva, F., Eusébio, C. and Carneiro, M.J. (2019) 'Residents' perceptions of tourism development in urban destinations: The case of Porto', *Tourism Planning & Development*, 16(2), pp. 159–177.
8. Relja, R., Vojnović, N. and Perišić Prodan, M. (2022) 'Residents' attitudes toward tourism development and sustainability: Evidence from Split', *Tourism and Hospitality Research*, 22(4), pp. 457–472.
9. UN World Tourism Organization (UNWTO) (2023) *Sustainable tourism development guidelines*. Madrid: UNWTO.
10. Vodeb, K., Rudež, H.N. and Mihalič, T. (2021) 'Residents' perceptions of tourism impacts and support for sustainable tourism development', *Academica Turistica*, 14(1), pp. 1–13.
11. Vukić, L., Perić, J. and Čevra, J. (2021) 'Cruise tourism impacts and stakeholder perceptions in urban destinations: The case of Split', *Pomorstvo*, 35(2), pp. 255–268.
12. World Commission on Environment and Development (1987) *Our Common Future*. Oxford: Oxford University Press.

THE IMPACT OF AI ON THE FUTURE OF MERGERS & ACQUISITIONS AND GLOBAL CROSS-BORDER TRANSACTIONS

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ABSTRACT

The purpose of this research paper is to determine how artificial intelligence (AI) is reshaping mergers and acquisitions (M&A), with a particular focus on cross-border transactions and corporate valuation. Building on established valuation approaches such as Discounted Cash Flow (DCF) and Comparable Companies Analysis (CCA), the study explores how AI influences deal execution and strategic decision-making, with special attention to differences in digitalization and adoption among German and U.S. small and medium-sized enterprises. The methodology applied in this paper consists of extensive desk research, a literature review, and analysis and synthesis. The empirical research is conducted using a qualitative research design, with semi-structured expert interviews as the instrument. Research findings indicate that AI is currently used most intensively in early-stage and technical phases, such as target screening and buyer list generation, data-room/document structuring, and support for teaser and information memorandum drafting, leading to clear time and cost efficiencies and faster initial valuation indications. At the same time, interviewees emphasize that AI remains a supportive tool: due diligence and post-merger integration are still largely human-led due to confidentiality requirements, contextual judgment, and interpersonal dynamics. Key barriers include data quality and standardization issues, system compatibility, regulatory constraints, privacy and cybersecurity concerns, and risks of bias or overly standardized outputs. Overall, AI is identified as a transformative enabler for cross-border M&A when embedded in robust data governance and human-in-the-loop control frameworks.

KEYWORDS: *artificial intelligence, mergers & acquisitions, cross-border transactions, valuation (DCF/CCA), due diligence, SMEs*

1. INTRODUCTION

In 1770, Austrian inventor Wolfgang von Kempelen presented the so-called „Mechanical Turk“, a chess-playing automaton that fascinated European audiences by defeating skilled opponents (Baumgartner, 2024). Baumgartner's (2024) article states that the illusion of full automation later collapsed when it became public that a human chess master was hidden inside the device and guided each move. Despite the fact that a human chess master was hidden, the episode remains a useful metaphor for recurring tensions in technological change: what is truly automated, what still depends on human judgement, and how society responds to that boundary. More than 250 years later, artificial intelligence, especially generative AI and large language models (LLMs) such as ChatGPT and Bard, has again become highly visible to the public and is rapidly diffusing across professional domains (Baumgartner, 2024). Baumgartner (2024) also stated that one field expected to be substantially affected is mergers and acquisitions (M&A).

He states that M&A has long served as a strategic instrument for firms to expand market presence, gain a competitive advantage, or restructure operations. Traditionally, however, transaction work, particularly due diligence, has relied heavily on manual analysis performed by legal and financial advisory (Baumgartner, 2024). Finally, according to Baumgartner (2024), AI promises to augment these workflows through faster, data-driven processing of contracts, financial documents, and organizational structures. As an example, he said that AI tools can support document completeness checks, flag critical clauses, and assist with redacting sensitive content (Baumgartner, 2024). To assess AI's potential and risks in M&A in a structured way, it is first necessary to clarify what M&A encompasses and how transactions are typically organized. M&A is commonly used as an umbrella term covering corporate transactions such as the purchase or sale of companies, business units, or subsidiaries, enabling firms to adapt their strategic direction to changing market dynamics and shareholder expectations (Rosenbaum and Pearl, 2020, p. 6). A central distinction concerns sell-side versus buy-side engagement, because each side involves different objectives, responsibilities, and decision constraints. Rosenbaum and Pearl (2020, pp. 275-311) stated that on the sell-side, a sale process is often a high-stakes event for owners and stakeholders, seller typically employ an investment bank to structure the deal, evaluate strategic alternative (e.g., full/partial sale, recapitalization, IPO, spin-off, or status quo), and design the process to balance value maximization, speed, certainty, and confidentiality. On the other side, the buy-side, acquisitions are often motivated by expansion, efficiency, or diversification, and can be faster or less risky than building capabilities internally, a key economic logic lies in synergies such as cost savings, revenue enhancement, and financial gains from integration - factors that are central to valuation and strategic rationale (Rosenbaum and Pearl, 2020, pp. 310-311). According to Rosenbaum and Pearl (2020, p. 313), the M&A strategies also differ by the type of integration pursued. They mention that Horizontal integration targets firms at the same stage of the value chain (often to increase market share or reduce competition), while vertical integration spans different stages of the supply chain – either upstream through supplier acquisitions or downstream through distributors/customers, to increase operational control. Alternatively, firms may also follow a conglomerate approach, acquiring unrelated businesses to diversify risk and broaden investor exposure (Rosenbaum and Pearl, 2020, p. 313). Gibson (2025) found that AI is already reshaping multiple industries and that organizations face substantial barriers to successful implementation. According to Gibson (2025), several challenges were discussed at the Harvard Business School, including insufficient internal AI capabilities, limited cybersecurity readiness, and difficulties scaling AI across business functions. These constraints are especially relevant in M&A, where decisions are complex, time-sensitive, and highly confidential. The primary objective of this study is to assess the impact of AI on M&A transactions and processes, with a particular focus on valuation, decision-making, and strategic implementation. The paper further aims to identify where AI creates value, where it introduces new threats or complications, and which conditions enable effective adoption.

2. LITERATURE REVIEW

According to DePamphilis (2015, pp. 29-32), M&A is a core corporate strategy tool for growth and restructuring, involving the acquiring firm (the acquirer) and the pursued firm (the target). Additionally, he mentioned that the central rationale is synergy, i.e., incremental value creation from combining the firms. The literature distinguishes between operating synergies (e.g. economies of scale/scope, complementary assets) and financial synergies (e.g., reduced cost of capital, improved financing capacity) (DePamphilis, 2015, pp. 33-36). Additional motives discussed include diversification, strategic realignment, market power, tax considerations, acquiring undervalued assets, and behavioral/governance drivers such as agency problems or managerial pride (DePamphilis, 2015, pp. 34-38).

Cross-border M&A involves firms from different countries and is complicated by legal differences and institutional frictions (Anggadol, 2024; DePamphilis, 2015, pp. 114-115). For example, a key Germany-U.S. issue is evidence discovery: the German civil-law system restricts broad discovery, while U.S. procedures can impose extensive disclosure obligations, including mechanisms relevant to foreign proceedings (Legal Information Institute, n.d.; Alexander Thornton, 2013). According to Stryker (2024), AI is generally defined as a technology that enables machines to perform tasks associated with learning, reasoning, and decision support. In finance, AI is used to enhance data analysis and automate processes such as risk management, fraud detection, and compliance, which supports faster and more data-driven decisions (Finio and Downie, 2023). Moreover, as M&A becomes more complex and data-intensive, AI is argued to improve execution by processing large datasets, surfacing early signals, and streamlining workflows (Yadav, 2025). Secondary data indicate a clear acceleration of AI adoption and measurable efficiency gains in M&A-related tasks. Specifically, industry evidence suggests that AI adoption in M&A increased from 10% in 2018 to 50% in 2023 (GEP, 2025), pointing to a rapid mainstreaming of AI tools in transaction environments.

In addition, published figures indicate that AI-supported target identification can outperform traditional approaches, with reported success rates of 85% for AI-based target identification compared to 55% for traditional methods (Anshuman Yadav, 2025). The same secondary sources also suggest substantial time savings in transaction workflows, whereby the average due diligence duration is reported to decrease from 85 days to 42 days when AI tools are applied (Anshuman Yadav, 2025).

3. METHODOLOGY

To determine the impact of AI on the future of M&A and global cross-border transactions, a qualitative research design has been adopted. This approach has been chosen for its suitability to exploring complex, context-dependent phenomena and for gaining deep insights from experienced professionals. To address the research objectives, two primary data sources have been used. Firstly, secondary data has been gathered from existing academic literature, industry reports, white papers, and publicly available publications. These sources have been systematically reviewed to establish a theoretical foundation and to identify current trends, challenges, and opportunities associated with AI integration in M&A processes. Secondly, primary data has been collected through a series of semi-structured expert interviews. These interviews have been conducted with professionals and decision makers in the M&A sector, including investment bankers, consultants, and corporate development executives with relevant expertise in AI implementation.

The interviewees have been selected using purposive sampling to ensure the inclusion of participants with substantial practical experience and insight. Each interview has been guided by a predefined interview framework to maintain consistency while allowing flexibility to explore individual perspectives in depth. The interviews have been recorded and subsequently transcribed. The data has been analyzed using thematic analysis, which has identified and categorized recurring patterns, viewpoints, and insights. By combining findings from the literature with expert opinions, this study aims to provide a comprehensive understanding of how AI is influencing valuation methods, decision-making processes, and strategic integration in cross-border M&A transactions. Furthermore, attention has been paid to sectoral differences and geographical distinctions, particularly between German and U.S. mid-sized enterprises.

4. RESEARCH RESULTS

Research results are classified by the most important aspects of AI's effects on the future of M&A and global cross-border transactions, including the current role of AI in transactions and valuation work, changes in the M&A process due to AI, advantages and disadvantages of using AI, and differences in adoption.

4.1. Current role of AI in transactions and valuation work

Across the interviews, AI was described as already playing a meaningful but partial role in M&A. In valuation-related work, AI tools can provide an initial indication, for example, through the multiplier method and peer-group suggestions, while, on the other hand, they still require manual validation of underlying data and assumptions. In practice, AI was also reported to support pitch decks, longlists, investor searches, and virtual data rooms, where AI-enabled features help with translation and automated redaction. At the same time, experts emphasized that AI should not replace human expertise and that manual verification remains necessary for quality and decision-making precision. In the Southeast European context, AI was described as having only a minor role, mainly supporting information gathering and basic technical analysis.

4.2. Observed changes in the M&A process due to AI

The interviews indicate that AI primarily improves M&A processes by increasing efficiency in repetitive, standardized tasks and document-heavy workflows. One concrete example described reducing dispatching time (previously ~8–9 hours) to under half an hour through AI-supported automation. Beyond speed, the study reports a redistribution of work, with routine tasks reduced, freeing capacity for more strategic responsibilities. A broader organizational effect mentioned is a shift in staffing dynamics: fewer junior roles are required for repetitive tasks, while remaining junior staff can be empowered more quickly to take on responsibility. This was interpreted as a form of partner empowerment and even a “democratization” effect: smaller teams and smaller firms may enter the market more easily, potentially reducing the dominance of large traditional players. However, the extent of change is described as context-dependent, shaped by organizational readiness, market maturity, and the level of AI sophistication. In underdeveloped markets (e.g., Croatia), AI use was again described as limited to narrow stages rather than transforming the full transaction process.

4.3. Where AI is used most across the M&A deal phases

AI was most consistently associated with technical and preparatory phases, particularly:

1. Data room processes (where providers increasingly embed AI functionality),
2. Early-stage deal sourcing (target screening, buyer list generation),
3. Document drafting/structuring (teasers and information memorandum), often as a “sparring partner” for structure and formatting.

In contrast, post-merger integration (PMI) was highlighted as a phase where AI is rarely used due to the centrality of human interaction and cultural integration, whereby due diligence was described as an area of cautious AI use, sometimes helpful for double-checking or identifying overlooked points, but the core analytical work remains with humans. Negotiation and interpersonal aspects were consistently identified as areas where AI applications remain minimal.

4.4. Advantages and disadvantages of using AI

A central advantage repeatedly emphasized is time and cost savings, especially for repetitive tasks (e.g., teasers, longlists, standard contract elements such as APAs).

AI was also framed as enabling teams to handle more projects in parallel without hiring additional staff, improving efficiency and potentially margins. Further advantages mentioned include agility, working with smaller teams, and adapting more quickly to new markets. At the same time, the interviews stress several risks associated with using AI:

- Data privacy risks, especially when using tools like GPT in sensitive deal contexts
- Prompt and input dependency (poor prompts → poor output)
- The need for human verification to avoid mistakes (including reputational damage)
- Risks from uncertain data
- A potential tendency toward standardization of outputs (loss of individuality/USP) if many advisors rely on similar AI-generated results.

Overall, AI is presented as powerful for efficiency but not safe to use without strong professional judgment and verification.

4.5. Differences in adoption

The study reports that AI adoption differs across industries, levels of digitalization, and organizational contexts. Based on expert observations, AI use appears more extensive in consulting and technology-driven sectors, while more traditional sectors (e.g., mechanical engineering) are perceived as slower to adopt due to slower digitalization. In addition, AI was described as being more widely used by larger IT firms, while smaller companies and organizations in tightly regulated or underdeveloped markets remain cautious. An explicit point made is that employees' age was not considered a decisive factor; instead, sector-level digitalization and readiness were emphasized. Taken together, these secondary-data indicators support the overall argument that AI is not only spreading across M&A practice, but is also associated with faster screening, improved matching in deal sourcing, and shorter execution timelines - especially in data- and document-intensive phases of the transaction process.

5. DISCUSSION

The results of this study indicate that AI is already reshaping key elements of M&A work, primarily through process acceleration and analytical support rather than full automation. Across the interviews, AI use concentrates on early-stage and technical phases, especially target screening, buyer list generation, and document structuring, where repetitive, document-heavy tasks can be standardized. In these phases, interviewees report clear time and cost efficiencies, as well as faster initial orientation for valuation-related work (e.g., first indications based on peer groups or multiples). This supports the paper's broader argument that AI's near-term impact is strongest where workflows are structured, and speed is critical. At the same time, the findings underline that AI remains a supportive tool. Core transaction stages that require confidentiality-sensitive judgment, nuanced interpretation, and human interaction, particularly due diligence in its deeper analytical sense, negotiations, and post-merger integration, remain largely human-led. Interviewees emphasize that AI outputs still depend heavily on input quality and, therefore, require careful validation. This is especially relevant in cross-border settings, where institutional and regulatory constraints, data availability, and system compatibility can vary widely and limit the practical use of certain AI tools. A key contribution of the study is the identification of barriers that shape how far AI can go in M&A, including data quality and standardization problems, system compatibility issues, regulatory constraints, privacy and cybersecurity concerns, and risks of biased or overly standardized outputs. These barriers help explain why adoption is uneven across sectors and regions. In line with the paper's focus on German and U.S. SMEs, the results suggest that differences in digital maturity and readiness, rather than employee age are decisive for AI implementation.

Therefore, AI becomes most transformative when embedded in robust data governance and human-in-the-loop control, allowing firms to capture efficiency gains without compromising confidentiality, quality, and accountability. Finally, the study is exploratory. The qualitative approach and the interview sample provide depth but limit generalizability across industries and markets. Future research could build on these insights by expanding the interview base across countries and deal types, and by quantifying efficiency effects (e.g., measurable changes in due diligence duration, sourcing effectiveness, and valuation workflow speed) over time.

6. CONCLUSION

This research paper is set out to determine and explore how artificial intelligence is reshaping mergers and acquisitions, with a particular focus on cross-border transactions and valuation work. Based on a qualitative research design combining secondary research with four semi-structured expert interviews conducted in July 2025, the study shows that AI is already influencing M&A practice in tangible ways, most clearly through efficiency gains, faster access to information, and improved handling of large document volumes. Overall, the findings indicate that AI is currently used most intensively in early-stage and technical phases of the deal process. Typical applications include target screening, buyer list generation, data-room and document structuring, and support for drafting teasers and information memoranda. In valuation-related work, AI can accelerate initial orientation and provide faster first indications. However, it does not replace established approaches such as DCF and CCA, which remain highly dependent on correct inputs, deal-specific assumptions, and professional judgement. As a result, AI's main contribution today lies in speeding up analysis and preparation, rather than fully automating valuation or decision-making. At the same time, the study highlights clear limits to AI adoption in M&A. Due diligence in its deeper analytical sense, negotiation dynamics, and post-merger integration remain largely human-led because they require confidential, judgment-based decision-making, contextual interpretation, and interpersonal interaction. Across the interviews, AI is consistently framed as a supportive tool that requires human verification. Key barriers include data quality and standardization challenges, system compatibility issues, regulatory and compliance constraints, privacy and cybersecurity risks, and the danger of biased or overly standardized outputs. Taken together, the results suggest that AI can become a transformative enabler for cross-border M&A, particularly for SMEs when it is embedded in robust data governance and human-in-the-loop control frameworks. Adoption and impact are likely to remain uneven across sectors and regions, depending on digital maturity and organizational readiness. In practical terms, the decisive question is not whether AI will be used in M&A, but where it creates value without undermining confidentiality, accountability, and deal quality. Future research should build on these exploratory insights by expanding the empirical base across markets and deal types and by quantifying AI's effects on speed, sourcing accuracy, and transaction outcomes over time.

LITERATURE

1. Alexander, T. (n.d.) Cross Border Litigation – Germany and USA [online] Available at: <https://www.germanamericanlegal.com/cross-border-litigation-germany-and-usa/> (Accessed at: 20 December 2025).
2. Amanda, M.; Amanda, D. (n.d.) What is artificial intelligence (AI) in finance? [online] Available at: <https://www.ibm.com/think/topics/artificial-intelligence-finance> (Accessed at: 20 December 2025).
3. Anshuman, Y. (2025) How AI is Transforming M&A: Unlocking Smarter, Faster Deal-Making [online] Available at: <https://www.linkedin.com/pulse/how-ai-transforming-ma-unlocking-smarter-faster-anshuman-yadav-trwoc/> (Accessed at: 20 December 2025).

4. Cole, S.; Eda, K. (n.d.) What is artificial intelligence (AI)? [online] Available at: <https://www.ibm.com/think/topics/artificial-intelligence> (Accessed at: 20 December 2025).
5. Cornell Law School (n.d.) 28 U.S. Code § 1782 – Assistance to foreign and international tribunals and to litigants before such tribunals [online] Available at: <https://www.law.cornell.edu/uscode/text/28/1782> (Accessed at: 20 December 2025).
6. Donald, M. (2019) MERGERS, ACQUISITIONS, and Other Restructuring Activities [online] Available at: <https://ebookcentral.proquest.com/lib/hrw/detail.action?docID=5754519&query=9780128013908> (Accessed at: 20 December 2025).
7. GEP (2025) THE AI ADVANTAGE: TRANSFORMING MERGERS & ACQUISITIONS [online] Available at: <https://www.gep.com/blog/strategy/integrating-ai-in-m-and-a-benefits-challenges-future-outlook#:~:text=Challenges%20and%20Limitations%20of%20M%26A,the%20effectiveness%20of%20AI%20tools> (Accessed at: 20 December 2025).
8. Hise, O. (2025) Solving Three Common AI Challenges Companies Face [online] Available at: <https://www.library.hbs.edu/working-knowledge/solving-three-common-ai-challenges-companies-face> (Accessed at: 20 December 2025).
9. Joshua, R.; Joshua P. (2022) Investment Banking Valuation, LBOs, M&A, and IPOs [online] Available at: <https://ebookcentral.proquest.com/lib/hrw/reader.action?docID=6855755&query=Joshua%2520Rosenbaum%2520&c=RVBVQg&ppg=1> (Accessed at: 20 December 2025).
10. Kairos, A. (2024) Cross-border mergers & acquisitions: the basics [online] Available at: [https://www.lexpert.ca/news/legal-faq/cross-border-mergers-acquisitions-the-basics/389772#:~:text=Cross%2Dborder%20mergers%20and%20acquisitions%20\(cross%2Dborder%20M%26As\),always%20compared%20to%20greenfield%20investments.](https://www.lexpert.ca/news/legal-faq/cross-border-mergers-acquisitions-the-basics/389772#:~:text=Cross%2Dborder%20mergers%20and%20acquisitions%20(cross%2Dborder%20M%26As),always%20compared%20to%20greenfield%20investments.) (Accessed at: 20 December 2025).
11. Martin, B. (2024) How AI will impact due diligence in M&A transactions [online] Available at: https://www.ey.com/en_ch/insights/strategy-transactions/how-ai-will-impact-due-diligence-in-m-and-a-transactions (Accessed at: 20 December 2025).

