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Sadržaj|Contents

ORIGINALNI NAUČNI RAD / ORIGINAL SCIENTIFIC PAPER

BRAND PERCEPTION DYNAMICS: A STUDY OF ADIDAS AND NIKE IN CZECH AND SWEDISH CONTEXTS	8
Josef Voráček, Daniel Opelík, Eliška Chudá	
ENHANCING SERVICE QUALITY THROUGH MARKETING AUTOMATION: IMPLICATIONS FOR THE DIGITAL ECONOMY	20
Saša Jovanović, Aleksandra Pavićević, Goran Đoković	
THE IMPACT OF CLIMATE CHANGE ON RURAL AREAS AND RURAL TOURISM: AWARENESS AND PERCEPTIONS.....	35
Andreja Katolik Kovačević, Hrvoje Sivrić	
MEASURING ONLINE MOBILISATION POTENTIAL FROM A MICRO-NARRATIVES SURVEY: LEADING CONCERNS FOR POST-YUGOSLAV RESIDENTS IN AUSTRIA, GERMANY, AND CROATIA	49
Bojan Baškot, Maja Barišić	
EURO - THE EUROPEAN UNION'S SINGLE CURRENCY - A CHALLENGE AND / OR A GOOD SOLUTION FOR CROATIA	66
Maja Vretenar Cobović, Mirko Cobović, Matej Galić	

PREGLEDNI NAUČNI RAD / OVERVIEW SCIENTIFIC PAPER

ISTRAŽIVANJE JAVNE SVIJESTI O KRUŽNOJ EKONOMIJI U REPUBLICI HRVATSKOJ	82
Dijana Mečev, Linda Martić Kuran	
INVESTIGATING PUBLIC AWARENESS ON CIRCULAR ECONOMY IN CROATIA	
STRATEGIC FRAMEWORK FOR BIODIVERSITY PROTECTION: A CASE STUDY OF THE REPUBLIC OF SRPSKA	100
Ilija Čigoja, Marijana Kapović Solomun, Vesna Novaković	
THE RELATIONSHIP BETWEEN LIQUIDITY CREATION AND DIVERSIFICATION IN BANKING: A COMPREHENSIVE LITERATURE REVIEW	112
Bade Ekim Kocaman, Adalet Hazar	
FROM ALGORITHM TO AESTHETICS: ARTIFICIAL INTELLIGENCE'S PLACE IN CREATIVE SECTOR.....	130
Nenad Perić, Mirjana Milovanović, Filip Čudić	
THE STRATEGIC INTEGRATION OF ARTIFICIAL INTELLIGENCE IN MARKETING: PREDICTIVE ANALYTICS AND PERSONALIZATION - THE CASE OF MERCEDES-BENZ.....	144
Mirjana Milovanović, Vesna Novaković	

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BRIDGING THE AI GAP: CHALLENGES AND OPPORTUNITIES IN THE ADOPTION OF AI IN THE CROATIAN HOSPITALITY AND TELECOMS INDUSTRY	157
Marina Lovrinčević, Vlatka Škokić, Valentina Popović	
DECONSTRUCTING FAIR VALUE: A POSTMODERN ANALYSIS OF ACCOUNTING AS A SOCIAL REALITY	166
Firat Botan Şan, Alper Erserim	
OKVIR ZA PRIMJENU ESG-A U IZVJEŠTAVANJU BANAKA	185
Sanja Broz Tominac, Martina Dragija Kostić, Ivana Dražić Lutilsky	
FRAMEWORK FOR THE APPLICATION OF ESG IN BANKS' REPORTING	
STOHAŠTIČKI ASPEKTI OGRANIČENJA EKONOMSKE EFIKASNOSTI USLIJED SOMATSKIH MANIFESTACIJA POTISNUTIH EMOCIJA ZAPOSLENIH	195
Jana Aleksić, Gordan Bajić, Mirjana Landika	
STOCHASTIC ASPECTS OF LIMITATIONS IN ECONOMIC EFFICIENCY DUE TO SOMATIC MANIFESTATIONS OF SUPPRESSED EMOTIONS IN EMPLOYEES	
OVERVIEW OF THE DEVELOPMENT OF DISTRIBUTION CHANNELS IN THE HOTEL INDUSTRY: ANALYSIS OF A LUXURY HOTEL IN SPLIT.....	209
Marijana Jurišić Mustapić	
STRUČNI RAD / PROFESSIONAL PAPER	
WELLBEING I ODRŽIVI RAZVOJ: SINERGIJA MENADŽMENTA I MARKETINGA U MODERNIM KOMPANIJAMA	225
Jana Aleksić, Milica Petković	
WELL-BEING AND SUSTAINABLE DEVELOPMENT: THE SYNERGY OF MANAGEMENT AND MARKETING IN MODERN COMPANIES	

BRAND PERCEPTION DYNAMICS: A STUDY OF ADIDAS AND NIKE IN CZECH AND SWEDISH CONTEXTS

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Abstract: *The aim of this study is to examine and compare the perception of Adidas and Nike brands among Czech and Swedish consumers. A quantitative methodology was employed, utilizing two electronic questionnaires distributed in Czech and Swedish. The study provides insights into consumer preferences, brand awareness, and brand equity perceptions in the two countries. The findings reveal that while both brands enjoy a positive reputation in both nations, Czech consumers demonstrate a slightly stronger preference for these brands compared to their Swedish counterparts, who exhibit a more neutral stance. The results contribute to understanding consumer behavior in different cultural settings and offer practical implications for brand management in the sportswear industry. Overall, this study provides a comprehensive understanding of how Adidas and Nike are perceived in different cultural contexts and offers valuable recommendations for brand management and marketing practices. The findings underscore the importance of considering cultural differences in global marketing strategies to achieve better brand positioning and consumer loyalty.*

Keywords: *Sports brand, customer perception, comparison, brand equity, brand positioning*

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INTRODUCTION

Sports marketing plays a crucial role in the success of companies that focus on selling sports equipment and apparel. Brands like Adidas and Nike are dominant players in this market, and their perception by consumers has a significant impact on their market position. In today's era of abundance and luxury, branded clothing is a status symbol for many. People develop relationships with brands, whether positive or negative, and these feelings influence business transactions. Therefore, it is important

for companies to understand how consumers perceive their brand and what factors influence their purchasing decisions.

This study focuses on comparing the perception of Adidas and Nike brands among Czech and Swedish consumers, aiming to identify differences and similarities in their preferences and values. The research question is: “What are the differences in the perception of Adidas and Nike brands between Czech and Swedish consumers?” The objective of this work is to identify and characterize the differences in the perception of Adidas and Nike brands between Czech and Swedish consumers and to evaluate the results for each country separately. To achieve this goal, a quantitative methodology will be used, specifically electronic surveying, and the data will be analyzed using descriptive statistics and comparison.

LITERATURE OVERVIEW

A brand is a tool for differentiating from competitors and identifying a product or service. Yadin (2002) in his International Dictionary of Marketing provides a simplified definition of a brand as a protected product name along with a personality name and visual identity. Kotler (2005) adds that a brand is an important part of a product, adding value and, in the eyes of the consumer, quality and trust. A brand guarantees the consumer the same expected quality for every purchased product.

Legal protection of a brand is crucial to ensure its uniqueness and prevent copying by competitors. Kapferer (2008) and Bastos & Levy (2012) mentions that historically, brands were created mainly to defend against theft and identify the origin of a raw material. Today, the definition has been adjusted to include all legal consequences, such as the date of trademark registration, conditions of termination, or extension of protection against copies.

Measuring brand strength can be done from various perspectives, both from the customer's point of view and from a financial perspective. Kapferer (2008) distinguishes two areas from which a brand should be viewed: the brand from the customer's perspective and their relationship to the product and company, and the creation of certain metrics that compare the brand according to its financial strength.

Factors Influencing the Probability of Purchasing Sports Brands

The likelihood of consumers buying sports products is influenced by a complex interplay of various factors. Brand perception is paramount in consumer decision-making (Macdonald & Sharp, 2000; Hassan, 2019; Ahmadi et al., 2021). Studies indicate that a positive brand perception significantly affects consumers' intention to repurchase (Zboja & Voorhees, 2006; Aslam et al., 2018; Astawa & Rahanatha, 2021). Several key constructs contribute to the formation of brand perception, including brand trust, emotional brand association, and brand image (Merrilees & Miller, 2005; Kervyn et al., 2012; Aslam et al., 2018). Aslam et al. (2018) states, that according to studies perceived similarity is essential in building trust, and congruence between brand image and self-image establishes trust. Also state that image-congruence positively impacts customer trust in apparel brands.

Brand equity is another significant determinant of purchasing behavior (Ogunnaike et al., 2017; Tsordia et al., 2018; Thanaiudompat, 2023). Brand equity can be measured in various ways, with brand value growth being one of the most visible indi-

cators of success (Washburn & Plank, 2002; Christodoulides & de Chernatony, 2010; Keller & Brexendorf, 2019; Jaworek et al., 2021). Consumers with a higher degree of brand identification tend to exhibit greater loyalty and preference toward a given brand (Loureiro et al., 2024). In the online environment, cognitive online brand identification (COBI), influenced by online brand prestige and lifestyle congruency, can lead to brand advocacy, indirectly mediated through brand love (Batra et al., 2012; Palusuk et al., 2019; Loureiro et al., 2024). Brand personality also significantly impacts consumer decisions (Ghorbani, 2014; Su & Tong, 2015; Attor et al., 2022). Su & Tong (2015) states that research in the sportswear industry has identified several dimensions of brand personality of which competence, attractiveness, sincerity, and innovation have been shown to be positive and significant contributors to building and strengthening the brand equity of sportswear.

Social factors also play a role in purchase decisions (Auger et al., 2010; Daga & Indriakati, 2022; Maqula & Katrodia, 2023). Subjective norms, reflecting perceived social pressure, have a significant positive influence on purchase intention (Nam et al., 2017; Maqula & Katrodia, 2023). In the online sphere, customer brand value co-creation, based on perceived risk, represents an important aspect of the interaction between brands and consumers (Mustafa et al., 2022; Asgari, 2023). Building a strong brand should be a priority for every professional sports team, which can be achieved by evaluating criteria influencing brand support (Couvelaere & Richelieu, 2005; Popp & Woratschek, 2016; Abdolmaleki et al., 2023). This involves adopting a partnership mindset, seeking alignment of values, and recognizing the plurality of stakeholders in a sponsorship (Abdolmaleki et al., 2023).

A study on sportswear brands in the Slovak market revealed that Adidas was perceived as the most significant brand (Janoskova & Kral, 2020). Factors influencing brand selection in the sports product market include gender, age group, education level, sports brand preference, level of sports participation, and preferred shopping method (online or in-store) (Hassan, 2019). Research in Pakistan on online apparel shopping indicated a significant positive impact of all proposed constructs (brand experience, brand trust, emotional brand association, brand image) on repurchase intention, except for prior brand experience (Aslam et al., 2018).

Product Attributes Relevant in Purchasing Sports Brands

When purchasing sports products, consumers consider various product attributes. Perceived product quality is a crucial factor influencing purchase intention (Asshidin et al., 2016; Laluyan et al., 2017; Quoquab et al., 2017; Harsono et al., 2018). Studies (Laluyan et al., 2017; Maqula & Katrodia, 2023) suggest that perceived quality has a direct and positive impact on customer satisfaction and loyalty. A study on Adidas sport shoes in Manado (Laluyan et al., 2017) found that perceived quality significantly influences consumer purchase intention, alongside advertising and brand awareness. Consumers also seek products that align with their expected benefits and features (Lüthje, 2004; Nam et al., 2017). Expectations regarding sustainability attributes of green sportswear, such as eco-labels, environmental impact, and recycling ratio, significantly influence attitude towards the brand and purchase intention in some cases (MacIntosh et al., 2013; Nam et al., 2017; Wang & Shen, 2017; Wall-Tweedie & Nguyen, 2018; Huang & Chiu, 2024).

In the context of cross-border strategic brand alliances (SBAs), country-of-origin (COO) fit can affect consumers' overall brand evaluation (Lee et al., 2016). Subjects in a congruent COO image condition showed significantly greater positive post-alliance evaluation changes toward the host brand compared to those in an incongruent COO image condition (Lee et al., 2016). Conversely, subjects in the incongruent COO image condition exhibited significantly greater positive post-alliance evaluation changes toward the partner brand (Lee et al., 2016). This implies that COO images and consumer team identification jointly affect product evaluation in a cross-border strategic brand alliance context (Lee et al., 2016). For lowly identified consumers, a host brand should collaborate with a partner brand with a favorable country image, while for highly identified consumers, the partner brand should ally with a well-known host brand with a favorable COO image to leverage that image (Koschate-Fischer et al., 2012; Lee et al., 2016).

Collaboration of Sports Brands with Athletes

Sponsorship of sports teams and endorsements by individual athletes are common marketing strategies for sports brands (Biscaia et al., 2013; Hassan, 2019; Abdolmaleki et al., 2023; Mohammadi et al., 2023). These collaborations can significantly influence brand perception, brand image, and purchase intention of the sponsor's products (Chanavat et al., 2009; Jung & Kim, 2015; Hassan, 2019). The selection of a suitable athlete for endorsement is crucial and should consider factors such as the athlete's attractiveness, trustworthiness, and expertise (Hassan, 2019). Effective use of athletes in advertising can lead to increased sales (Laluyan et al., 2017). For example, endorsement by celebrities, pro athletes, and influential people is considered a marketing factor that can drive co-branding in the Persian Gulf Pro League (PGPL) (Abdolmaleki et al., 2023).

Brand Collaboration (Co-branding) in Sports

Beyond athlete collaborations, sports brands are increasingly engaging in strategic partnerships with other brands (co-branding) (Frederick & Patil, 2010; Lee et al., 2016; Abdolmaleki et al., 2023). This can involve the fusion of luxury brands with high-tech sports brands (Yu et al., 2019; Abdolmaleki et al., 2023; Zheng & Lu, 2024). The objectives of co-branding can include boosting sales, enhancing brand image, and reducing marketing costs (Abdolmaleki et al., 2023). A study in the Persian Gulf Pro League (PGPL) (Abdolmaleki et al., 2023) identified four main drivers of co-branding between professional sports organizations and on-field apparel sponsors: brand management, partner relationships, marketing factors, and supporting factors. Brand management includes enhancing brand value, utilizing partner knowledge, brand position, identity, equity, and image (Borkovsky et al., 2017; Abdolmaleki et al., 2023). Partner relationships encompass satisfaction, mutual trust, commitment, common interest, product reliability, and innovative strategies (Abdolmaleki et al., 2023). Marketing factors involve the marketing mix, market position, competitive advantage, and entry into new domestic markets (Akgün et al., 2014; Al Badi, 2018; Abdolmaleki et al., 2023). Supporting factors include copyright, contracts, and social media law (Abdolmaleki et al., 2023). Analytical Hierarchy Process (AHP) identified marketing, partner relationships, brand management, and support as the most influential factors (Abdolmaleki et al., 2023). When selecting a co-branding partner, it is important to consider

the fit between the brands and products (Lee et al., 2016). Cross-border strategic brand alliances (SBAs) enable host and partner brands to create synergistic effects, leading to enhanced brand image and positive brand evaluations (Lee et al., 2016).

METHODOLOGY

A quantitative research design was chosen to assess consumer perceptions of Adidas and Nike in the Czech Republic and Sweden. Data collection was conducted using two online questionnaires—one in Czech and one in Swedish—distributed among relevant consumer groups. A modified direct translation method was employed for the development of a bilingual questionnaire in Czech and Swedish. The survey included questions about brand perception - consumer preferences, and brand awareness (via operationalization, Figure 1).

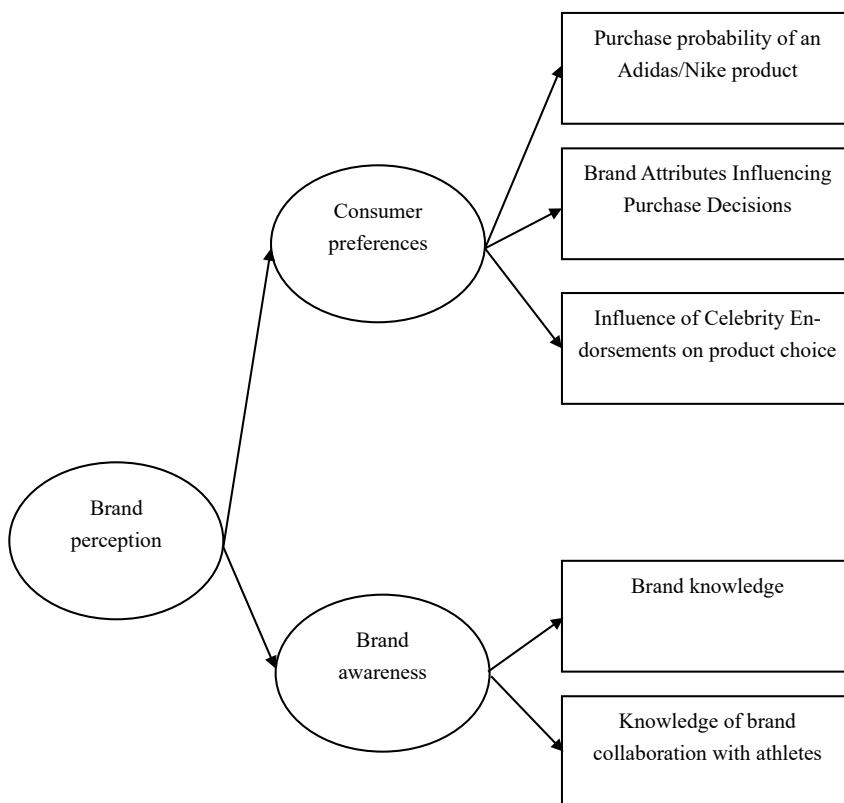


Figure 1. Operationalization

Source: own data

The research sample consisted of athletes from the Czech Republic and Sweden aged 18-40 years. The age range was chosen considering the adulthood of the respondents and divided into two generations, Z and Y. A quota sampling method was used to ensure a representative sample. The goal was to obtain 100 responses from each country to allow for an objective comparison of the questionnaires. The research sample consists

of 200 respondents and the final structure of respondents is presented in Table 1.

Table 1. *Structure of the research sample*

Criterion	Variants	Relative size (%) Czech	Relative size (%) Sweden
Gender	Male	35	40
	Female	65	60
Age	18-27	84	69
	28-40	16	31
Sports performance categories	Amateur/recreational athlete	36	45
	High Performance Athlete	38	12
	Elite athlete	22	34
	Professional athlete	4	9

Source: own data

Data collection was conducted through online distribution channels, ensuring accessibility and anonymity for participants. The survey included Likert scale items (1 – strongly disagree, 5 – strongly agree) measuring attitudes toward Adidas and Nike in terms of brand awareness, and consumer preferences. The obtained data were compared, focusing on the most significant differences and similarities. The final dataset was analyzed using comparative statistical methods, including frequency analysis and cross-tabulation. These methods allowed for identifying key differences between Czech and Swedish consumers in their perception of Adidas and Nike.

RESULTS AND DISCUSSION

This chapter presents and discusses the key findings of the empirical investigation into the perception of Adidas and Nike brands among Swedish and Czech consumers. The results are analyzed, compared within and between the two countries, and contrasted with existing literature where applicable. Limitations of the study and potential implications of the findings are also addressed.

Overall Brand Perception and Purchase Probability

The research revealed an overall positive perception of both Adidas and Nike brands in both Sweden and the Czech Republic. A significant majority of respondents in both countries indicated a likelihood of purchasing products from either brand. However, Czech respondents demonstrated a slightly more positive inclination towards both brands compared to their Swedish counterparts, who exhibited a more neutral stance. Specifically, 84% of Czech respondents indicated they would “always buy” or “rather buy” Adidas, compared to 52% of Swedish respondents. Similarly, 83% of Czech respondents expressed positive purchase intent for Nike, while this figure was 60% in Sweden. This suggests a potentially stronger brand engagement or familiarity (Macdonald & Sharp, 2000; Ahmadi et al., 2021) within the Czech consumer base for these dominant sports brands. Notably, Nike appeared to have a slightly higher number of potentially loyal customers in the Czech Republic, with 23% stating they would “always buy” Nike com-

pared to 10% for adidas. In Sweden, the number of respondents indicating they would “always buy” Nike (21%) was also higher than for adidas (14%).

Key Brand Attributes Influencing Purchase Decisions

The study investigated the importance of six brand attributes for both adidas and Nike: product quality, advertising/logo/slogan, product design, past personal experience, impulsive appeal, and brand prestige.

For adidas, Czech respondents identified product design (mean = 4.03, median = 4) as the most important attribute influencing their purchase decisions, followed by product quality (mean = 4.00, median = 4) and past personal experience (mean = 3.89, median = 4). In contrast, Swedish respondents prioritized product quality (mean = 3.73, median = 4) for adidas, with product design (mean = 3.64, median = 4) ranking second. The least influential attribute for adidas among Czech respondents was advertising/logo/slogan (mean = 2.52, median = 2), while for Swedes, it was impulsive appeal (mean = 2.04, median = 1).

For Nike, product quality emerged as the most crucial attribute for both Czech (mean = 4.14, median = 4) and Swedish (mean = 3.82, median = 4) respondents. Product design (Czech mean = 4.07, median = 4; Swedish mean = 3.78, median = 4) and past personal experience (Czech mean = 3.97, median = 4; Swedish mean = 3.53, median = 4) also held significant importance in both countries. Similar to adidas, advertising/logo/slogan was the least important factor for Czech consumers (mean = 2.80, median = 3) when considering Nike, whereas impulsive appeal ranked lowest for Swedish consumers (mean = 2.17, median = 2).

These findings suggest that while core product attributes like quality and design are paramount for both brands across both countries (Aslam et al., 2018), subtle differences exist in the relative importance assigned to these and other factors. Czech consumers appear to place a slightly higher emphasis on the aesthetic aspect of adidas products, while Swedes prioritize the fundamental quality. For Nike, the emphasis on quality is consistent across both demographics. The lower importance attributed to advertising and impulsive appeal suggests that purchase decisions are likely driven by more intrinsic brand values and product characteristics (Ogunnaike et al., 2017; Thanaiudompat, 2023).

Influence of Celebrity Endorsements

The study explored the impact of celebrity endorsements on consumer brand choices. Overall, respondents in both countries reported a relatively low level of influence from celebrity endorsements. In the Czech Republic, the modal response was “almost not influenced,” with 65% selecting a negative influence option. In Sweden, the responses were more divided, with “occasionally influenced” and “almost not influenced” being the most frequent answers. Interestingly, the correct identification of sponsored athletes varied (Laluyan et al., 2017). For instance, LeBron James (Nike) was correctly associated with the brand by a high percentage in both countries, suggesting a strong link between certain high-profile athletes and their sponsoring brands (Biscaia et al., 2013). However, other endorsements were less accurately recognized. This suggests that while brands invest in celebrity marketing, its direct influence on purchase decisions, at least as self-reported, may be limited, or its impact might be more nuanced, contributing to overall brand image rather than immediate purchase

triggers for all consumers (Abdolmaleki et al., 2023).

Perceived Similarity of Brand Perception Across Countries

Interestingly, a similar proportion of respondents in both the Czech Republic (55%) and Sweden (55%) believed that the research findings between the two countries would be similar. However, the subsequent analysis revealed notable differences in purchase probability and the relative importance of brand attributes, indicating a potential disconnect between consumers' intuitive expectations and the empirical reality.

Limitations of the Study

Several limitations warrant consideration. The sample size of 100 respondents per country limits the generalizability of the findings to the broader Swedish and Czech populations. The unequal gender distribution within the samples could have introduced bias, although sub-group analysis based on gender was not performed due to this imbalance. The reliance on self-reported data via electronic questionnaires is susceptible to response bias and potential inaccuracies. The noted translation error in the response options for a purchase probability question in the Swedish version might have introduced confusion. Furthermore, the researcher's lack of fluency in Swedish necessitated reliance on translators, potentially overlooking subtle linguistic nuances. Finally, the study focused solely on adidas and Nike, neglecting the broader competitive landscape within the sports apparel and equipment market.

Significance and Potential Implications

Despite these limitations, the study provides valuable insights into the cross-cultural perception of two leading sports brands. The findings highlight both universal and country-specific factors influencing consumer preferences. The consistent importance of product quality underscores the fundamental expectations of consumers in this market segment. The differing emphasis on design for adidas between the two countries suggests potential avenues for tailored marketing strategies. The relatively low reported influence of celebrity endorsements raises questions about the effectiveness and optimal utilization of this marketing tactic.

The observed differences in overall brand inclination and attribute importance suggest that while both adidas and Nike enjoy strong global brand equity, local market nuances stemming from cultural or economic factors play a significant role in shaping consumer perceptions and preferences. This implies that a standardized global marketing approach might benefit from adaptation to resonate more effectively with specific national consumer segments. Future research could explore these cultural and economic influences in greater depth, employing larger and more diverse samples, and incorporating qualitative methodologies to gain a richer understanding of the underlying drivers of brand perception.

In conclusion, this comparative analysis of Swedish and Czech consumers' perceptions of adidas and Nike provides empirical evidence of both shared values and distinct preferences, contributing to the broader understanding of cross-cultural brand perception in the sports industry. The findings offer practical implications for brand management and marketing strategies seeking to optimize their impact in these specific European markets.

CONCLUSION

This study aimed to identify and characterize specific differences in the perception of adidas and Nike brands between Czech and Swedish consumers. The research findings confirmed a generally positive perception of both brands in both countries, with Czech respondents exhibiting a slightly more positive attitude. Brand preferences varied, with Nike being more preferred in Sweden, while in the Czech Republic both brands were perceived similarly. The key attribute influencing purchasing decisions was product quality in both countries and for both brands, although Czech respondents attributed greater importance to the design of adidas products. Conversely, the influence of celebrity endorsement proved to be relatively low in both surveyed populations. While the research yielded valuable insights into the nuances of brand perception across cultures, limitations related to sample size, uneven gender representation, and potential biases arising from self-report questionnaires and translation inaccuracies should be considered. Future research could focus on a deeper exploration of cultural and economic factors influencing brand perception, utilizing larger and more diversified samples and combining quantitative and qualitative methodologies. The identified differences suggest that targeted marketing strategies that consider the specificities of national consumer segments could be more effective than a universal global approach.

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ENHANCING SERVICE QUALITY THROUGH MARKETING AUTOMATION: IMPLICATIONS FOR THE DIGITAL ECONOMY

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Abstract: *The paper aims to explore the impact of marketing automation on service quality within the context of the digital economy. As contemporary businesses increasingly implement automated marketing tools to enhance customer satisfaction and operational efficiency, understanding their influence on perceived service quality becomes a significant topic. To address this issue, the study uses the SERVQUAL model to measure the five key dimensions of service quality from the perspective of marketing automation: tangibility, reliability, responsiveness, assurance and empathy. A quantitative research approach was adopted, utilizing descriptive statistics and a regression model to analyse data collected from a sample of 155 service users in the Republic of Serbia. In addition, the research analyses differences in satisfaction levels across various service industries, including financial services, hospitality, healthcare and telecommunications. The findings indicate statistically significant relationships between marketing automation and several dimensions of service quality, suggesting that automation can positively influence customer perceptions when implemented effectively. This study contributes to the theory on digital transformation in services and offers practical implications for businesses seeking to implement marketing automation tools to enhance customer experience.*

Keywords: *marketing automation, service quality, digital economy, service marketing, digital transformation*

JEL Classification: *M21, M31, L90*

INTRODUCTION

Marketing automation is one of the pillars of modern customer relationship management, significantly transforming marketing processes and providing deeper in-

sights into consumers, with an emphasis on personalizing the user experience. From the perspective of the digital economy, marketing automation contributes to cost efficiency, personalization at scale, the creation of additional value for both consumers and the environment, and improved data-driven decision making. In the service sector, the application of marketing automation has multiple effects on the dimensions of service quality, considering that it participates in shaping consumer perception.

Given the importance of marketing automation, this paper aims to examine its impact on service quality within the context of the digital economy. When defining the topic and objectives of this article, it was considered that there is a research gap in the limited exploration of how marketing automation influences customer perceptions of service quality in the service sector, despite the fact that marketing automation tools have been widely studied in sales management. To address this issue, the study uses the SERVQUAL model to measure the five key dimensions of service quality from the perspective of marketing automation: tangibility, reliability, responsiveness, assurance and empathy. The research was conducted on a sample of 155 (N=155) service users in the Republic of Serbia in 2025. During the analysis and interpretation of the data, descriptive statistics and a regression model were applied to examine the impact of individual dimensions of service quality on overall user satisfaction. In addition, the research analyses differences in satisfaction levels across various service industries, including financial services, hospitality, healthcare and telecommunications.

MARKETING AUTOMATION AND SERVICE QUALITY: LITERATURE REVIEW

The American Marketing Association (AMA) defines marketing automation as “the use of software and technology to expedite and improve repetitive or time-consuming marketing activities” (American Marketing Association, 2025). The results of a 2024 global survey published by Statista revealed that email, social media and content management are the key areas where marketing automation is most commonly applied (Statista, 2024).

The literature review identified various studies that address the impact of marketing automation on business performance (Mahmoud, et al., 2020) (Silva, Corbo, Vlačić, & Fernandes, 2023), consumer buying behaviour (Boozary, Hosseini, Pourmirza, GhorbanTanhaei, & Sheykhan, 2024), sales (Jena & Panda, 2017), promotion (Sun, Li, Guo, & Gao, 2023), database management and campaign execution (Biegel, 2009).

When analysing the benefits of implementing marketing automation, studies point to the following. The Statista report (Statista, 2024) highlights the importance of marketing automation for time management and improving efficiency. This is especially evident when using email campaigns and social media marketing tools that allow managers to save resources and focus on strategic decisions. In a study conducted by Jovanovic et al. (Jovanovic, Djokovic, & Pusara, 2024) it was indicated that the application of digital technologies and particularly digital media enhanced the added value of products and services. In addition, research in a banking sector revealed the positive effects of mobile banking tools on cost efficiency (Koyluoglu & Acar, 2023). Furthermore, the study provided by Joseph emphasizes the importance of marketing automation for digital marketing, primarily in the domain of lead generation and personalized

content creation (Joseph, 2023). Significant insight into the contributions of marketing automation in the digital economy was provided by Forrester that demonstrated its impact on database decision making, which is of great importance for running digital campaigns and managing customer relationships (Forrester, 2024). A significant number of studies point to the importance of marketing automation for improving the customer experience. According to Reddy (2022), AI-driven marketing automation tools can significantly enhance customer engagement and satisfaction (Reddy, 2022). The study analyses the transformative potential of using AI in marketing to create personalized experiences that meet individual customer needs. Given the evident impact of marketing automation on the consumer experience, the term customer experience automation (CXA) has come into use in marketing theory and practice. According to McKinsey, customer experience automation is defined as “the integration of automation technologies and data-driven insights to manage and personalize interactions with customers at scale” (McKinsey & Company, 2023).

Literature review on marketing automation in the service sector indicates the effects of its application in various industries, such as improved market segmentation, efficiency of business processes, enhanced user experience through personalized communication and better insight into consumer needs. A study (Van Leeuwen & Koole, 2022) dealing with marketing automation in the hospitality sector highlights that machine learning enables data-driven market segmentation based on in-depth analysis of hotel guest profiles. Research by Gerling and Lessmann (2024), exploring the use of artificial intelligence and natural language processing (NLP) in the banking industry, highlights their crucial role in creating value and enhancing customer engagement (Gerling & Lessmann, 2024). In addition, a study (Visan, Ionita, & Filip, 2020) dealing with data analysis in the telecommunications market indicated the positive effects of using marketing automation on business efficiency and decision – making processes. Furthermore, Pearson emphasizes the new opportunities enabled by marketing automation, particularly in redefining the relationship with consumers and delivering the right information throughout the entire customer journey and purchasing process (Pearson, 2021).

When researching the impact of marketing automation on service quality, the literature highlights its positive implications, primarily on marketing communication with consumers through digital channels and providing a personalized user experience. In addition, marketing automation provides targeted communication (Boozary, Hosseini, Pourmirza, GhorbanTanhaei, & Sheykhan, 2024) that significantly shapes the digital consumer experience, as a result of which it affects the quality of service.

However, despite the significant positive implications of marketing automation for service quality, it is important to recognize that achieving higher levels of customer satisfaction requires a balanced integration of digital tools with traditional service approaches. Similar observations were highlighted in a research (Naumov, 2019) on the example of the hotel industry, indicating that human presence is a very important segment of the service experience.

It is important to highlight that the literature review revealed a limited research on the impact of marketing automation on service quality, which served as one of the primary motivations for conducting this study. To address the research topic, it was necessary to analyse the theory that deals with service quality, as well as the ap-

plications of the SERVQUAL model, which was utilized in this paper. According to Grönroos (Grönroos, 1984), service quality is defined as “the outcome of an evaluation process where the customer compares his expectations with the service he perceives he has received”. Lewis & Booms (Lewis & Booms, 1983) consider service quality as “a measure of how well the service delivered matches customer expectations”. Furthermore, The SERVQUAL model developed by Parasuraman, Zeithaml, and Berry, evaluates service quality based on five dimensions: tangibles, reliability, responsiveness, assurance, and empathy (Parasuraman, Zeithaml, & Berry, 1988). This model has been widely used in traditional service contexts such as banking, hospitality, and healthcare. However, its application in digital environment is still relatively underexplored. Limited literature has addressed the quality dimensions of the SERVQUAL model in a digital context. In recent studies, Demirel (Demirel, 2022) has explored services in digital environments, indicating that “digital service quality is defined by dimensions such as digital tangibles, reliability, digital interaction, digital trust and customer-centricity”. In addition, Zygiaris et al. analysed the concept of service quality within the post- pandemic landscape, highlighting “the effective use of digital tools and social media to provide responsive updates to customers” (Zygiaris, Hameed, Alsubaie, & Rehman, 2022). Their study emphasized the continued relevance of empathy, assurance, reliability, responsiveness and tangibles in influencing customer satisfaction.

HYPOTHESIS DEVELOPMENT

Based on the SERVQUAL framework and literature review (Zygiaris, Hameed, Alsubaie, & Rehman, 2022) (Demirel, 2022) (Parasuraman, Zeithaml, & Berry, 1988), the following hypotheses were developed to examine the relationship between service quality dimensions and overall satisfaction with automated services:

H1: Reliability of automated services has a positive and significant effect on overall satisfaction.

H2: Assurance provided by automated systems has a positive and significant effect on overall satisfaction.

H3: Tangibles (visual and design elements of automated systems) have a positive and significant effect on overall satisfaction.

H4: Empathy in automated communications positively influences overall satisfaction.

H5: Responsiveness of automated systems positively influences overall satisfaction.

METHODOLOGY: RESEARCH INSTRUMENT AND SAMPLE

In this study, the 5-point Likert scale (1.Strongly disagree – 5. Strongly agree) was utilized to assess customer expectations and perceptions of service quality across the five SERVQUAL dimensions, such as reliability, assurance, tangibles, empathy and responsiveness.

The research was conducted in 2025 on a sample of 155 service users (N = 155) in the Republic of Serbia, from four industries: financial services (23.2%), hospitality (21.9%), healthcare (32.3%) and telecommunications (22.6%) (Table 1).

Table 1: Respondents by service industry

Service industry				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	financial services	36	23.2	23.2
	Hospitality	34	21.9	45.2
	Healthcare	50	32.3	77.4
	Telecommunications	35	22.6	100.0
	Total	155	100.0	100.0

Source: Authors' calculation in SPSS

To calculate the overall satisfaction related to automated service quality, the SERVQUAL model was adapted using 20 items grouped under the five dimensions.

Reliability:

VAR 1: The company's automated messages (emails/SMS) are accurate and timely.

VAR 2: Automated systems always provide consistent information.

VAR 3: I can rely on the company's automated tools to function properly without errors.

VAR 4: The service provided—automated or human—is dependable.

Assurance:

VAR 5: The automated service systems (e.g., chatbots, emails) seem trustworthy.

VAR 6: I feel confident sharing information with the company, even through automated systems.

VAR 7: Automation makes me feel secure and well-informed.

VAR 8: Automated messages clearly explain services and inspire confidence.

Tangibles:

VAR 9: Automated messages are professionally designed and easy to read.

VAR 10: The website/app, including automated tools, is visually appealing.

VAR 11: Automated communications are personalized and visually engaging.

VAR 12: The company's digital tools appear modern and well-maintained.

Empathy:

VAR 13: Automated messages reflect my preferences and previous interactions.

VAR 14: The company uses automation to deliver personalized support.

VAR 15: Even automated responses feel tailored to my needs.

VAR 16: Automation helps the company understand and care about my needs.

Responsiveness:

VAR 17: Automated systems respond to inquiries promptly.

VAR 18: I receive timely updates and follow-ups through automated channels.

VAR 19: It is easy to get fast support through chatbots or auto-responses.

VAR 20: Automation helps the company address issues efficiently.

For each item, respondents rated both their expectations and perceptions of the service. The gap scores were calculated as the difference between perceived and expected service quality ($\text{Gap} = \text{Perception} - \text{Expectation}$). This approach aligns with the traditional SERVQUAL methodology, where positive gap scores indicate satisfaction

exceeding expectations, while negative scores reflect unmet expectations (Parasuraman, Zeithaml, & Berry, 1988).

In order to derive an aggregate measure of satisfaction, the overall satisfaction score was computed as the mean of all 20 gap scores. The formula used in SPSS was as follows:

$$\text{Overall_Satisfaction} = \text{MEAN}(\text{Gap1, Gap2, ..., Gap20})$$

This method assumes that each dimension contributes equally to the overall perception of service quality, which is consistent with prior studies employing the SERVQUAL framework in digital and automated service contexts (Zeithaml, Parasuraman, & Malhotra, 2002). The resulting score was used as the dependent variable in subsequent regression analysis to determine the impact of individual service quality dimensions on overall satisfaction. Similar approach was used in a study dealing with tourist satisfaction that demonstrates the model's adaptability across different service industries (Veranga, 2024).

To evaluate the internal consistency of the SERVQUAL-based instrument adapted for assessing user satisfaction with automated service quality, Cronbach's alpha coefficients were calculated for each of the five dimensions based on the computed gap scores (the difference between perceived and expected service quality for each item). The results demonstrated in Table 2 indicate a generally high level of internal consistency across all dimensions. According to the guidelines, an alpha coefficient of 0.70 or above is considered acceptable for exploratory research, while coefficients above 0.90 are indicative of excellent internal reliability (Nunnally & Bernstein, 1994).

Table 2: Cronbach's alpha coefficients for SERVQUAL dimensions

Reliability Statistics Reliability dimension Gaps Var 1-Var 4	
Cronbach's Alpha	N of Items
.744	4
Reliability Statistics Assurance dimension Gaps Var 5 – Var 8	
Cronbach's Alpha	N of Items
.953	4
Reliability Statistics Tangibles dimension Gaps Var 9 –Var 12	
Cronbach's Alpha	N of Items
.904	4
Reliability Statistics Empathy dimension Gaps Var 13-Var 16	
Cronbach's Alpha	N of Items
.950	4
Reliability Statistics Responsiveness dimension Gaps Var 17 – Var 20	
Cronbach's Alpha	N of Items
.951	4

Source: Authors' calculation in SPSS

The testing of the hypothetical framework was based on the application of a linear regression model supported by SPSS software. For the purposes of this research, ANOVA and the Tukey HSD post hoc test were used to compare customer satisfaction levels across different service industries.

RESULTS AND DISCUSSION

Hypothesis 1 (H1): Reliability of automated services has a positive and significant effect on Overall Satisfaction, was tested using a linear regression model, as presented in Table 3.

Table 3: Regression model for Reliability

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.890 ^a	.793	.791	.38630

a. Predictors: (Constant), Reliability_score

ANOVA ^a					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	87.235	1	87.235	584.591	.000 ^b
1 Residual	22.831	153	.149		
Total	110.066	154			

a. Dependent Variable: Overall_Satisfaction

b. Predictors: (Constant), Reliability_score

Coefficients ^a					
Model B	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Std. Error	Beta			
1	(Constant)	-.124	.040	-3.122	.002
	Reliability_score	1.022	.042	.890	24.178

a. Dependent Variable: Overall_Satisfaction

Source: Authors' calculation in SPSS

Given the data presented in the Table 3, the regression model was statistically significant, $F(1, 153) = 584.59$, $p < 0.05$, indicating that Reliability significantly predicts satisfaction with automated services. The model explains approximately 79.3% of the variance in satisfaction ($R^2 = 0.793$, Adjusted $R^2 = 0.791$), demonstrating that reliability is a significant contributing factor to the variation in satisfaction scores.

The unstandardized coefficient ($B = 1.022$, $p < 0.05$) indicates that a one-unit increase in the perceived Reliability score is associated with a 1.022 unit increase in overall satisfaction. The standardized coefficient ($\beta = 0.890$) further confirms that Reliability has a strong positive effect on satisfaction. The t-value (24.178) also shows that the predictor is highly significant.

The testing of Hypothesis 2 also involved the application of a linear regression model (Table 4), aimed at examining whether assurance provided by automated systems has a positive and significant effect on overall satisfaction.

Table 4: Regression model for Assurance

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.932 ^a	.869	.868	.30698

a. Predictors: (Constant), Assurance_score

ANOVA ^a					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	95.648	1	95.648	1015.010
	Residual	14.418	153	.094	.000 ^b
	Total	110.066	154		

a. Dependent Variable: Overall_Satisfaction

b. Predictors: (Constant), Assurance_score

Coefficients ^a					
Model B	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Std. Error	Beta			
1	(Constant)	-.016	.029	-.554	.580
	Assurance_score	.652	.020	.932	.000

a. Dependent Variable: Overall_Satisfaction

Source: Authors' calculation in SPSS

The results of the regression analysis indicate that Assurance is a significant and strong predictor of Overall Satisfaction, explaining a substantial portion of the variance in user satisfaction.

The regression model for Assurance explains approximately 86.9% of the variance in Overall Satisfaction ($R^2 = 0.869$). This is a high level of explanatory power, suggesting that Assurance plays a critical role in determining how satisfied users are with automated services. The Adjusted R^2 value (0.868) further confirms that the model is robust, accounting for the number of predictors in the analysis.

The F-statistic for the regression model was 1015.010, with a p-value of less than 0.05, indicating that the model is statistically significant and that Assurance is a reliable predictor of satisfaction. This supports the hypothesis that the perceived trustworthiness, confidence, and clarity of automated services significantly influence how satisfied users feel with these services.

The unstandardized coefficient for Assurance was 0.652, indicating that for each unit increase in the perceived Assurance (e.g., trust in automated systems, clarity of communication), Overall Satisfaction increased by 0.652 units. This is a strong positive relationship, highlighting the importance of trust-building features in automated systems. The standardized coefficient of 0.932 confirms that Assurance is the most influential predictor of satisfaction among all the service quality dimensions assessed. This implies that Assurance has the greatest impact on user satisfaction compared to other factors such as reliability, empathy, tangibles, and responsiveness.

Table 5 presents the findings related to the regression model analysing the relationship between Overall Satisfaction and Tangibles, in order to test Hypothesis 3.

Table 5: Regression model for Tangibles

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.872 ^a	.761	.760	.41454

a. Predictors: (Constant), Tangibles_score

ANOVA ^a						
	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	83.775	1	83.775	487.513	.000 ^b
	Residual	26.292	153	.172		
	Total	110.066	154			

a. Dependent Variable: Overall_Satisfaction

b. Predictors: (Constant), Tangibles_score

Coefficients ^a						
	Model B	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		Std. Error	Beta			
1	(Constant)	.156	.036		4.294	.000
	Tangibles_score	.910	.041	.872	22.080	.000

a. Dependent Variable: Overall_Satisfaction

Source: Authors' calculation in SPSS

The regression model for Tangibles explains 76.1% of the variance in Overall Satisfaction ($R^2 = 0.761$). This is a relatively high level of explanatory power, indicating that Tangibles is a critical factor influencing satisfaction. The Adjusted R^2 value of 0.760 further strengthens this conclusion, showing that the model accounts for a substantial portion of the variance while adjusting for the number of predictors.

The F-statistic of 487.513, with a p-value of less than 0.05, indicates that the regression model is statistically significant, and Tangibles_score is a reliable predictor of Overall Satisfaction. The unstandardized coefficient for Tangibles_score is 0.910, meaning that a one-unit increase in the perceived quality of the tangible aspects of the service leads to a 0.910 unit increase in Overall Satisfaction. The standardized coefficient ($\beta = 0.872$) further emphasizes the strength of this relationship, showing that Tangibles has a considerable impact on satisfaction in comparison to other predictors.

The t-value for Tangibles_score (22.080) is very high, with a p-value of 0.000, confirming that Tangibles is a statistically significant predictor of satisfaction. This strong relationship suggests that users' perceptions of the design, visual appeal, and usability of automated services have a direct and substantial effect on their overall satisfaction with these systems.

Furthermore, the regression model presented in Table 6 explored the relationship between Overall Satisfaction and Empathy, and was used to test Hypothesis 4 (H4).

The regression results demonstrate that Empathy_score has a significant role in determining overall user satisfaction, accounting for a large proportion of the variance in Overall Satisfaction.

Table 6: Regression model for Empathy

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.809 ^a	.655	.653	.49832

a. Predictors: (Constant), Empathy_score

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	72.072	1	72.072	290.232	.000 ^b
Residual	37.994	153	.248		
Total	110.066	154			

a. Dependent Variable: Overall_Satisfaction

b. Predictors: (Constant), Empathy_score

Coefficients ^a					
Model B	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	Std. Error	Beta			
1 (Constant)	.139	.045		3.108	.002
Empathy_score	.691	.041	.809	17.036	.000

a. Dependent Variable: Overall_Satisfaction

Source: Authors' calculation in SPSS

The R^2 value of 0.655 indicates that Empathy_score explains 65.5% of the variance in Overall Satisfaction, implying that the perception of empathy, such as the personalization and responsiveness of automated services, is an important driver of user satisfaction.

The Beta standardized coefficient of 0.809 shows the existence of a strong positive relationship. This implies that for every one-unit increase in perceived empathy, Overall Satisfaction is expected to increase by 0.809 units.

Furthermore, the F-statistic of 290.232 ($p = 0.000$) indicates that the model significantly explains the variance in Overall Satisfaction, where Empathy_score is an important contributor. The high t-value of 17.036 for Empathy_score ($p = 0.000$) suggests that the relationship between Empathy_score and Overall Satisfaction is statistically significant.

Hypothesis 5 (H5): Responsiveness of automated systems positively influences Overall Satisfaction, was tested using a linear regression model presented in Table 7.

Table 7: Regression model for Responsiveness

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.804 ^a	.646	.644	.50451

a. Predictors: (Constant), Responsiveness_score

ANOVA ^a					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	71.122	1	71.122	279.420	.000 ^b
Residual	38.944	153	.255		
Total	110.066	154			

a. Dependent Variable: Overall_Satisfaction

b. Predictors: (Constant), Responsiveness_score

Coefficients ^a					
Model B	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Std. Error	Beta			
1 (Constant)	.357	.041		8.689	.000
Responsiveness_score	.583	.035	.804	16.716	.000

a. Dependent Variable: Overall_Satisfaction

Source: Authors' calculation in SPSS

The regression analysis revealed that Responsiveness is a statistically significant and strong predictor of Overall Satisfaction in the context of automated service systems. The standardized coefficient ($\beta = 0.804$) indicates a robust positive relationship, suggesting that users who perceive automated systems as responsive—i.e., capable of providing prompt replies, timely updates, and efficient problem resolution—are significantly more likely to report higher satisfaction levels.

The model's R^2 value of 0.646 demonstrates that approximately 64.6% of the variance in overall satisfaction can be explained solely by the perceived responsiveness of automated services. The F-statistic ($F = 279.420$, $p < 0.05$) further confirms that the model is highly statistically significant, providing strong evidence that responsiveness is not only relevant but central to satisfaction outcomes.

The application of linear regression models between Overall Satisfaction ($N = 155$) and each individual SERVQUAL dimension demonstrated a significant influence on service quality, thereby confirming the proposed hypotheses.

The results of the ANOVA (Table 8) and Tukey HSD (Table 9) tests have provided insights into the overall satisfaction levels across four different industries: financial services, hospitality, healthcare, and telecommunications. The ANOVA test indicated a statistically significant difference in overall satisfaction between the industries ($F(3, 151) = 111.213$, $p < 0.05$).

Table 8: ANOVA test

ANOVA					
Overall_Satisfaction					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	75.773	3	25.258	111.213	.000
Within Groups	34.294	151	.227		
Total	110.066	154			

Source: Authors' calculation in SPSS

The Tukey HSD test (Table 9) demonstrated that healthcare has significantly lower satisfaction level ($M = -0.3880$, $p < 0.05$) compared to hospitality ($M = 1.4897$, Mean Difference = 1.88, $p < 0.05$), financial services ($M = 0.7792$, Mean Difference = 1.17, $p < 0.05$), telecommunications ($M = 0.4000$, Mean Difference = 0.79, $p < 0.05$). On the other hand, the respondents rated hospitality with the highest satisfaction ($M = 1.4897$). The satisfaction difference between telecommunications and financial services was not significant, suggesting that customers in these two industries have similar levels of satisfaction.

Table 9: Tukey HSD test

Multiple Comparisons						
Dependent Variable: Overall_Satisfaction						
Tukey HSD						
(I) industry	(J) industry	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
financial services	Hospitality	-.71054*	.11397	.000	-1.0066	-.4145
	Healthcare	1.16717*	.10417	.000	.8966	1.4378
	Telecommunications	.37917*	.11313	.006	.0853	.6731
Hospitality	financial services	.71054*	.11397	.000	.4145	1.0066
	Healthcare	1.87771*	.10593	.000	1.6025	2.1529
	Telecommunications	1.08971*	.11475	.000	.7916	1.3878
Healthcare	financial services	-1.16717*	.10417	.000	-1.4378	-.8966
	Hospitality	-1.87771*	.10593	.000	-2.1529	-1.6025
	Telecommunications	-.78800*	.10503	.000	-1.0609	-.5151
telecommunications	financial services	-.37917*	.11313	.006	-.6731	-.0853
	Hospitality	-1.08971*	.11475	.000	-1.3878	-.7916
	Healthcare	.78800*	.10503	.000	.5151	1.0609

*. The mean difference is significant at the 0.05 level.

Overall_Satisfaction					
Tukey HSD ^{a,b}					
Industry	N	Subset for alpha = 0.05			
		1	2	3	4
healthcare	50	-.3880			
telecommunications	35	.4000			
financial services	36	.7792			
hospitality	34	1.4897			
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 37.821.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Source: Authors' calculation in SPSS

The findings presented in this paper may be compared with the following research results. A study investigating the quality of services in air transport highlighted the importance of implementing digital tools that impact the user experience (Büyüközkan, Havle, & Feyzioğlu, 2020). The application of the SERVQUAL model has also proven to be suitable in a study conducted in China (Shi & Shang, 2020), which indicated its relevance across various industries, including retail, medical services, e-commerce and tourism. In exploring the concept of service quality in online shopping, Rita et al. (Rita, Oliveira, & Farisa, 2019) have found that digital services tend to achieve higher levels of customer satisfaction, primarily due to factors such as website design, security, and fulfilment. Similar findings were noticed in a research dealing with digital customer relationship management (CRM) indicating that dimensions like trust, enthusiasm, and sensitivity positively impact customer satisfaction (Demirel, 2022).

When interpreting the results, it is important to consider certain limitations, which provide opportunities for future research. The relatively higher share of healthcare service users should be taken into account, as well as the need to compare satisfaction levels for each quality dimension across different industries.

CONCLUSION

In this paper, it is indicated that the application of marketing automation significantly affects the perception of service quality and user experience, which are shaped by the dimensions of tangibility, reliability, responsiveness, assurance and empathy. Using the regression model, it was determined that Assurance has the greatest impact on the satisfaction of service users, with a standardized coefficient of 0.932, which is significantly higher compared to the other quality dimensions.

When comparing the overall satisfaction levels of service users across industries, it was found that respondents rated the quality of service in hospitality the highest ($M = 1.4897$), while healthcare recorded the lowest level of satisfaction ($M = -0.3880$). These results point to the conclusion that the application of marketing automation tools in the hospitality industry has contributed to greater personalization of the user experience and provided a better approach to understanding guest needs. Using the example of lower satisfaction levels with services in the healthcare sector, a recommendation can be made for managers in this field. They should consider that users have a need for more effective communication and a personalized experience, which has not been fully realized due to the inconsistent application of marketing automation. The results presented in this paper provide a foundation for future research into the impact of marketing automation on service quality, and demonstrate the successful application of the adapted SERVQUAL model in a digital context. This study also opens up new opportunities for research, primarily into the relevance of quality dimensions in shaping digital customer experience in the service sector.

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THE IMPACT OF CLIMATE CHANGE ON RURAL AREAS AND RURAL TOURISM: AWARENESS AND PERCEPTIONS

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Abstract: *The latest IPCC report highlights that global warming is causing increased and potentially irreversible changes, with Europe facing more frequent and intense extreme weather. A temperature rise of 2 °C could critically impact nature and human life. The study aimed to assess awareness and perceptions of climate change's impact on rural areas and tourism among participants from five Croatian counties, including 59 rural tourism entrepreneurs from the private sector and 45 respondents from the public sector. A survey was conducted separately for both sectors between May 2020 and October 2022, with respondents participating voluntarily and anonymously. Descriptive and inferential statistical methods were applied to analyze awareness and perception of climate change's impact on rural tourism. The findings indicate that public sector respondents have a higher average assessment score ($AS = 4.43$) compared to the private sector ($AS = 3.97$). Additionally, the public sector shows more consistent responses ($SD = 0.74$) versus the private sector's greater variability ($SD = 0.95$), reflecting uniform attitudes in the public sector and diverse views in the private sector. Factor analysis revealed that private sector stakeholders' perceptions include multiple interconnected dimensions: market orientation, awareness of climate risks, the need for education, and understanding of climate conditions as an economic resource. Data processing was performed using STATISTICA 13.0, confirming that the private sector's perceptions are more fragmented compared to the public sector's more cohesive viewpoint on climate change impacts.*

Keywords: *climate change, rural areas, tourism*

JEL Classification: *L83, R11, Q54*

INTRODUCTION

Climate change is one of the greatest global challenges of our time, and its impact on rural areas is of particular concern. Communities in these areas, which are

often dependent on ag-riculture, livestock farming and tourism, or the exploitation of natural resources, are highly vulnerable to changes in climate conditions. Such changes can significantly affect the quality of life, economic opportunities and social stability in rural areas, which in many cases already struggle with high levels of poverty and a lack of basic infrastructure.

Rural economies are heavily dependent on agriculture, which is directly affected by climate change. Changes in temperature, precipitation, and the frequency of extreme weather events (such as droughts, floods, storms) can significantly affect crop yields. In many cases, farmers face unpredictable weather conditions, making it difficult to plan planting and harvesting. Climate change is also causing serious changes in the environment of rural areas. Changes in temperature and precipitation can affect the quality of the soil, reducing its fertility and ability to support plant growth. Also, the increase in temperature can affect biodiversity, as many species of plants and animals cannot withstand sudden climate changes and migrate or become extinct, which directly affects the tourist offer of the area. According to the results of climate modeling on the HPC Velebit system for the purposes of drafting the Climate Change Adaptation Strategy of the Republic of Croatia until 2040 with a view to 2070 and the Action Plan (Sub-activity 2.2.1.), in the period until 2070 the largest increase in average air temperature is up to 2.2 °C, a slightly smaller increase could be in the summer in the northernmost regions and Slavonia, and in the autumn in most of Croatia (Hrvatski sabor, 2020). As stated in the paper Effects of climate change on international tourism, the indigenous population, investors in tourism, ecosystems and geo-diversity suffer from the consequences of increasing temperatures during the summer season and floods during the winter season (Hamilton, Maddison, & Tol, 2005).

Climate change can lead to population migration from rural areas, as people seek a better quality of life in cities or in other countries, which reduces the workforce and slows down the development of these communities, which is already happening in rural areas of the Republic of Croatia, according to the latest census data (Državni zavod za statistiku, 2024). That is why the aim of this study is to determine the awareness and perception of participants about the impact and dynamics of climate change and their consequences on rural areas and the rural tourism sector.

Climate change is having an increasing impact on tourism worldwide, as changes in the environment, weather conditions and seasonality can significantly affect destinations, tourism activities and the entire tourism sector. This impact is not uniform and varies depending on the region, the type of tourism, and the specific climate changes that are occurring. Just some of the key ways in which climate change affects tourism are changes in the seasonality of tourism, impacts on natural attractions, and changes in the attractiveness of destinations.

Although the challenges associated with climate change in rural areas are significant, there are also opportunities for adaptation and reduction of their negative effects, i.e. the development of adaptation and strategic plans, which include the use of more resilient practices. It is with the help of this research into the structure of stakeholder perceptions of the impact and dynamics of climate change and their consequences on rural areas and the rural tourism sector that attempts are made to generate possibilities for adapting the tourism offer in rural areas to climate change, i.e. proposals for measures for adapting the tourism offer in rural tourism to climate change.

Climate change requires coordinated efforts at all levels from local communities to national and international organizations. Only through joint work, investment in sustainable development and education, rural areas can build resilience to climate change and ensure a sustainable future for tourism. As shown by the research Berred, Berred & Fedli rural tourism is practically the only activity that generates income in such an area (Berred, Berred, & Fadli, 2022). The management of natural and cultural heritage products, within the conceptual framework of protection, has proven to be necessary. The authors in their book *Tourism and global environmental change* state that the best proposal at this point is the creation of new policies and management plans for conservation (Gössling & Hall, 2006).

LITERATURE OVERVIEW

The expected impacts, vulnerability and resilience of rural tourism to climate change are issues that have been addressed by an increasing number of authors in recent years. Climate change will have far-reaching consequences for the future of tourism. The Climate Change Vulnerability Index for Tourism (CVIT), which consists of 27 indicators, provides a transparent and systematic first analysis of the different vulnerabilities of the tourism sector in 181 countries. The countries with the lowest vulnerability are located in Western and Northern Europe, Central Asia, Canada and New Zealand. The sector's high vulnerability is located in Africa, the Middle East, South Asia and small island developing states (Scott, Hall, & Gössling, 2019)

Vulnerability is highest in many countries where tourism represents the largest share of GDP and in regions where tourism growth is expected to be the highest in the coming decades. According to data from the Croatian National Bank, Croatia has tourism revenues in 2023 higher by 11.4%, i.e. tourism's share in GDP is 19.6% (Croatian National Bank, 2024).

A meta-analysis of 290 climate change elasticity estimates across 34 studies indicates that climate factors substantially influence tourism demand. Findings suggest that low- and middle-income economies may experience significant tourism losses due to climate change. In contrast, high-income countries might see increased travel demand, potentially exacerbating climate-related challenges (Zhou, Faturay, Driml, & Sun, 2024).

An analysis of Caribbean countries reveals that climate vulnerability negatively impacts international tourism revenues. The study suggests that as extreme weather events become more frequent and severe, increased investment in adaptation and mitigation is essential to reduce vulnerabilities in the tourism sector (Cevik & Ghazanchyan, 2021)

An analysis of Australia's bushfires in late 2019 and early 2020 resulted in an estimated economic loss to the tourism industry of \$2.8 billion. The fires affected regions such as Kangaroo Island, causing significant financial losses for tourism businesses. The impact of the disaster extended beyond the direct loss of revenue, affecting various businesses within the tourism supply chain. The impact of climate change on a global scale is outlined, and the importance of adaptation to it will be highlighted below (Reiner, Pathirana, Sun, Lenzen, & Malik, 2024).

A case study from Tata, Bani Geopark in Southern Morocco examines the challenges climate change poses to rural geo-biological and cultural tourism activ-

ities in semi-arid areas. The study identifies management challenges arising from rising temperatures and floods, emphasizing the need for sustainable management of natural and cultural heritage (Berred, Berred, & Fadli, 2022). According to authors Velea et al. there are various motives underlying tourists' choice of rural destinations, among which the natural environment and outdoor activities play a significant role. The authors believe that this makes tourism vulnerable to climate change through the direct effect of changes in the attractiveness of climatic conditions, with indirect effects due to the expected impacts on other related socio-economic sectors (Velea, Irimescu, Bojariu, & Chitu, 2024). In this context, increasing the resilience of rural tourism to climate change is a complex issue that needs to be considered through adaptation measures focusing on tourism specificities in synergy with adaptation measures in related sectors (e.g. energy, land and water management, aspects of urbanization). The above is followed by the work of the authors Alkier Tomić et al. (2012), who emphasize that Croatian rural areas possess valuable natural heritage that can improve the quality of tourism products. They advocate the creation of a rural-cultural tourism offer through projects such as "Integration of culture and rural tourism", with the aim of preserving heritage while promoting economic growth (Alkier Tomić, Miložica, & Drpić, 2012).

In the magazine *Ekonomika misao i praksa*, article entitled "Povezanost klimatskih promjena i turizma: multikriterijska analiza ocjenjivanja mjera prilagodbe" explores ways in which Croatian tourism can adapt to new climate conditions. Authors Šverko Grdić et al. use the method of interviews with key tourism stakeholders and multi-criteria analysis to rank adaptation measures (Šverko Grdić, Krstinić Nižić, & Mamula, 2017). Also, in the publication *IRMO aktualno*, article "Klimatske promjene i turizam – mjere za održivu budućnost" analyzes how climate change affects tourism and proposes measures for adaptation and mitigation of negative effects. Authors emphasize the importance of integrating sustainable practices into the tourism offer (Tišma, Boromisa, & Jelinčić, 2022). These articles and article Milinković et al. (2023) highlight the need for a strategic approach to climate change adaptation in tourism, including the development of sustainable practices and continued collaboration between all stakeholders in the tourism industry. The sustainability of tourism development, as well as other activities, depends on the ability of the environment to provide a stable and long-term development basis (Milinković, Sredojević, & Kljajić, 2023).

Back in 2014, Demonja D. analyzed the state of rural tourism in Croatia and concluded that there is a strong demand for rural tourism in all its many forms on the market. It was concluded that rural areas are underutilized in terms of tourism, and that rural tourism in Croatia has the potential to become one of the main determinants of development in hitherto marginalized areas (Demonja, 2014). Today's research shows that The Republic of Croatia is achieving progress according to key indicators of tourist competitiveness and realizing positive trends in almost all segments of tourism activities, and this should continue, but with adjustments to the tourist offer.

Rural tourism also promises to revitalize Croatia's rural areas by taking advantage of the country's diverse climatic, ecological and regional conditions. Grgić et al. (2017) note that diversity should be viewed as a comparative advantage, suggesting that rural tourism can stimulate economic activity and employment, especially among young people, thereby contributing to rural development (Grgić, Hadelan, Krznar, &

Zrakić, 2017). Developing a tourism offer that is attractive to investors can have a significant impact on GDP growth and employment.

It is also necessary to mention the private sector, namely small and medium-sized tourism enterprises that face the challenges of adapting to sustainability requirements. Čapeta et al. (2023) identify that business risks and operational challenges negatively affect the sustainable development of tourism (Čapeta, Fuchs, & Manestar, 2023). Addressing these issues is crucial for aligning tourism practices with environmental and social sustainability goals.

The reviewed literature highlights the multifaceted relationship between climate change and rural tourism in Croatia and globally. Addressing the challenges and seizing opportunities requires a collaborative approach, integrating sustainable practices, cultural preservation, and climate-sensitive strategies to ensure the long-term sustainability of both the environment and the tourism sector.

METHODOLOGY

Descriptive statistics methods were used to process the results. Basic statistical indicators were calculated for all variables: arithmetic mean (AS), standard deviation (SD), minimum (Min) and maximum (Max) values, median (Med) and mode (Mod). In order to gain a deeper insight into the structure of stakeholders' perceptions of the impact and dynamics of climate change and their consequences on rural areas and the rural tourism sector, factor analysis was also conducted in the part relating to the private sector. Statistical data processing was carried out using the software package STATISTICA 13.0.

The aim of the research is to determine the structure of stakeholders' perceptions of the impact and dynamics of climate change and its consequences on rural areas and the rural tourism sector in the public and private sectors.

The research included respondents from the private and public sectors. The private sector included a total of 49 respondents. These are entrepreneurs active in the field of rural tourism, who operate in tourism, agriculture and in combined activities, i.e. on farms that simultaneously produce agricultural products and provide tourism services. The public sector consisted of a total of 70 respondents. This group included representatives of institutions that support the development of tourism and the sustainability of rural areas. The respondents included representatives of tourist boards, local government units, non-profit organizations focused on sustainable development and institutions that monitor and analyze climate change. All respondents participated voluntarily and anonymously. Data were collected by completing a survey questionnaire during the period May 2020 to October 2022, during organized consultations with project stakeholders, at round tables, workshops, expert meetings and conferences.

INSTRUMENTS AND PROCEDURES

In order to determine the structure of stakeholders' perceptions of the impact and dynamics of climate change and their consequences on rural areas and the rural tourism sector, two survey questionnaires were used, one intended for respondents from the public sector and the other from the private sector. The questionnaire for the public sector contained a total of 9 items, while the questionnaire for the private sector included 13 items. All variables were designed as statements to which respondents

expressed their level of agreement, or assessment, using a five-point Likert scale. The scale values ranged from 1, which indicates no or very low level of agreement or importance, to 5, which indicates an extremely high level of agreement or importance. Below is an overview of all variables used in the study, with the corresponding labels indicating sector affiliation.

Public sector variables

1. J-UKP – Familiarity with the problem and dynamics of climate change
2. J-VLT – Assessing the impact of high summer temperatures on tourism demand
3. J-OTP – Assessing the impact of orienting the tourism offer to be less susceptible to climate change
4. J-PSP – Assessment of the impact of the extension of the tourist season on the tourist offer
5. J-IGP – Assessment of the impact of seasonal changes on the tourism offer in rural areas
6. J-EZO – Assessment of the importance of education on environmental protection and climate change for business
7. J-ALP – Assessment of the importance of offering autochthonous, traditional and local products for tourism demand
8. J-PAP – Assessment of the importance of promotional activities of the tourist offer for business
9. J-SVI – Assessment of the level of cooperation with higher education and research institutions

Private sector variables

1. P-UKP – Familiarity with the problem and dynamics of climate change
2. P-VLT – Assessing the impact of high summer temperatures on tourism demand
3. P-STK – Assessment of the extent to which foreign tourists consider climate to be an important factor when choosing a destination
4. P-PSP – Assessment of the impact of the extension of the tourist season on the tourist offer
5. P-IGP – Assessment of the impact of seasonal changes on the tourism offer in rural areas
6. P-PLP – Assessment of the importance of natural beauty and preservation of the continental area for the tourist offer
7. P-ALO – Assessing the importance of the attractiveness of a location for the tourist demand of your own business
8. P-KPP – Assessment of the impact of climate change on the production of products within the tourism offer
9. P-EZO – Assessment of the importance of education on environmental protection and climate change for business
10. P-PVK – Assessing the importance of high-quality product offerings for tourism demand
11. P-ALP – Assessment of the importance of offering autochthonous, traditional and local products for tourism demand

- 12.P-ROT – Assessment of the growth and sustainability of the tourism offer in the last five years
- 13.P-PAP – Assessment of the importance of promotional activities of the tourist offer for business

RESULTS

Descriptive indicators within the public sector, Table 1. indicate a strongly positive perception of stakeholders on the impact of climate factors and the importance of certain strategies in the context of rural tourism. The highest average values were recorded for the variables J-ALP - assessment of the importance of the supply of indigenous, traditional and local products for tourism demand (AS=4.74), J-PAP - assessment of the importance of promotional activities (AS=4.50), J-EZO - assessment of the importance of environmental education for business (AS=4.49) and J-PSP - assessment of the impact of the extension of the tourist season (AS=4.43). These variables, with average values above 4.40, indicate that respondents from the public sector attach the highest importance to sustainable and promotional aspects of the tourist offer, as well as to climate change adaptation strategies.

Table 1. Descriptive indicators, public sector (N=70)

Variable	AS	SD	Med	Mod	Min	Max	Skew	Kurt
J-UKP	4,04	0,79	4	4	2	5	-0,26	-0,84
J-VLT	4,09	0,79	4	4	2	5	-0,33	-0,83
J-OTP	3,77	0,76	4	4	2	5	0,02	-0,56
J-PSP	4,43	0,83	5	5	1	5	-1,59	2,99
J-IGP	4,09	0,81	4	4	2	5	-0,49	-0,44
J-EZO	4,49	0,88	5	5	1	5	-1,66	2,39
J-ALP	4,74	0,61	5	5	2	5	-2,63	7,07
J-PAP	4,50	0,65	5	5	3	5	-0,96	-0,16
J-SVI	3,16	1,30	3	3	1	5	-0,26	-0,94

AS–arithmetic mean, SD–standard deviation, Med–median, Mod–mode, Min–minimum score, Max–maximum score, Skew–coefficient of asymmetry, Kurt–coefficient of flatness

Source: Author

The variable J-ALP stands out in particular, which, along with the highest arithmetic mean (AS=4.74), also shows the highest degree of homogeneity among the responses (SD=0.61) and strong negative asymmetry (Skew=-2.63). These results indicate a high level of agreement among respondents on the importance of integrating local products into the tourism offer. On the other hand, the variable J-SVI - assessment of the level of cooperation with higher education and research institutions shows the lowest mean value (AS=3.16) and also the highest heterogeneity (SD=1.30). Such dispersion of responses indicates an uneven practice of cooperation among public sector institutions and possible structural or organizational barriers in achieving partnership relations with the academic community. The median and mode values for most variables are 4 or 5, which confirms the dominance of higher scores and further supports

the finding of a positive perception of public sector stakeholders. The results also show that the values of the asymmetry and flattening coefficients are mostly within acceptable limits, which indicates a normal distribution of the results. Most variables show negative asymmetry of the distribution, which means that the responses are dominantly directed towards the higher values of the scale, i.e. that the respondents generally express a positive and supportive attitude towards the statements in the questionnaire. The appearance of a high kurtosis value for the J-ALP variable (Kurt=7.07) further confirms the concentration of responses around the highest values, which further emphasizes the consensus among the respondents regarding the importance of local and authentic tourist offers.

Descriptive indicators Table 2. indicate a positive perception of stakeholders from the private sector regarding various aspects of climate change and their connection with tourism and rural development. The highest average values were recorded for the variables P-ALP - assessment of the importance of the supply of indigenous, traditional and local products for tourism demand (AS=4.18), P-EZO - assessment of the importance of environmental education (AS=4.00), P-PAP - assessment of the importance of promotional activities (AS=4.00), and P-PVK - supply of high-quality products and P-ALO - attractiveness of the location (AS=3.96). The mean values of these variables range between 3.96 and 4.18, which indicates a high degree of agreement of respondents with statements related to the sustainability, promotion and quality of the tourist offer.

Table 2. Descriptive indicators, private sector (N=49)

Variable	AS	SD	Med	Mod	Min	Max	Skew	Kurt
P-UKP	3,63	1,15	4	4	1	5	-0,51	-0,58
P-VLT	3,90	1,18	4	5	1	5	-0,75	-0,64
P-STK	3,73	1,00	4	4	2	5	-0,36	-0,85
P-PSP	3,76	1,09	4	4	1	5	-0,59	-0,51
P-IGP	3,78	1,01	4	4	1	5	-0,93	0,89
P-PLP	3,88	0,93	4	4	1	5	-1,06	2,02
P-ALO	3,96	1,06	4	5	1	5	-0,79	-0,08
P-KPP	3,65	0,86	4	4	2	5	-0,08	-0,57
P-EZO	4,00	0,87	4	4	1	5	-0,80	1,34
P-PVK	3,96	0,89	4	4	1	5	-0,66	0,82
P-ALP	4,18	0,83	4	4	2	5	-0,81	0,14
P-ROT	3,90	1,03	4	5	1	5	-0,63	-0,15
P-PAP	4,00	1,02	4	5	1	5	-0,86	0,24

AS–arithmetic mean, SD–standard deviation, Med–median, Mod–mode, Min–minimum score, Max–maximum score, Skew–coefficient of asymmetry, Kurt–coefficient of flatness

Source: Author

The lowest arithmetic mean (AS = 3.63) was recorded for the variable P-UKP, which refers to familiarity with the problem and dynamics of climate change. This may indicate a relatively lower level of information among respondents from the pri-

vate sector on this topic, compared to other aspects of the survey. The standard deviation (SD) values range from 0.83 to 1.18, indicating moderate variability in responses. Such a range suggests that the perceptions of respondents are partially uniform, without extreme dispersion, which allows for reliable interpretation of mean values and the application of parametric analyses. Most variables show values of asymmetry coefficients (skew) that are negative, suggesting that responses are mainly concentrated towards higher values of the scale. The values of flattening (kurtosis) are also within acceptable limits, indicating a regular distribution of results without pronounced deviations. The median and mode values for almost all variables are 4, while the minimum values range between 1 and 2, and the maximum is always 5. These values confirm the existence of a wide range of individual perceptions, but with a tendency for higher scores to dominate. Variables such as P-KPP and P-EZO show lower standard deviation values ($SD < 0.90$), which indicates a relatively high level of agreement among respondents regarding the impact of climate change on tourism production and the importance of education. Overall, the results indicate stable and relatively homogenized patterns of perception, with a clear orientation of private sector stakeholders towards sustainable, high-quality and market-recognizable forms of tourism offer.

Table 3. Descriptive indicators, differences between the public and private sectors

Variable	JSE (N=70)					PSE (N=49)				
	AS	SD	Med	Mod	Ras	AS	SD	Med	Mod	Ras
J-UKP	4,04	0,79	4	4	3	3,63	1,15	4	4	4
J-VLT	4,09	0,79	4	4	3	3,90	1,18	4	5	4
J-PSP	4,43	0,83	5	5	4	3,76	1,09	4	4	4
J-IGP	4,09	0,81	4	4	3	3,78	1,01	4	4	4
J-EZO	4,49	0,88	5	5	4	4,00	0,87	4	4	4
J-ALP	4,74	0,61	5	5	3	4,18	0,83	4	4	3
J-PAP	4,50	0,65	5	5	2	4,00	1,02	4	5	4

AS–arithmetic mean, SD–standard deviation, Med–median, Mod–mode, Min–minimum score, Max–maximum score, Ran– result scores

Source: Author

For the purpose of a deeper analysis of the understanding of stakeholders' perceptions of the impact and dynamics of climate change and the consequences for rural areas and the rural tourism sector, Table 3. presents descriptive statistical indicators for the public and private sectors, exclusively for those variables that are common to both groups of respondents. The largest differences in the arithmetic mean were recorded for the variable ALP - offer of indigenous, traditional and local products, where the average value in the public sector is significantly higher ($AS=4.74$) compared to the private sector ($AS=4.18$). A similar pattern was observed for the variables PAP - promotional activities and PSP - extension of the season, where the differences in favor of the public sector were 0.50 and 0.67, indicating a stronger evaluation of promotional and seasonal aspects of tourism among representatives of public institutions. On the other hand, the smallest differences in average values were observed for the variables VLT - the impact of high summer temperatures and IGP - seasonal changes, where the

deviations are less than 0.30, which indicates relatively consistent views of the public and private sectors regarding direct climate factors. When it comes to standard deviation (SD), the values in all variables are higher in the private sector, which indicates a greater diversity of views within this group of respondents. Public institutions show more uniform responses, which may be a consequence of institutionally focused strategies or a greater degree of standardization in their operations.

The mean values of all arithmetic means for the analyzed variables indicate a higher level of assessments in the public sector ($AS = 4.43$) compared to the private sector ($AS = 3.97$). At the same time, the average value of the standard deviation in the public sector is 0.74, while in the private sector it is higher and amounts to 0.95, which indicates a greater uniformity of responses among respondents in the public sector, in contrast to a more pronounced variability of attitudes within the private sector.

Such differences may point to several important aspects. A higher average arithmetic mean in the public sector may reflect a stronger institutional awareness and a more formal orientation towards climate change and sustainable development issues, possibly driven by strategies, policies or programmes implemented at the level of public bodies and organisations. On the other hand, lower mean values in the private sector could indicate different levels of information, experience or perception of the importance of certain aspects of climate change among entrepreneurs, which may depend on their immediate business context. A higher standard deviation in the private sector suggests diversity in experiences and attitudes, which may be the result of a wider range of activities, differences in the size and resources of companies, as well as the degree of direct exposure to climate impacts. In contrast, lower variability in the public sector may indicate a higher degree of alignment of attitudes, which may be a consequence of shared institutional priorities, professional networking and the availability of relevant information through public channels.

In order to gain a deeper insight into the structure of stakeholders' perceptions of the impact and dynamics of climate change and their consequences on rural areas and the rural tourism sector, a factor analysis was also conducted in the part relating to the private sector. Respondents from the private sector came from different business contexts, including tourism, agriculture and mixed activities, which further increased the likelihood of different patterns of attitudes and interpretations. Also, the overall lower average value of all arithmetic means ($AS = 3.97$) indicates a somewhat more restrained agreement with the statements, which may be an indicator of the fragmentation of perceptions within the group of respondents. In this sense, factor analysis is an appropriate statistical method for identifying hidden dimensions of perception, which were not directly observable in descriptive indicators.

Table 4. shows the factor structure of stakeholders' perceptions of the impact and dynamics of climate change and their consequences on rural areas and the rural tourism sector, for the private sector. The number of extracted factors in this study is four, and they explain a significant amount of variance according to the Kaiser-Guttman criterion. (Eigenvalue > 1).

Table 4. Factor structure, private sector

Varijabla	Faktor1	Faktor2	Faktor3	Faktor4
P-UKP	0,21	0,82*	0,17	-0,01
P-VLT	0,07	0,84*	0,21	0,29
P-STK	0,20	0,32	0,08	0,75*
P-PSP	-0,05	0,20	0,66	0,58
P-IGP	0,25	0,10	0,68	0,29
P-PLP	0,46	0,11	0,66	-0,28
P-ALO	0,66	0,34	0,35	0,13
P-KPP	0,37	0,26	0,61	0,14
P-EZO	0,13	0,15	0,80*	0,03
P-PVK	0,78*	0,19	0,16	0,05
P-ALP	0,59	0,15	0,45	0,08
P-ROT	0,81*	0,03	0,14	0,21
P-PAP	0,53	-0,15	0,09	0,57

Source: Author

Factor 1, which is called “*Quality and Sustainability of the Tourism Offer*” with an Eigenvalue = 5.49, includes variables related to the perception of the importance of high quality of the offer (P-PVK=0.78*) and sustainable development of the tourism offer over time (P-ROT=0.81*). The emphasis is on strategic thinking about long-term sustainability and market competitiveness, with service quality and stable growth of the tourism offer representing key elements in the development of rural tourism. This factor may indicate the awareness of stakeholders that quality and sustainability are not only desirable, but also necessary for adapting to climate change, conserving resources and ensuring business continuity. In addition to market orientation, the factor also reflects the acceptance of sustainability as a fundamental development strategy.

Factor 2, called “*Perception of climate threats*” with an Eigenvalue = 1.39, includes variables related to awareness of the problem and dynamics of climate change (P-UKP=0.82*) and the impact of extreme summer temperatures on tourism demand (P-VLT=0.84*). The emphasis is on the perception of risks and threats that climate change poses to business, especially in the context of weather extremes that can negatively affect the seasonality and attractiveness of the destination. This factor reflects the general awareness and concern of respondents about the potential negative consequences of climate change on their activities.

Factor 3, called “*Environmental Awareness*” with Eigenvalue = 1.18, includes the variable of environmental and climate change education for business (P-EZO=0.80*). The emphasis is on the need for knowledge, information and education as a tool for adaptation and sustainable management. Although it includes one variable with a very high loading, this factor emphasizes the importance of the personal and professional responsibility of stakeholders to understand and act in accordance with the challenges of climate change..

Factor 4, called “*Climate conditions as a motivation for tourists*” with an Eigenvalue = 1.01, includes a variable related to climate as a factor in the choice of

destination by tourists ($P\text{-STK}=0.75^*$). The emphasis is on the role of climate as a market motive, i.e. its function in shaping tourist preferences. This factor reflects the perception of respondents that climate conditions directly affect the competitiveness of the offer and the attractiveness of the destination in the eyes of tourists.

Based on these four factors, it can be concluded that the perceptions of private sector stakeholders encompass multiple interrelated dimensions that include market orientation, awareness of climate risks, the need for education, and understanding of climate conditions as an economic resource. The structure of the factors shows that the private sector does not perceive climate change solely as an environmental problem, but integrates it into business, development, and market strategies. This confirms the complexity and multi-layered approach to climate challenges, but also the existence of potential for proactive action and adaptation within the rural tourism sector.

CONCLUSION AND RECOMMENDATIONS FOR FURTHER RESEARCH

Climate change poses a major challenge for the tourism industry, as it alters travel conditions, reduces the attractiveness of certain destinations and affects the economic aspects of tourism. However, at the same time, increased awareness of sustainability and adaptation can open up new opportunities for the development of sustainable tourism that respects the environment and contributes to the fight against climate change. Tourism must adapt its strategies to ensure long-term sustainability and maintain its attractiveness in the light of climate change. The research showed greater uniformity of responses among public sector respondents, in contrast to more pronounced variability of attitudes within the private sector.

The above differences may point to several important aspects, they may reflect a stronger institutional awareness and a more formal orientation towards climate change and sustainable development issues, possibly driven by strategies, policies or programmes implemented at the level of public bodies and organisations. On the other hand, lower mean values in the private sector could indicate different levels of awareness, experience or perception of the importance of certain aspects of climate change among entrepreneurs, which may depend on their immediate business context. The higher standard deviation in the private sector suggests diversity in experiences and attitudes, which may be the result of a wider range of activities, differences in the size and resources of companies, as well as the degree of direct exposure to climate impacts. In contrast, lower variability in the public sector may indicate a higher degree of alignment of attitudes, which may be a consequence of shared institutional priorities, professional networking and the availability of relevant information through public channels. Also, in the part related to the private sector, a factor analysis was conducted, and it can be concluded that the perceptions of stakeholders from the private sector encompass several interconnected dimensions that include market orientation, awareness of climate risks, the need for education and understanding of climate conditions as an economic resource. The factor structure shows that the private sector does not perceive climate change exclusively as an environmental problem, but integrates it into business, development and market strategies. This confirms the complexity and multi-layered approach to climate challenges, but also the existence of potential for proactive action and adaptation within the rural tourism sector. The European Union (EU) recognises the importance of addressing the challenges that climate change pos-

es to rural areas. As rural communities make up a significant part of the European economy, particularly in sectors such as agriculture, forestry and tourism, the EU has developed a range of strategies, policies and financial mechanisms to help these areas adapt to climate change. Back in 2018, in their article, Kandžija et al. (2018) concluded that EU membership had a positive impact on the development of Croatian tourism, but they highlighted the need for further reforms and quality improvements to ensure a competitive position in the global market, which is still valid today (Kandžija, Tomljanović, & Smolković, 2018).

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LITERATURE

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MEASURING ONLINE MOBILISATION POTENTIAL FROM A MICRO-NARRATIVES SURVEY: LEADING CONCERNS FOR POST-YUGOSLAV RESIDENTS IN AUSTRIA, GERMANY, AND CROATIA

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Abstract: *The paper explores the leading issues and concerns experienced by people of Post-Yugoslav origin living in Austria, Germany, and Croatia and which of those issues have the strongest potential for political mobilisation when discussed online. The data were collected in a Micronarratives Survey carried out in 2019. The questionnaire included an open-ended entry question asking which situation made respondents uneasy in the country where they live or anywhere else in the world. It then explored (1) how reading about that issue online makes them feel, (2) how ready they are to undertake unconventional political action to solve the issue, and (3) what direction of change they are inclined to pursue to solve the issue. Relationships between these three dimensions are validated through Confirmatory Factor Analysis (CFA), resulting in an Online Mobilisation Score (OMS) which is estimated for all respondents and extrapolated for each theme of leading concerns. The main finding of the research is that, in 2019, Post-Yugoslav residents in the three countries were most frequently concerned about government decisions, but Diversity and Equality was the theme with the most potential for political mobilisation among those respondents (there being too much or too little of diversity and equality).*

Keywords: *diaspora, confirmatory factor analysis, online mobilisation*

JEL classification: *J61, C13, C38, C83, C51*

INTRODUCTION

International longitudinal surveys explore attitudes, opinions, and sentiment of representative population samples using highly structured questionnaires. For diaspora and migration researchers, such surveys have limited applicability - response options are narrowed down to other scientific interests, samples often include small numbers of people of immigrant background and, immigrants who do not speak the host country

language are usually skipped in data collection. This paper presents research on immigrant populations using a more open and inclusive methodology.

The central interest of this paper is the applicability of Structural Equation Modelling (SEM) for quantification of online mobilizing potential of salient concerns for people of Post-Yugoslav origin¹ living in Germany, Austria, and Croatia. The data came from a Micronarratives Survey (MS) collected face-to-face and via live online meeting applications with 547 individuals of mostly Post-Yugoslav (PY) origin in Croatia, Austria, and Germany in July/October 2019, as part of the Resonant Voices Initiative in the EU (RVIEU). Although narratives are omnipresent in the online sphere, researchers are often missing access to other dimensions of information tied to those narratives that can readily be tested and analysed indirectly using SEM. Our approach was therefore to conduct a survey with an open-ended issue-focused entry question, and a number of other questions further exploring the respondents' understanding of their issue of concern, some of which we used for measuring online mobilising potential.

People from the Post-Yugoslav (PY) space continue to connect culturally, economically, and politically, bonded by the same or similar languages, in what is sometimes referred to as the Yugosphere (Judah, 2009) and Web Yugosphere (Mazzucchelli, 2012). The EU countries with the largest populations of PY citizens (including citizens of Slovenia and Croatia) in 2019 were Germany (1,172,200) and Austria (367,686), while only a small number (4,644) in Croatia had citizenships of other PY countries (EUROSTAT, 2022). Still, unofficial sources indicate that at least half a million people in Croatia were born in other countries of the former Yugoslavia (Jurasić, 2019). The study therefore included Croatia as the most recent EU member state with a large PY diaspora and a PY country at the same time. Of note is that 13 percent of Croatian citizens lived in another EU country in 2018 (Schneider, 2022), the share being higher than for other EU countries.

The PY diasporas' post-conflict, migration-, and integration-related grievances often resurface, while populist and radical parties in host countries easily tap into those issues, which can influence social cohesion negatively in cities such as Vienna and Frankfurt where PY populations are among the largest immigrant groups. Their political role in countries of origin is also ambiguous. It is therefore important to know which of their grievances from the past or present are brewing at different times, that is, which concerns are leading. For this paper, leading concerns are defined as those which have been making respondents uneasy in the country where they live or anywhere else in the world (including their countries of origin).

The first question in the 2019 Micronarratives Survey asked respondents to recount a recent situation which made them feel "uneasy" ("činiło nelagodu"). Their micronarratives were coded using thematic and frame analysis, shedding light on the leading concerns. Other questions from the survey were then explored as candidates for an Online Mobilisation Score (OMS) using SEM. The following three dimensions are finally included in the OMS: (1) Feelings which the respondents associate with the online content about the issue of concern; (2) Respondents' readiness to undertake

1 Origin from one of the countries that emerged after the breakup of the Socialist Federal Republic of Yugoslavia – SFRY. The countries include Slovenia and Croatia in the European Union, as well as the EU Candidate Countries Bosnia and Herzegovina, Serbia, Montenegro, North Macedonia, and Kosovo (under the UN Security Council Resolution 1244).

unconventional political action to solve the issue; and (3) Direction of change they are inclined to pursue to solve the issue. The research team estimated the OMS for all respondents in the sample and aggregated the OMS for each group of leading concerns (themes and frames). Although this paper focuses on the methodological contribution of our study to understanding complexity through SEM, the results of the remaining analytical processes are novel and open grounds for a variety of potential analyses but are not the central focus of this paper.

After the literature review in the second section, the data and the theoretical background for the methods used in this analysis are discussed in the third section. The results of the empirical undertaking are documented in the fourth section. Finally, the fifth section offers a discussion and conclusions from this research, focusing on the methodological contributions. This research opens space for replication of the approach with different survey designs and qualitative analyses.

LITERATURE REVIEW

Virtual social networks as new forms of sociability have changed the PY populations' perceptions about community, relationships, and social life – by creating spaces and time for intensification (Sijakovic & Vukotic, 2020), but also by alienating populations from the non-virtual reality. On the other side, diasporas' sense of belonging, perfused by the experience of uprooting and migration, is on the surface healed through online opportunities to continuously reimagine the homeland, maintain closer ties to their kin, and engage in transnational action in real time (Louw & Volcic, 2010; Nedelcu, 2019), although overreliance on online diasporic communities of emotion may damage their potential ties to host societies.

Disruptive emotion may be one key aspect of a grievance narrative. Louw and Volcic (2010) drew parallels between grievances which Serbian and white South African diasporas expressed online on websites and in chat rooms longing for familiar identities that no longer existed after the collapse of systems they favoured. Anger, resentment, and blaming of *others* dominated their online narratives, reflecting victimage and dissatisfaction with the current situation *back home* (Louw & Volcic, 2010). To incite emotional response from audiences, online content creators often include emotionally charged images, particularly those with mobilizing potential – enthusiasm, anger, and fear (Casas & Williams, 2019). The posts on diaspora websites and chatrooms, or more recently in Facebook pages and on Twitter, are not representative of all members of those communities – people self-select, and many diasporas online communities attract expression of grievances, nostalgia, and dissent. Instead of analysing the online content, our research identifies grievances independent from the medium using a survey administered on a purposive sample, and then explores how reading about those grievances online makes respondents feel.

The traditional research assumption in the literature that conflict-generated refugees abroad demonstrate more nationalistic leanings than populations that stayed behind after conflict are disputed in research. Among Bosnian refugees in Sweden for example, those who were provided with coping resources early on later demonstrated similar attitudes about conflict and reconciliation as populations in BiH, not more nationalistic (Hall, 2016). Expectedly, host country reception system does play a role in the political attitudes of diasporas. However, Koinova (2016) argues that host

country reception system, anti-immigrant rhetoric in host countries, foreign relations, and transnational influences may motivate political mobilisation of conflict-generated diasporas only momentarily, while the necessary condition for sustained political mobilization is continued perceived importance of a contested issue that connects the diaspora, the host state, and the state of origin. This was the key difference between the Bosniak diaspora in the Netherlands which was mobilizing around the role of Dutch peacekeepers in Srebrenica in the last decade, compared to Serb and Croat diasporas there that did not have a specific traumatic issue connected to the host country. The crisis of the EU refugee and migration regime has retraumatized some of the diaspora members, and created novel links between past traumatic experiences, host, and home countries. Milan (2018) for example documented experiences and emotions of individuals of PY origin in the solidarity groups working with asylum seekers – those individuals recognized something of what their parents had been through in Austria in the plights of the Syrian, Afghan, and other asylum seekers trying to enter Austria and Germany. Syrian conflict as a contentious issue attracted some of the PY diaspora to radical causes. Resentment and alienation of Kosovo diaspora in Germany combined with the presence of radical Islamic preachers there attracted some of them to the Caliphate (Perteshi, 2020). Further, Serbian, Croatian, and other PY citizens are participating in the conflict in Ukraine (Metodieva, 2019; Colborne, 2019).

Political leanings of the PY diasporas are changing as the structure of emigration from the PY space changes. People emigrating in the last two decades are younger and higher-skilled (Prelec, 2019) than conflict-generated refugees from the 1990ies or the economic and political emigrants from the SFRY period. Prelec (2019) showed that Serbian diaspora that voted in the 2017 Serbian Presidential Election was more interested in practical governance issues in Serbia than in traditionally nationalistic issues and Serbia's international relations. The PY diasporas are therefore a multiverse of waves and generations, with political ideologies leaning from the far left to the far right, and with different degrees of motivation to act politically. Recent research suggests that immigrant families tend to integrate into the host country political spectrum and values over two or three generations, with the first generations maintaining more conservative attitudes than the next, though the families' socio-economic lag may persist longer, and social ties may still remain inward-looking (Heath & Schneider, 2021).

Diasporas' influence on countries of origin is more complex than sometimes portrayed by the international community supporting their economic engagement in home countries. While diasporas heighten contentious issues in home countries' politics, culture, and education (Alibašić, Davidović, Kapetanović, Remiddi, & Zejnilović, 2019), they also exert positive developmental pressures through remittances, investment, and return migration (King & Oruc, 2018).

METHODOLOGY AND DATA

SEM is widely applied across different scientific fields (Kline, 2011; Brown, 2006; Bollen, 1986), especially in social research (Roldán, 2021) and in psychology (Morrison, Morrison, & McCutcheon, 2017). Harlow, Korendijk, Hamaker, Hox, and Duerr (2013) showed that SEM was the second most widely used multivariate analysis in European journals in 2008, most likely because of specialized software availability, according to Skidmore and Thompson (2010). Also, management litera-

ture in recent years shows an increase in using SEM as an analytical approach for theory testing (Larry, J. Vandenberg, & Jeffrey, 2009) and similar situation is for marketing (Hair, Ringle, & Sarstedt, 2011). Hence, SEM as the methodological approach is suitable for evaluations of relationships and validation of the constructs in question and it is possible to find various examples in diverse literature (Núñez-Barriopedro, Ravina-Ripoll, & Ahumada-Tello, 2020). Variables, directions of relationships between variables, and basic boundaries for SEM construction in this study were identified through a review of the communicology and political science literature, as well as grey literature on mobilisation and radicalisation. The review of techniques and previous experience with SEM pointed to the application of the hybrid SEM which combines measurement and structural components, allowing for complex relationships between observed and latent variables. This method enhances the validity of the model by ensuring that constructs are accurately measured, and relationships are correctly specified. Hybrid SEM is particularly useful for testing theoretical models and hypotheses, as it allows for the confirmation of theoretical expectations about the relationships between constructs. Additionally, its flexibility makes it suitable for various types of data and research questions, enabling the modelling of direct and indirect effects, mediating variables, and feedback loops.

In the initial stages of our analysis, we conducted the Exploratory Factor Analysis (EFA) which allowed us to identify the latent structures within our data without defined number and nature of factors. Our original dataset included 617 variables and EFA was essential to reduce the complexity to the most relevant factors. We then turned to Confirmatory Factor Analysis (CFA) to test specific hypotheses about the relationships between the observed variables and latent structures. CFA allowed us to assess the degree to which the model fits the data.

Whereas SEM as a quantitative tool is regarded highly in the post-positivist toolbox (Abu-Alhaija, 2019), narratives are among the central data for constructivist researchers. This study entailed a combination of those seemingly opposed epistemologies. According to Polleta (2012), narratives are complex accounts of meaning and interpretation that may connect events in a chain of causes and consequences, typically in a linear fashion. Some of the most exciting narratives, however, remain only partial, fragmented (Polletta & Gardner, 2015).

DATA

Resonant Voices Initiative in the EU (RVIEU) was an EU-funded civil society initiative which campaigned against online misinformation and radicalisation among the PY diasporas in the EU countries in 2019 and 2020. As part of the RVIEU research team, the authors co-designed a Micro-Narratives Survey screening for radicalising themes and misinformation among PY diasporas. Considering the complexity of factors associated with radicalisation, the RVIEU team opted for a sensemaking software solution to collect data (SenseMaker by Cynefin). RVI EU used the data to craft the campaign materials and online tools.

A network of RVIEU field researchers surveyed 547 individuals of mostly PY origin in Croatia (245, including 149 non-immigrant), Austria (114, including 8 non-immigrant), and Germany (188, including 24 non-immigrant) in July/October 2019. The researchers mostly used the face-to-face offline and online mode of data

collection in Vienna, Zagreb, Rijeka, Berlin, and several other cities in Germany. Our sample structure is in Table 1. In the Croatia sample, women formed 58 percent of respondents, in Austria 61 percent, and in Germany 46 percent.

The sample in Croatia included 46 individuals who were born in other countries of the former Yugoslavia – field researchers were instructed to collect information from a purposive sample based on the population census, not on the assumed structure of PY diasporas in Croatia, as numeric information on those populations was limited. By ethnicity, the majority of the sample in Croatia were Croats, in Austria Serbs, while Croats and Serbs were also the largest groups in Germany. It should be noted that samples outside Croatia included a small number of persons (8 out of 114 in Austria, 24 out of 188 in Germany) who had no direct lineage to Post-Yugoslav space but had family, friendship, or workplace ties to persons of Post-Yugoslav background. We kept these categories of respondents within the sample.

Table 1. Sample structure by country and gender

Country	Female, N= 297	Male, N=239	Non-binary, N=1	Other, N=3	Refused to answer, N=7	Total
Austria	70 (61%)	44 (39%)	0 (0%)	0 (0%)	0 (0%)	114
Croatia	141 (58%)	99 (40%)	0 (0%)	1 (0%)	4 (2%)	245
Germany	86 (46%)	96 (51%)	1 (1%)	2 (1%)	3 (2%)	188

Source: Author's analysis

Variables

Survey design followed the SenseMaker software guidelines. A good overview of the technique is available in a technical note by Merwe, et al. (2019) and in Lynam and Fletcher's (2015) study exploring adaptation to climate change. In addition to an opening micronarrative, a questionnaire includes a set of questions in which respondents assign meaning and importance to their micronarratives.

From the original questions in the questionnaire, 23 variables were initially considered for construction of the OMS (Table 2; relevant survey questions listed in Appendix A), or more specifically for measurement of latent variables of *Emotion* triggered by online content about the situation, *Activism* for political solutions to the situation, and *Beliefs* about the causes and solutions to the situation, and preferences for a strong leader, ruling elite, or ordinary people's rule in the host country. Age was a control variable. In Table 2, shaded variables are those included in the final model.

Table 2. Variables considered for SEM (see Appendix A for survey questions)

Dimensions	Variables	
Emotion	Angry about online content related to the salient issue	<i>Feel_Angry</i>
	Frustrated about online content related to the salient issue	<i>Feel_Frustr</i>
	Fear about online content related to the salient issue	<i>Feel_Fright</i>
	Worried about negative consequence of the salient concern	<i>D_WorriedX</i>
	Combined angry and afraid about online content	<i>Fear_Outrage</i>
	Any emotion reported (binary)	<i>Emotion_bin</i>
Beliefs	Driven to change perceived economic marginalization	<i>Econ_X</i>
	Driven to change perceived political marginalization	<i>Pol_X</i>
	Driven to change perceived socio-cultural marginalization	<i>SocCul_X</i>
Activism	Very likely to petition	<i>SuppPttn_X</i>
	Very likely to promote online	<i>SuppPromoteOnln_X</i>
	Very likely to volunteer	<i>SuppVolunt_X</i>
	Very likely to donate	<i>SuppDonat_X</i>
	Very likely to vote	<i>SuppVote_X</i>
	Very likely to promote offline	<i>SuppPromOffln_X</i>
	Very likely to participate in rallies	<i>SuppRallies_X</i>
	Very likely to undertake any other political action	<i>SuppOther_X</i>
Emotion (additional)	Frequent exposure to online content about the salient issue	<i>OnlnContent_recode</i>
	Any exposure reported (binary)	<i>OnlnContent_bin</i>
Beliefs (additional)	Preferred strong leader	<i>Ruling_Ldr</i>
	Preferred ruling elite	<i>Ruling_Elite</i>
	Preferred ordinary people's rule	<i>Ruling_Ppl</i>
Age	Age- excluded from SEM	<i>Age</i>

Source: Author's analysis

Within the *Emotions* dimension, *D_WorriedX* is based on the SenseMaker guidance to scale the importance of the concern and the research team opted for the degree to which the respondent is worried about negative consequence of the issue. Other variables in the *Emotions* dimension come from the MNS item adapted from a study of emotions about political advertisements(Weber, 2013), since the RVIEU team used the MNS to evaluate the effectiveness of its online content. Additionally, within the dimension, the team explored the association between negatively valenced emotion and degree of exposure to, i.e., the frequency of seeing the online content about their issue of concern. The survey item (see Appendix A) was adapted from the Privacy Panel Survey by the Pew Research Centre(2014).

Beliefs variables are based on two sets of items. The first set explores why respondents are concerned about the issue, i.e., whether they believe it influences or may influence the power, resources, and identity of the group they care about. These belong to two groups of usual explanations for adverse intergroup relations – realistic and symbolic threats(Simonovits, 2016). The three items are interpreted as a respondents' potential field of action. The second set of *Beliefs* items did not stay in the final model.

The set was based on the exploration of three possible approaches to resolving the issue – through a strong leader, elite rule, or people’s rule, which can broadly reflect political preferences for authoritarian, elitist, and/or populist political options. The item for authoritarianism was adapted from the World Values Survey Wave 7 (Haerpfer, et al., 2022) while the elitism and populism items were developed following the same pattern. It should be noted that these three preferences for political leadership are not mutually exclusive but are sufficiently distinct – this is a preferred feature of SenseMaker items.

Activism variables are based on political participation items in the European Social Survey Round 8 (Gibson & Cunill, 2016), but the question itself was formulated as likelihood of engaging in political action, as initially formulated in the Activism Orientation Scale (Corning & Myers, 2002). The team also explored the item of likely engagement in any other political activity a leader or a group may ask them to do, which can indirectly mean engaging in unlawful activities. Confirmatory Factor Analysis run with SEM

In Confirmatory Factor Analysis (CFA) run with SEM, the variables are either observed or latent. The relationship between one or more latent variables and their (observed) indicators are described with a set of equations (Beaujean, 2014). There are several observable variables that indicate one factor. Also, there are multiple factor models where there are two or more latent variables (Steinmetz, 2015), where latent variables can serve as indicators for other latent variables.

The CFA structure is defined by the parameters that can be free, fixed, and constrained. The structure can be complex (Brown, 2006). The final structure is identified through an iterative procedure where each model is evaluated and modified in the next iteration (Holmes & French, 2015). Each model was evaluated using a global fit, or more precisely the Chi-square test statistics and fit indices. In addition to those, the analysis proceeded with checking whether the parameter values were valid, making sure that there were no negative residual variances, that factor loadings and covariance were of the expected direction, and that there were no large standard errors.

This paper is based on the *lavaan* package, a free open-source, but commercial-quality package for latent variable modelling in R programming surrounding (Rosseel, 2012). The *lavaan* package uses the maximum likelihood estimation. It should be mentioned that SEM approach can be significantly upgraded through Bayesian inference (Sik-Yum, 2007), although this upgrade remains out of the scope in this analysis.

RESULTS

All variables presented in Table 2 (except age) are included in one of the iterative steps of SEM. Theoretical basis and model parameters are aligned with modification indices to provide direction for model improvement.

We run 15 models, before closing the entire process with the final, 16th model. Key parameters for each model are in Table 3. A table containing item loadings that provides a comprehensive overview of the standard output, was generated by the *sem* command in the *lavaan* package, including parameter estimates for latent variables, regressions, covariances, and variances, along with their standard errors, z-values, and p-values.

First five models are one-factor models with only one recognized latent variable. Models 6 and 7 are multiple-factor models but without imposed hierarchical

structure, with three factors included: *Emotions*, *Activism*, and *Beliefs*. Key models are 4, 6, 7, and 11, which we briefly elaborate to outline evolution of the model through this iterative process.

Table 3. Evaluation of CFA models of different structure2

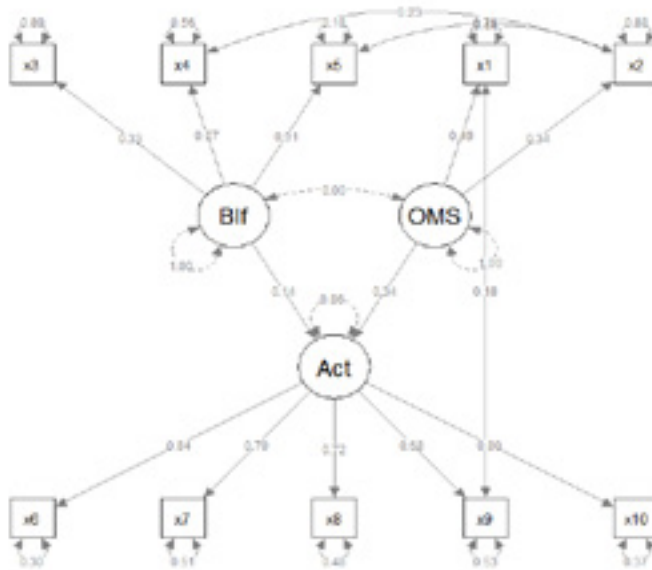
	Model	χ^2	df	CFI	RMSEA	SRMR
1	Model one	412.08	119	0.682	0.12	0.095
2	Model two	68.37	35	0.932	0.075	0.056
3	Model three	12.226	9	0.993	0.046	0.028
4	Model four	5.453	5	0.999	0.023	0.017
5	Model five	2.086	4	1	0	0.011
6	Model six	184.401	116	0.911	0.059	0.061
7	Model seven	171.111	101	0.909	0.064	0.061
8	Model eight	158.81	101	0.936	0.058	0.063
9	Model nine	The optimizer (NLMINB) ¹ claimed the model converges, but not all elements of the gradient are (near) zero. The optimizer did not find a local solution.				
10	Model ten	101.079	52	0.931	0.075	0.059
11	Model eleven	118.571	73	0.938	0.061	0.059
12	Model twelve	89.812	41	0.928	0.084	0.058
13	Model thirteen	78.429	39	0.942	0.077	0.051
14	Model fourteen	95.725	51	0.935	0.072	0.061
15	Model fifteen	78.429	39	0.942	0.077	0.051
	Final model	39.543	30	0.987	0.038	0.044

Source: Author's analysis

The key differences between the models lie in their complexity and the theoretical constructs they aim to capture. **Model Four** focuses on a single latent variable representing resource-demanding political activism, highlighting the relationship between various high-effort activities. **Models Six** and **Seven** introduce multiple factors (Emotion, Beliefs, and Activism), with **Model Six** being less parsimonious due to the inclusion of more variables, yet not improving fit indices compared to **Model Seven**. **Model Eleven** refines the measurement of the Emotion factor using binary variables related to online content, showing significant improvement in fit. The **Final Model** incorporates key observable variables like the likelihood of participating in petitions, reducing the number of variables from 23 to 10, and ensuring a robust and parsimonious representation of the theoretical constructs.

2 χ^2 is the Chi-square statistic, df are the degrees of freedom, CFI is the Comparative Fit Index, RMSEA is the root mean square error of approximation, and SRMR is the standardized root mean square residual. These are all parameters used for model evaluation.

Figure 1. Path diagram for the final model of the OMS



Source: Author's analysis

We reached a significant improvement only after we included the likelihood of participating in petitions (*SuppPtnn_X*) as an observable variable for the *Emotion* factor. The *Final Model* is based on ten measured variables - Figure 1 shows relationships between variables and factors, while Table 5 lists variables and key indices. We downsized the set of variables from the original 23 to 10 variables.

To assess the extent of the common method bias, we could have included a theoretically unrelated market variable that is known to not relate to the constructs of interest, but finding such a variable can be challenging (Podsakoff, et al., 2003). Instead, we used procedural remedies during data collection, such as ensuring anonymity and counterbalancing the question order (Podsakoff, et al., 2003; Podsakoff, et al., 2012) to further mitigate the potential method bias in our study.

Table 5. Variables in the final OMS model

		n	Mean	sd	Median	Skewness	Kurtosis	se
x1	Anger related to online content about the issue	547	0.46	0.50	0.00	0.16	-1.98	0.02
x2	Frustration related to online content about the issue	547	0.45	0.50	0.00	0.19	-1.97	0.02
x3	Driven to change perceived economic marginalization	362	41.67	31.54	33.99	0.33	-1.28	1.66
x4	Driven to change perceived political marginalization	367	71.04	24.98	78.08	-1.06	0.44	1.30
x5	Driven to change perceived socio-cultural marginalization	427	59.23	32.19	67.51	-0.43	-1.20	1.56

x6	Very likely to volunteer	508	50.14	32.86	52.94	-0.07	-1.40	1.46
x7	Very likely to donate	506	41.45	33.22	34.94	0.33	-1.32	1.48
x8	Very likely to promote offline	500	46.23	32.34	49.15	0.09	-1.35	1.45
x9	Very likely to participate in lawful public demonstration or a rally	516	56.83	32.65	62.67	-0.37	-1.23	1.44
x10	Very likely to undertake any other political action a political group would ask them to	446	36.88	31.22	33.95	0.48	-0.99	1.48

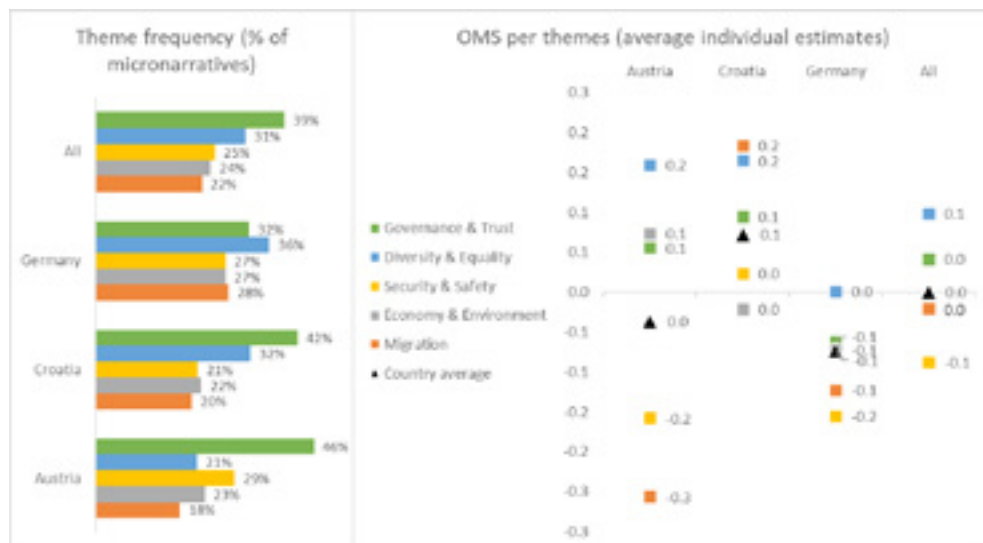
Source: Author's analysis

CFA of the few first-order latent variables, bi-factor and second-order latent variables models led us to the Structural Equation Model, where latent variable of *Beliefs* has a direct effect on the latent variable of *Activism* and an indirect effect on *Online Mobilisation*. In the final model, *Online Mobilisation* is a latent variable defined by variation in *Activism* and two specific emotions, anger and frustration directly reported in the MNS about the situation that makes respondents uneasy. All loadings are above 0.3 or more, highly statistically significant. The model is robust and has high global, absolute, and relative fit indices (Table 3).

The missing values issue was treated with the random forest method. The overall robustness was confirmed on a reduced dataset excluding cases with missing values. However, factor scores for online mobilization potential were needed for the further analysis of micronarratives about salient concerns. The random forest technique was therefore applied as a machine learning approach.

The *Final Model* is used to estimate the OMS for each respondent. Based on individual estimates, we aggregate the OMS at the level of themes of situations which respondents described in the opening questions. Theme frequency and OMS averages per country and theme are presented in Figure 2.

Figure 2. Theme frequency and OMS estimates



Source: Author's analysis

OMS is aggregated also at the level of topics and frames, but those results are not presented in this SEM-oriented analysis. Diversity and Equality ranks high in all three countries – it includes narratives reflecting the tension between diverse segments of the society based on sex, religion, sexual orientation, ethnic belonging, and similar. Asked what makes her uneasy, one respondent noted:

“A protest was recently organised in a part of Croatia with a significant Roma population. The poster/protest call explicitly mentioned (only) Roma. This protest was discussed on public television in an informative TV programme (with high viewing rates). Of the many shameful statements by the politicians (...) I was mostly shocked by the fact that nobody on the programme (or from more visible political circles) condemned/thought it scandalous that such a protest was organized, and on top of that, the minority was explicitly named!” *Croatia, female*

Still, the most representative of that theme in Austria and Germany are the integration narratives about difficulty preserving identity, status, rights as diaspora or immigrants. One respondent for example noted that what makes him uneasy is:

“The astonishment and even intolerance (...) in Germans when they see I am a practising Moslem. Only because I go to the mosque regularly, it is as if they look upon me as a terrorist, and not a simple diligent worker.” *Germany, male*

Governance and Trust issues also rank high in the mobilising potential, followed by the Economy and Environment theme, Migration, and lastly Security and Safety issues. There are important variations between countries in frequency of concerns and mobilizing potential.

Themes, topics, and frames in the collected micronarratives can be described with two measures. One is frequency which denotes the spread of concerns. The more representative the sample, the better the measure of spread. The second measure is the latent online mobilisation potential that we identify through SEM. Those issues that demonstrate higher online mobilising potential, even if not very frequent, may be more likely to incite political activism in the future. OMS may be used as an early diagnostic tool.

CONCLUSION

Immigrant populations are usually hard to reach in longitudinal surveys that focus on the general adult population of countries. This paper is a methodological contribution to identifying the immigrant populations' concerns that have the most mobilising potential, using data from a survey that specifically focused on immigrants. In 2019, a team of researchers affiliated with an EU-funded civil society initiative administered a Micro-Narratives Survey to a purposeful sample of Post-Yugoslav (PY) origin residents (547) in Austria, Germany, and Croatia, asking them to describe situations that made them uneasy. Austria and Germany are traditional destinations for PY emigration, while Croatia is both an EU and PY country with a significant population originating from other former Yugoslav republics.

To detect mobilising issues, we qualitatively categorised the collected micronarratives according to leading themes and topics that made respondents uneasy. Using other questions in the survey, we constructed an Online Mobilisation Score (OMS) to understand which issues are more politically charging for PY residents when discussed online. To construct the OMS, we ran 16 iterations of the Structural Equation Model-

ling, settling for a final model with 11 variables related to activism, beliefs, and emotions. Beliefs contribute to the online mobilising potential through their influence on emotion and activism. When respondents interpreted their issue of concern as a form of socio-cultural and political marginalisation (as opposed to economic), they were more likely to report frustration in our sample. Our final model of the OMS includes frustration and anger experienced as a reaction to online content about the issue of concern. Anger also directly links to respondents' motivation to participate in political protests. We take *Activism*, consisting of resource-demanding political actions, including protests as the key dimension of the OMS, reinforced by emotion and beliefs.

In 2019 the most frequent theme of concern in the purposive sample was related to Governance & Trust in institutions, but the theme with the most online mobilising potential in Austria and Germany is Diversity & Equality. In Croatia, where most of the respondents were non-immigrants, the theme of highest online mobilising potential was Migration. However, our findings are not generalisable to the entire Post-Yugoslav populations in these countries. In selecting the 2019 purposive sample of Post-Yugoslav populations in Croatia, Austria, and Germany, field researchers were instructed to aim for gender, age, and ethnic diversity. Administrative data on Post-Yugoslav populations in Austria and Germany is incomplete and could not provide direction for sampling. The subsamples in these two countries included also 8 and 24 persons respectively who are not of Post-Yugoslav origin but have ties to persons of Post-Yugoslav descent.

The themes and topics coded from micronarratives would likely be significantly different in 2024 considering the profound global changes that happened in the meantime, including the COVID-19 pandemic and two major conflicts influencing perceptions in the Post-Yugoslav and the European space. Similarly, the repertoire and intensity of emotion, the likelihood of certain types of political activism over others, and the drive for certain types of change may be different today. The results should thus be interpreted with caution and potentially re-evaluated in light of the recent challenges.

However, this article primarily demonstrates usefulness of Structural Equation Modelling for constructing a quantitative measure of the mobilising potential of specific themes within groups. The approach is particularly useful in media and communication studies, as well as consumer research, and other fields.

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(Footnotes)

- 1 NLMINB is an optimizer using PORT routines. PORT optimization routines have a common structure and assume certain number of iterations and objective function and gradient function evaluations performed. We did not constrain optimization, although there is an option.



EURO - THE EUROPEAN UNION'S SINGLE CURRENCY - A CHALLENGE AND / OR A GOOD SOLUTION FOR CROATIA

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Abstract: *In its accession to the European Union, the Republic of Croatia has accepted the goals and values of this community. They are also largely tied to the single currency - the euro. Today, the euro is not only the currency of the 20 Member States of the European Union and the currency used by more than 340 million Europeans, but it is the only reference supranational currency in the world and a currency that is an integral part of the monetary reserves of a large number of countries. Croatia, on the basis of its membership obligations in this Union, has aligned its monetary policy with the monetary policy of this Economic and Monetary Union. Consequently, in order to establish monetary unity, it is necessary to achieve a higher degree of integration in the monetary segment - to introduce a single currency. As these activities involve changes in the monetary sovereignty of each country, they have not only monetary aspects but are a very demanding, complex and sensitive process with far-reaching effects. The aim of this paper is to investigate, collect and analyze relevant information on the awareness and attitudes of the economic provenance from the student population on the European Union's single currency - the euro, which replaced the currency of the Republic of Croatia - the kuna. To obtain this information, the authors use a survey method, a comparative, analytical and synthetic method.*

Keywords : European Union, euro, Croatia

JEL classification: E52, G28

INTRODUCTION

The economic and monetary situation after World War II and the collapse of the previous monetary system necessitated the search for new solutions in the economic and monetary field through the integration processes of Western European countries.

Monetary measures and activities were then primarily aimed at establishing the stability of the national currencies of the member states. In the long term, this created the conditions for their monetary unification – the introduction of a single currency.

The concept of a common currency in the European Union is characterized by gradualism and the independence of member states in choosing the time of introduction of this currency while fulfilling the convergence conditions. Such monetary solutions also change the traditional concept of sovereignty, since monetary sovereignty is partly transferred to the supranational level. In such circumstances, the attitudes of the population regarding these activities are of particular importance.

The Croatian National Bank has so far conducted several surveys on the introduction of the euro in the Republic of Croatia. Consequently, this paper presents additional research on the attitudes of a part of the student population of economic provenance regarding the single currency as legal tender, given the specificity of the sample.

LITERATURE REVIEW

The legal framework for the introduction of the single currency of the European Union – the euro – is the Treaty on the Accession of the Republic of Croatia to the European Union, Article 5, which stipulates that Croatia will participate in the Economic and Monetary Union from the date of accession (chrome-extension://efaidnbmnnnibpcajpcglefindmkaj/https://mvep.gov.hr/UserDocsImages/custompages/static/hrv/files/120522_Ugovor_o_pristupanju.pdf, 2025). This is an agreement between the 27 EU member states, where the names of the states are listed individually, and the Republic of Croatia, dated 7 November 2011, which entered into force on 1 July 2013.

This formally accepted the process of introducing a single currency by Croatia as a member of this integration. Given that one of the fundamental goals of the European Union is the establishment of an economic and monetary union with a single currency – the euro, the achievement of this goal had a certain significance for Croatia. The objectives of the European Union are as follows: promoting peace and the well-being of its citizens, guaranteeing freedom, security and justice without internal borders, sustainable development based on balanced economic growth and price stability, a highly competitive market economy with full employment and social progress, and protection of the environment, combating social exclusion and discrimination, promoting scientific and technological progress, strengthening economic, social and territorial cohesion and solidarity among Member States, respecting the rich cultural and linguistic diversity, establishing an economic and monetary union whose currency is the euro (https://europa.eu/european-union/about-eu/eu-in-brief_hr, 2025).

The monetary unification of Europe lasted the longest of all the integration segments (formally from 1969 until 1 January 2002). There were several deviations from the agreed criteria and deadlines, and most of the activities were characterized by gradualism. There are several reasons for this, but the most important ones are certainly those related to the monetary sovereignty of the member states, the use of monetary policy to achieve national economic benefits, the stability/instability of exchange rates, the low degree of liberalization of capital flows, as well as the issue of the position and role of national central banks (Matić, 2016).

All member states of the European Union are obliged, upon meeting the convergence criteria, to integrate into the monetary union and adopt the common monetary

unit – the euro, in accordance with the Treaty on European Union (1993). The complexity and changes in the monetary and fiscal spheres have led to additional requirements regarding the fulfillment of the convergence criteria (European Exchange Rate Mechanism - ERM II) for acceding countries, and the role of the European Central Bank in this segment has also been regulated in a certain way. Only Great Britain, Denmark and Sweden have a special status that allows them to keep their national currencies and is not conditioned to switch to the euro. Denmark uses an opt-out clause. A clause that allows a member state not to apply a certain provision of the Treaty or to apply it with a delay since its citizens rejected the acceptance of a supranational currency in two referendums. The Danish national currency participates in ERM II. Great Britain also uses the opt-out clause, and Sweden intends to hold a referendum on the introduction of a supranational currency (<http://www.fleur-de-coin.com/eurocoins/eurozone>, 2025).

Three of the convergence criteria are monetary and one is fiscal. Monetary criteria include price movements, exchange rate movements and long-term interest rate movements.

Within the framework of the price movement criterion, the accession country is required to: „the achievement of a high degree of price stability; this will be reflected in an inflation rate¹ close to that observed in, at most, the three best-performing Member States in terms of price stability“ and it is prescribed that „the Member State has a level of price stability that is sustainable and an average rate of inflation, observed over the year preceding the examination, which does not exceed by more than 1.5 percentage points the rate of inflation in at most the three² best-performing Member States in terms of price stability. Inflation is measured by the consumer price index on a comparative basis, taking into account differences in national definitions“ (<https://www.ecb.europa.eu/ecb/orga/escb/html/convergence-criteria.hr.html>, 2025).

Within this criterion, the exchange rate movement requires the accession country to: „adhere to the normal fluctuation margins provided for by the exchange rate mechanism of the European Monetary System for at least two years, without devaluation against the euro; respect the normal fluctuation margins of the exchange rate mechanism (ERM II) of the European Monetary System without serious tensions for at least the last two years preceding the examination. In particular, Member States shall not devalue the bilateral central rate of their currency against the euro on their own initiative during the same period. The role of the European Central Bank (ECB) in terms of monitoring the fulfilment of this convergence criterion is as follows: the ECB shall assess whether the country has participated in ERM II for at least the last two years preceding the examination; the verification of exchange rate stability against the euro focuses on whether the exchange rate of the currency of the member state concerned is close to the central rate in the ERM II mechanism and whether the factors that led to

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- 1 The inflation rate is calculated using the change in the latest available twelve-month average of the Harmonized Index of Consumer Prices (HICP) compared to the previous twelve-month average.
 - 2 The inflation rate is calculated as an unweighted arithmetic average of the inflation rate in the three Member States with the lowest inflation rates, unless there are atypical values. Price movements in a particular country can be declared atypical if the inflation rate in that country is significantly lower than in other member states due to factors specific to that country

the appreciation have been taken into account, which is in line with the approach taken previously. The width of the fluctuation band in the ERM II does not have a negative impact on the criterion for verifying exchange rate stability; the ECB checks to what extent the exchange rate of a given currency deviates from its central rate against the euro in the ERM II mechanism. This verification uses indicators such as the volatility of the exchange rate against the euro and the differences in short-term interest rates with the euro area and their movements. The role played in the stabilisation of the currency by foreign exchange interventions and the international financial assistance programme is also taken into account“.

Within the framework of the criterion on the development of long-term interest rates, the accession country is required to demonstrate: „the durability of the convergence achieved by the Member State with a derogation and its participation in the exchange rate mechanism, which is reflected in the levels of long-term interest rates³; that during the one reference year preceding the examination, the Member State had an average nominal long-term interest rate that did not exceed by more than two percentage points the rate of the three⁴ best-performing Member States in terms of price stability. Interest rates are measured on the basis of long-term government bonds or comparable securities, taking into account differences in national definitions“(https://www.ecb.europa.eu/ecb/orga/escb/html/convergence-criteria.hr.html, 2025).

Within the framework of the fiscal criterion, the accession country is required to: „sustainability of the state of public finances; this will be evident from the state budget in which there will be no excessive deficit. The accession country’s obligations within the framework of this criterion are as follows: the ratio between the planned and actual government deficit and GDP exceeds the reference value set at 3% of GDP, except:

- if this ratio is decreasing significantly and steadily and has reached a level close to the reference value, or
- if the excess over the reference value is only exceptional and temporary, and the ratio remains close to the reference value
- the ratio between public debt and GDP exceeds the reference value set at 60% of GDP, except
- if this ratio decreases to a sufficient extent and approaches the reference value at a satisfactory pace“(https://www.ecb.europa.eu/ecb/orga/escb/html/convergence-criteria.hr.html, 2025).

In accordance with the defined convergence criteria, the following is a presentation of what Croatia achieved according to the values of these criteria until the introduction of the euro as the national currency unit (Table 1).

3 The long-term interest rate is calculated as the arithmetic mean over the last twelve months for which HICP is available

4 It is calculated as an unweighted arithmetic average of the long-term interest rate of those same three member states, which is used to calculate the reference value for the price stability criterion. Interest rates are measured by harmonized long-term interest rates that were developed for the purposes of the convergence assessment

Table 1. Fulfillment of the convergence criteria - Croatia

Year	Price stability, inflation, %	Long-term interest rates, %	Exchange rate stability, fluctuation range, %	Budget balance, % of GDP	Public debt, % of GDP
	Estimated reference value in parentheses	Estimated reference value in parentheses	Reference value: ± 15%	Reference value: -3% of GDP	Reference value: 60% of GDP
2010	1.1 (1.6)	6.3 (7.7)	2.2	-6.5	57.3
2011	2.2 (3.1)	6.5 (7.7)	2.4	-7.8	63.8
2012	3.4 (3.1)	6.1 (5.1)	1.6	-5.2	69.4
2013	2.3 (1.8)	4.7 (6.0)	1.7	-5.3	80.5
2014	0.2 (1.3)	4.1 (4.8)	1.6	-5.1	84.0
2015	-0.3 (0.8)	3.6 (3.9)	1.3	-3.4	83.8
2016	-0.6 (1.0)	3.5 (3.8)	1.7	-0.9	80.6
2017	1.3 (2.1)	2.5 (2.9)	1.9	-0.8	78.0
2018	1.4 (2.9)	2.4 (2.8)	2.0	-0.7	75.0
2019	1.3 (2.2)	2.4 (2.9)	2.0	-0.6	75.0
2020	1.4 (2.3)	2.5 (2.8)	1.9	-0.7	74.0
2021	1.4 (2.2)	2.4 (2.7)	1.8	-0.8	72.0
2022	1.3 (2.1)	2.5 (2.9)	1.9	-0.8	70.0

Source: Eurostat (<https://ec.europa.eu/eurostat>, 2025); CNB (<https://www.hnb.hr/>, 2025); authors

Based on the data in the table, it can be concluded that Croatia has had positive developments related to the monetary convergence criteria. The movements of prices, exchange rates and long-term interest rates are positive in the observed period from 2014 to 2022. In terms of fiscal developments, Croatia has had to make significant progress, although slight improvements have been visible since 2016 (Table 1).

Given the above, it is possible to conclude that „until now, reference currencies have been national, and their dominance arose spontaneously under the influence of the economic strength of the issuing country, and was the result, at least initially, of general stability. With the emergence of the euro, for the first time in history, this supra-national currency has become one of the reference world currencies. Due to its stability and the trust thus gained, the euro is becoming increasingly represented in the foreign exchange reserves of several countries“ (Matić, 2016).

On the other hand, there are studies e.g. (Goodhart & Hofmann, 2008); (Calza & al., 2009); (Hirata, 2013); (Zhu & al., 2017) which focuses on the short-term economic perspective and can therefore analyze the impact of changes in economic determinants (e.g., monetary policy stance or financial market stance) on short-term price formation and the introduction of the euro. (Hirata, 2013) have shown that financial market uncertainty and the introduction of the euro can also affect current real estate prices. (Hirata, 2013) build on the literature that explores the impact and shocks of uncertainty in macroeconomics e.g. (Bloom & al., 2012); (Stock & Watson, 2012), and show that uncertainty in financial markets and real house prices in euros are significantly positively related. In addition, (Gattini & Hiebert, 2010) analyze and forecast the dynamics

of real house prices in the euro area as a whole based on aggregated time series data for the period 1970–2009. (Grujić & Vretenar Cobović, 2024) investigate pension systems and link certain fluctuations within the system to the introduction of the euro. There are other studies that focus on the euro area, but only include some member states. (Zhu & al., 2017) assess how monetary policy and housing market regulation affect non-fundamental real estate prices.

In accordance with the above, it should be noted that public opinion is the subject of numerous analyses, and focusing on the EU, such research is most often directed at analyzing various issues related to the euro and the introduction of the euro as a national currency. This term covers many determinants such as political, institutional and economic issues (McLaren, 2002); (Hooghe & Marks, 2009) while the public perception of the single currency can be related to the level of development of the country, the well-being of the individual, the financial crisis, national identity, as well as a number of other factors. (Allam & Goerres, 2011) focused their research on the relationship between individual well-being and the level of support for the euro. They tested three perspectives: economic, political, and historical with individual-level and contextual data. (Palankai, 2017) examines the process of euro adoption in Central and Eastern European countries with a focus on nominal and real convergence criteria. (Roth & al., 2016) investigated public support for the euro in 12 eurozone members from 1990 to 2014. They found that, on average, public support for the euro decreased slightly during the first six years of the crisis and that support remained at a high level.

Based on all of the above, the following paper presents and analyzes the results of a survey conducted on the awareness and attitudes of the student population regarding the introduction of the single currency of the European Union - the euro - in the Republic of Croatia from January 1, 2023.

METHODOLOGY

The research methodology is based on the survey method using an online questionnaire instrument. The research was conducted in March and April 2025, on a representative sample of 207 respondents. The research was conducted in the areas of Eastern, Northern and Central Croatia.

The target group of the sample included full-time and part-time students studying in the field of social sciences (economics), technical sciences (mechanical and electrical engineering), and biotechnical sciences (agriculture). The questionnaire was structured in three parts. The first part of the questionnaire referred to basic data on the sample (gender, age, year of study, study status, place of residence, etc.). The second part of the questionnaire referred to questions related to the student population's awareness of the euro and experience with using the euro, while the third part of the questionnaire referred to questions related to the student population's attitudes towards the euro.

The aim of the research is to obtain information about the level of information available to students and their experiences regarding the use of the euro, as well as their attitudes towards the euro. The opinions and attitudes of this part of the population are extremely important, since the respondents, as students of professional and university studies of economics, acquire knowledge in this area in accordance with the curriculum. In addition, students of other scientific fields also encounter the aforemen-

tioned issues during their studies. For this reason, the aim of this research is to find out whether students reflect on the knowledge they have gained and how they use it independently.

In accordance with the subject of research and the goal set, the paper starts from the following hypotheses:

H1: The level of interest in euro-related topics among the student population is high, but a certain number of students are not sufficiently informed and do not possess sufficient knowledge regarding the use of the euro in the member states of the European Union

H2: The level of students' knowledge about the euro and their awareness of the introduction of the euro in the Republic of Croatia significantly depends on the type of study they are attending

Individual questions from the survey questionnaire were grouped according to specific target groups in order to see whether there were any differences in the level of student awareness regarding the introduction of the euro in the Republic of Croatia between the analyzed groups. The paper presents the calculation of correlation values between the student population's awareness of the euro and their attitudes towards the euro (knowledge about the euro, advantages and disadvantages of the introduction of the euro, etc.). In addition, the relationship between the important elements assessed by students regarding the introduction of the euro in the Republic of Croatia that are important to the respondents (student population) was examined.

The Pearson correlation coefficient (r) was used to calculate the correlation values. The Pearson correlation coefficient is used for variables on an interval scale that are in a linear relationship. The linear relationship between variables can be read from a scatter plot and implies that the points follow and scatter around a line. The Pearson correlation coefficient is denoted by a lowercase letter (r) and can take values from -1 to +1. A correlation coefficient value of 0 to 1 is a positive correlation and indicates a consistent increase in the values of both data groups. A correlation coefficient value of 0 to -1 indicates a negative correlation, i.e. a consistent increase in the value of one variable and a decrease in the value of the other variable. When the correlation coefficient has a value of 0, then it indicates the absence of a linear relationship, which indicates the fact that knowing the values of one variable, it is not possible to conclude anything about the values of the other variable. The Statistica software package was used to process all the data obtained in the study.

AWARENESS AND ATTITUDES OF THE STUDENT POPULATION ON THE INTRODUCTION OF THE EURO IN THE REPUBLIC OF CROATIA – RESEARCH RESULTS AND DISCUSSION

The following paper presents the results of a survey whose aim was to collect relevant information about students' awareness and their experiences regarding the use of the euro, as well as their attitudes towards the euro. The gender and age of the student population are shown in Table 2.

Table 2. Gender and age

Gender & Age		Frequency	Percent	Cumulative Percent
Gender	Male	81	39.13	39.13
	Female	126	60.87	100.0
	Total	207	100.0	
Age	19 – 24 years old	156	75.36	75.36
	25 – 35 years old	33	15.94	91.30
	36 – 55 years old	18	8.70	100.0
	Over 55 years old	-	-	
	Total	207	100.0	

Source: authors

In the total sample of 207 students, 60.87% were female and 39.13% were male. In terms of age, the majority of respondents were aged 19-24 (75.36%). This was followed by respondents aged 25-35 (15.94%). In the total sample, the least represented respondents were aged 36-55 (8.70%), while there were no respondents over 55 (Table 2).

Based on the age of the respondents, it can be concluded that the majority of respondents are full-time students, which was also shown by the question about study status. In the total sample, 66.67% of students declared themselves as full-time students, while 33.33% were part-time students.

In Brod-Posavina County, 52.18% of students reside there. In the total sample, the representation of other counties is as follows: Sisak-Moslavina 11.59%, Osijek-Baranja and Vukovar-Srijem 10.14% and Požega-Slavonia 8.70%. In other counties (Zagreb, City of Zagreb, Bjelovar-Bilogora and Virovitica-Podravina) 7.25% of students reside there. With regard to the type of settlement in which they live, 55.07% of students declared that they live in a city, while 44.93% of students live in a village.

Table 3 shows the year of study that the respondents are attending and who covers their study costs.

Table 3. Year of study and coverage of study costs

Year of study & who covers study costs		Frequency	Percent	Cumulative Percent
Year of study	1st year of university/professional undergraduate studies	15	7.25	7.25
	2nd year of university/professional undergraduate studies	66	31.88	39.13
	3rd year of university/professional undergraduate studies	66	31.88	71.01
	1st year of university/professional graduate studies	42	20.29	91.30
	2nd year of university/professional graduate studies	18	8.70	100.0
	Total	207	100.0	

Study costs	Parents	99	47.83	47.83
	Scholarship	33	15.94	63.77
	Salary	63	30.43	94.20
	Other	12	5.80	100.0
	Total	207	100.0	

Source: authors

The largest number of students surveyed were in their second and third years of university and/or professional undergraduate studies (31.88%), followed by students in their first year of university and/or professional graduate studies (20.29%). The fewest respondents were in their second year of university and/or professional graduate studies (8.70%) and in their first year of university and/or professional undergraduate studies (7.25%).

When asked about interest in the introduction of the euro in the Republic of Croatia, according to the data obtained, it can be concluded that there is interest in topics related to the euro among those students who, during their years of study, attend classes in courses where it is possible to obtain certain information related to the euro, the European Union and the events preceding this topic, which confirms hypothesis H2.

When asked about the coverage of study costs, 47.33% of students answered that their study costs are covered by their parents, while 15.94% are financed through scholarships. Part-time students finance their studies with income from paid employment (30.43%) or a combination of their own income and their spouse's income (5.80%) (Table 3).

As part of questions related to information about the euro, students answered questions related to the number of European Union members that use the euro as legal tender (Table 4) and the number of denominations in the denomination series of circulating euro coins and banknotes (Table 5).

Table 4. Number of European Union members using the euro

Number of EU members using the euro	Frequency	Percent	Mean	Median	Fashion	Std. Deviation	Variance
18 member states	69	33.33	18	18	Multiple	0.818	0.670
19 member states	69	33.33					
20 member states	69	33.33					
Total	207	100.0					

Source: authors

When asked how many member states of the European Union use the euro as a legal tender, 33.33% of students answered in favor of all three answers. Considering the data in the table, it is possible to conclude that a certain number of students are not sufficiently informed and do not have enough knowledge related to the use of the euro in the European Union members and that the mentioned topic is not close to them, which confirms the hypothesis H1 (Table 4).

Table 5. Number of denominations in the denomination series of euro coins and banknotes in circulation and number of euro banknote series

Euro coin denomination series	Frequency	Percent	Mean	Median	Fashion	Std. Deviation	Variance
7 denominations	87	42.03	7,681	8	8	0.650	0.422
8 denominations	99	47.83					
9 denominations	21	10.14					
Total	207	100.0					
Denomination series of euro banknotes	Frequency	Percent	Mean	Median	Fashion	Std. Deviation	Variance
7 denominations	126	60.87	7,507	7	7	0.670	0.484
8 denominations	57	27.54					
9 denominations	24	11.59					
Total	207	100.0					
Euro banknote series	Frequency	Percent	Mean	Median	Fashion	Std. Deviation	Variance
1 series	30	14.49	2,130	2	2	0.637	0.405
2 series	120	57.97					
3 series	57	27.54					
Total	207	100.0					

Source: authors

In response to questions related to the number of denominations in the denomination series of circulating coins and euro banknotes, a certain number of students showed sufficient information on the mentioned question. When asked about the number of denominations in the denomination series of circulating euro coins, 47.83% of students indicated that they are informed about the denominations of coins, while 60.87% of them know how many denominations the denomination series of euro banknotes contains. In addition, 57.97% of students were properly informed about the number of series of euro banknotes. Based on the data in the table, it is possible to conclude that students are more familiar with banknotes than with euro coins, so it can be assumed that they may have used paper money more often than metal money.

However, a significant number of students are still not sufficiently informed about the mentioned issues, based on which it is possible to conclude that they are not too interested in the mentioned topic, but also that there are certain problems related to the financial literacy of a certain part of the student population, which makes it possible to confirm both hypotheses (Table 5).

Table 6 shows the student's self-assessment regarding their level of information about the introduction of the euro in the Republic of Croatia.

Table 6. Awareness regarding the introduction of the euro in the Republic of Croatia

Students living in the city	Frequency	Percent	Mean	Median	Fashion	Std. Deviation	Variance
Not at all informed	27	23.68	2.658	2	2	1.329	1.767
I'm poorly informed	33	28.95					
I'm well informed	18	15.79					
I'm very well informed	24	21.05					
I am excellently informed	12	10.53					
Total	114	100.0					
Students living in the village	Frequency	Percent	Mean	Median	Fashion	Std. Deviation	Variance
Not at all informed	24	25.81	2.290	2	2	0.995	0.990
I'm poorly informed	30	32.26					
I'm well informed	27	29.03					
I'm very well informed	12	12.90					
I am excellently informed	-	-					
Total	93	100.0					

Source: authors

Based on the data in the table, it can be observed that the largest number of students is ill-informed about the introduction of the euro in the Republic of Croatia, regardless of the type of settlement where they live. In addition, students living in the city are generally poorly informed or not informed at all, while students who are very well informed about the introduction of the euro only rank third. Students living in the village are generally poor or well informed, while there are only 12.90% of those who are very well informed. Also in rural areas there is not a single student who is well informed about the introduction of the euro in the Republic of Croatia, while in the city there are 10.53%, which confirms hypothesis H1 (Table 6).

Within the framework of questions related to attitudes towards the euro, students answered questions about how necessary it was to introduce the euro as legal tender in the Republic of Croatia and about the advantages and disadvantages of its introduction (Table 7).

When asked whether they believe that the Republic of Croatia should have introduced the euro as legal tender, as many as 68.12% of students stated that Croatia

should not have introduced the euro, while 18.84% of students believed that Croatia should have introduced the euro as legal tender. In the total sample, 13.04% of students were undecided when answering this question.

Table 7. Advantages and disadvantages of introducing the euro in the Republic of Croatia

Advantages of introducing the euro	Frequency	Percent	Mean	Median	Fashion	Std. Deviation	Variance
Easier and simpler payments in all EU member states	90	43.48	2.406	3	1	1.441	2.077
Price stability	12	5.80					
There would be no exchange rate difference	66	31.88					
Better standard of living	9	4.35					
Other	30	14.49					
Total	207	100.0					
Disadvantages of introducing the euro	Frequency	Percent	Mean	Median	Fashion	Std. Deviation	Variance
Price increase	87	42.03	2.521	2	1	1.523	2.319
Salary/pension reduction	24	11.59					
Exchange rate / conversion problem	24	11.59					
Poorer standard of living	45	21.74					
Other	27	13.05					
Total	207	100.0					

Source: authors

The biggest advantage of introducing the euro in Croatia, according to students is easier and simpler payments in all EU member states and the loss of exchange rate differences. Only 4.35% of students believe that a better standard of living is possible with the introduction of the euro. In the category of other, students only mentioned combinations of the previous forms, while in their opinion there are no other advantages.

In terms of disadvantages, the biggest ones are price increases (42.03%) and a lower standard of living (21.74% of students). In addition, 11.59% believe that the introduction of the euro has led to a decrease in salaries and pensions, and problems with the exchange rate. In the category of other, in addition to a combination of the previous forms, students believe that the disadvantage of the introduction of the euro is the loss of one of the characteristics of sovereignty. Ultimately, it can be concluded that students are very skeptical about the introduction of the euro in the Republic of Croatia and that it will be necessary to implement additional educational and informational content on this topic in order to possibly change the world on this issue (Table 7).

The correlation, or measure of the degree of linear connection between individual important variables for the conducted research, is shown in Table 8. The paper presents the calculation of correlation values between the student population's awareness of the euro and their attitudes towards the euro. More precisely, the relationship between the important elements assessed by students during the introduction of the euro in the Republic of Croatia that are important to the respondents (student population) was examined. The Pearson correlation coefficient (r) was used to calculate the correlation values.

Table 8. Correlation research variables – importance of individual elements when introducing the euro/ preferences of respondents (student population)

Variable	The impact of the introduction of the euro on products and services	The impact of the introduction of the euro on salaries and pensions	Concern about the habit of using the euro	Fixed conversion rate	Replacing the kuna with the euro - losing the characteristics of sovereignty	Taking care of existing loans and savings when introducing the euro	Concern about possible inflation in the economy
The impact of the introduction of the euro on products and services	1	0.67*	0.43*	0.46*	0.77*	0.35*	0.82*
The impact of the introduction of the euro on salaries and pensions	0.67*	1	0.68*	0.60*	0.61*	0.50*	0.61*
Concern about the habit of using the euro	0.43*	0.68*	1	0.59*	0.61*	0.51*	0.47*
Fixed conversion rate	0.46*	0.60*	0.59*	1	0.56*	0.56*	0.43*
Replacing the kuna with the euro - losing the characteristics of sovereignty	0.77*	0.61*	0.61*	0.56*	1	0.41*	0.62*
Taking care of existing loans and savings when introducing the euro	0.35*	0.50*	0.51*	0.56*	0.41*	1	0.44*
Concern about possible inflation in the economy	0.82*	0.61*	0.47*	0.43*	0.62*	0.44*	1

Source: author

* Correlation is significant at the 0.01 level (2-tailed)

$0 < |r| < 0.25$ - weak correlation between variables

$0.25 < |r| < 0.64$ - average strength of correlation between variables

$0.64 < |r| < 1$ - strong correlation strength between variables

Considering the calculation of correlation values between the student population's awareness of the euro and attitudes towards the euro for individual variables, it can be concluded that the obtained results indicate the existence of a positive correlation between all researched variables from the survey questionnaire. For most variables, there is a medium strength of correlation, while a strong strength of correlation exists between the following variables (the impact of the introduction of the euro on products and services and the impact of the introduction of the euro on salaries and pensions $r = 0.67$; the impact of the introduction of the euro on products and services and the replacement of the kuna with the euro - loss of sovereignty characteristics $r = 0.77$; the impact of the introduction of the euro on products and services and concern about possible inflation in the economy $r = 0.82$; concern about the habit of using the euro and the impact of the introduction of the euro on salaries and pensions $r = 0.68$).

Based on the research results obtained, it can be concluded that the student population is certainly concerned to a certain extent about the introduction of the euro in Croatia and that they need additional information about the positive and negative aspects of the introduction of the euro.

CONCLUSION

Although the establishment of European monetary unity took a long time, the establishment of the European Economic and Monetary Union (EMU) contributed to the creation of certain goals important for the monetary policy of the member states. One of them is the introduction of the euro as the single currency within the Union. The euro is currently used as the official currency by twenty member states, including the Republic of Croatia, and other member states will adopt it when they meet certain convergence criteria.

The research conducted by the Croatian National Bank on the introduction of the euro in the Republic of Croatia represents a significant contribution to the knowledge of the population's attitudes on this matter. Continuity in conducting the research also provides information on changes in attitudes. Furthermore, the research conducted on a part of the student population by economic background certainly contributes to this topic. Results of the research on the information and attitudes of the student population on the introduction of the euro in the Republic of Croatia indicate the following:

- although there is interest in topics related to the euro among the student population, a certain number of students are not sufficiently informed and do not have enough knowledge related to the use of the euro in the European Union members, and the mentioned topic is not close to them;
- students' knowledge about the euro and their awareness of the introduction of the euro in the Republic of Croatia significantly depends on the type of study they are attending;
- some students have problems related to financial literacy;
- a large number of students are poorly informed about the introduction of the euro in the Republic of Croatia, regardless of their place of residence. Thus, in rural areas there is not a single student who is well informed about the introduction of the euro in the Republic of Croatia, while in cities there is an extremely small percentage;
- in the total sample, the largest number of students stated that Croatia should

not have introduced the euro as a national currency, while a significantly smaller number of them believed that it was necessary for Croatia to introduce the euro as a means of payment;

- students are very skeptical about the introduction of the euro in the Republic of Croatia, and it will be necessary to conduct additional educational and information activities on this topic in order to possibly change awareness of this issue.

In accordance with the conclusions reached, it is very important to note that it will be necessary to analyze in future research the level of information and attitudes about the introduction of the euro in the Republic of Croatia and among the rest of the population, not just students. Special emphasis should be placed on employers, employed, but also unemployed residents, beneficiaries of social assistance, etc. Such a broader sample will provide a clearer picture of the entire population's level of information and attitudes related to the euro.

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ISTRAŽIVANJE JAVNE SVIJESTI O KRUŽNOJ EKONOMIJI U REPUBLICI HRVATSKOJ

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Sažetak: Kružna ekonomija prepoznata je na globalnoj razini kao ključna strategija održivog razvoja, jer je usmjerena na ublažavanje problema nestašice resursa i onečišćenja okoliša. No unatoč njezinoj važnosti, u zemljama u razvoju još uvijek postoji ograničen broj istraživanja javne svijesti, stavova i obrazaca ponašanja građana povezanih uz ovaj koncept i kružne prakse. Stoga je cilj ovog rada bio istražiti u kojoj mjeri hrvatski građani znaju i razumiju što je kružna ekonomija, te koliko sudjeluju u praksama koje mogu podržati tranziciju prema kružnom gospodarstvu. Osim toga, željelo se ispitati postoje li razlike u razini javne svijesti o kružnoj ekonomiji s obzirom na socio-demografska obilježja ispitanika. Empirijsko istraživanje je provedeno na uzorku od 427 punoljetnih građana iz tri hrvatske županije: Šibensko-kninske, Splitsko-dalmatinske i Dubrovačko-neretvanske. Ova područje odabrano je zbog svog značajnog ekonomskog i društvenog potencijala, ali i ekoloških izazova povezanih s intenzivnim razvojem turizma. Rezultati su pokazali da je razina razumijevanja koncepta kružne ekonomije među građanima relativno niska, prvenstveno zbog nedostatka osviještenosti o ovoj temi. Nadalje, utvrđena je pozitivna korelacija između razine obrazovanja i svijesti o kružnoj ekonomiji, dok se ostala socio-demografska obilježja, uključujući županiju stanovanja, spol i dob, nisu pokazala statistički značajnim prediktorima razine javne svijesti. Nalazi predmetnog istraživanja mogu doprinijeti empirijskoj literaturi o tranziciji prema kružnoj ekonomiji te pružiti smjernice za daljnje istraživanje i razvoj politika usmjerenih na jačanje javne svijesti i promicanje održivih praksi u Republici Hrvatskoj.

Ključne riječi: kružna ekonomija, kružne prakse, javna svijest, građani, Republika Hrvatska.

JEL klasifikacija: H31, M0

UVOD

U novije vrijeme društvo se sve više suočava s izazovima povezanim uz prekomjernu potrošnju prirodnih resursa, degradaciju okoliša, klimatske promjene i gubitak bioraznolikosti (WWF, 2024). Istovremeno, brojni ekonomski izazovi, poput rizika opskrbe, dereguliranih tržišta i neadekvatnih poticajnih mehanizama, dovode do sve češćih financijskih i ekonomskih nestabilnosti, kako za pojedinačne tvrtke, tako i za čitava gospodarstva (OECD, 2023) (IMF, 2024). Kao odgovor na ove izazove razvio se koncept kružne ekonomije, koji integrira ekološku održivost i ekonomski rast kroz ponovnu upotrebu resursa, minimizaciju otpada i optimizaciju proizvodnih procesa (Geissdoerfer, Savaget, Bocken, & Hultink, 2017). Kružna ekonomija, dakle, predstavlja održiviji i resursno učinkovitiji ekonomski model u odnosu na onaj tradicionalni linearni model, koji se temelji na principu „uzmi, proizvedi, odbaci”. No unatoč tome što među znanstvenicima, praktičarima i kreatorima javnih politika raste interes za ovim konceptom, uspješan prijelaz na kružno gospodarstvo moguć je jedino ukoliko građani imaju razvijenu svijest o njegovoj važnosti, jer oni su ti koji imaju ključnu ulogu u usvajanju održivih praksi. Međutim, istraživanja koja se bave znanjem, stavovima, ponašanjem i sviješću o kružnoj ekonomiji prvenstveno se fokusiraju na zaposlenike poduzeća ili potrošače, dok se građane kao temeljne sudionike u gospodarskim i društvenim procesima još uvijek zanemaruje (van Langen, i dr., 2021). Stoga je malo poznato koliko građani imaju razvijenu svijest o kružnoj ekonomiji, kako doživljavaju svoje sudjelovanje u kružnim praksama te koje vještine i kompetencije su za to relevantne (Korsunova, Horn, & Vainio, 2015). Istraživanja koja se fokusiraju na građane posebno su malobrojna kada je riječ o zemljama Europske unije, jer je koncept kružne ekonomije na tom području relativno nov i još uvijek u razvoju. Unatoč napretku, u Republici Hrvatskoj prijelaz s linearnog na kružni model još uvijek je spor i neefikasan, dijelom zbog nedostatka svijesti i interesa među građanima (Švarc, 2022). Dostupna istraživanja odnose se na stavove i navike građana koje je moguće povezati samo uz pojedinačne kružne prakse (Kalambura, Racz, Jovičić, & Toth, 2016) (Ilakovac, Iličković, & Voća, 2018) (Cerjak, i dr., 2021) ili je ograničeno na studentsku populaciju (Mečev, Šišara, & Gojević-Zrnić, 2023) dok, prema saznanjima autorica, još uvijek ne postoji niti jedna relevantna studija koja bi se bavila sviješću i stavovima građana o kružnoj ekonomiji.

Imajući navedeno u vidu, cilj ovog rada je istražiti u kojoj mjeri hrvatski građani znaju i razumiju što je kružna ekonomija, te koliko sudjeluju u praksama koje mogu podržati tranziciju prema kružnom gospodarstvu. Osim toga, želi se ispitati postoje li razlike u razini javne svijesti o kružnoj ekonomiji s obzirom na socio-demografska obilježja ispitanika. Analiza javne svijesti o konceptima kružne ekonomije, stavovima, ponašanjima i budućim perspektivama razvoja među lokalnim stanovništvom ključna je za njezin napredak u regiji (Smol, Avdiushchenko, Kulczycka, & Nowaczek, 2018), stoga rezultati ovog istraživanja mogu pružiti vrijedne uvide donositeljima politika, akademskoj zajednici i dionicima u poslovnom sektoru kako bi se osmislile učinkovite strategije za podizanje svijesti i promicanje održivih praksi među građanima.

TEORIJSKI OKVIR ISTRAŽIVANJA

Iako je kružna ekonomija postala predmet intenzivnijeg interesa tek u posljednjih desetak godina, razvoj ovog koncepta, zajedno s kružnim praksama i poslovnim

modelima, započeo je puno ranije (Maksymiv, Yakubiv, Hryhoruk, & Kravtsiv, 2021). Ideja kružne ekonomije prvi put se pojavila 1966. godine u radu „The Economics of the Coming Spaceship Earth“ (Boulding, 1966), u kojem, iako se sam pojam izričito ne spominje, autor ističe Zemlju kao zatvoreni sustav u kojem su gospodarstvo i okoliš međusobno povezani na način koji nije linearan, već kružan. Ovaj rani pristup postavio je temelje za kasniji razvoj kružnih principa. Konceptualni korijeni kružne ekonomije također se mogu uočiti u sličnim konceptima, kao što su industrijska ekologija (engl. Industrial Ecology), koncept „od kolijevke do kolijevke“ (engl. Cradle to Cradle - C2C), plava ekonomija (engl. The Blue Economy) te biomimikrija (engl. Biomimicry).

U suvremenoj literaturi kružna ekonomija se smatra modelom za postizanje održivosti u poslovanju i lancima opskrbe (De Angelis, Howard, & Miemczyk, 2018). Murray i dr. (2017) definiraju je kao regenerativni sustav koji promiče produljenje životnog vijeka proizvoda, smanjenje potrošnje sirovina i minimizaciju otpada, što se postiže zatvaranjem materijalnih tokova i usporavanjem ciklusa korištenja resursa. Organizacija The Ellen MacArthur definira kružnu ekonomiju kao „obnavljajući industrijski sustav, koji zamjenjuje koncept ‘end-of-life’ recikliranjem, ponovnom uporabom, obnovom i smanjenjem potrošnje materijala u proizvodnji te procesima uporabe i potrošnje, s ciljem održavanja proizvoda, njegovih sastavnica i materijala na najvišoj razini korisnosti i vrijednosti tijekom cijelog njihovog životnog ciklusa“ (EMF, 2015, str. 25). Kirchherr i dr. (2023) su ponudili definiciju kružne ekonomije temeljenu na sustavnoj analizi brojnih znanstvenih radova, navodeći da predstavlja ekonomski sustav koji podržava održivi razvoj, istovremeno promičući ekološku kvalitetu, ekonomski prosperitet i društvenu pravednost, na dobrobit sadašnjih i budućih generacija. Ovi ciljevi ostvaruju se kroz inovativne poslovne pristupe i odgovorno ponašanje potrošača. Bosman i Rotmans (2016) naglašavaju da svaka tranzicija, pa tako i prijelaz društva na kružno gospodarstvo, podrazumijeva promjenu u strukturi, kulturi i praksama društvenih (pod)sustava.

Tradicionalno, temelj kružnih praksi čine tzv. 3R aktivnosti (engl. reduce – reuse – recycle), koje su u novije vrijeme proširene dodatnim aktivnostima, primjerice 4R (engl. reduce – reuse – remanufacture - recycle), 6R (engl. reuse – recycle – redesign – remanufacture - reduce – recover) pa sve do 9R (engl. refuse – rethink – reduce – reuse – repair – refurbish – remanufacture - repurpose – recycle) (Potting, Hekkert, Worrell, & Hanemaaijer, 2017). Reike i dr. (2018) u svom su radu identificirali čak 38 različitih pojmova koji započinju slovom R, a koji se u različitim kombinacijama pojavljuju u kontekstu kružne ekonomije. Autori navode da se istim R pojmovima često pripisuju različita značenja, što upućuje na postojanje proturječnosti u konceptualizaciji kružne ekonomije. Nadalje, naglašavaju da se pojedini R pojam može odnositi na potpuno različite aktivnosti ovisno o dioniku koji ga primjenjuje, te da se samo ograničeni broj tih aktivnosti izravno odnosi na građane.

U literaturi postoji ograničen broj radova koji se bave znanjem, stavovima i razinom svijesti o kružnoj ekonomiji, a s obzirom na ciljane populaciju koja se istražuje moguće ih je podijeliti u nekoliko skupina (van Langen, i dr., 2021). Prvoj skupini pripadaju radovi koji istražuju na koji način poduzeća percipiraju koncept kružne ekonomije, u kojoj mjeri su svjesna njezinih prednosti te kako implementiraju kružna načela u svoje poslovanje (Liakos, i dr., 2019) (Gue, Promentilla, Tan, & Ubando, 2020). Istražuju se i prepreke s kojima se poduzeća susreću prilikom uvođenja kruž-

nih praksi (García-Quevedo, Jové-Llopis, & Martínez-Ros, 2020). Drugu skupinu čine radovi koji su usmjereni na zaposlenike, a rezultati takvih istraživanja idu u smjeru koji implicira da su zadovoljni zaposlenici ključni za uspješnu implementaciju kružnih poslovnih modela (Singh & Singh, 2018). Rezultati također pokazuju da posebnu osjetljivost i stav prema ekološkim problemima u pravilu razvijaju oni zaposlenici u čijim je poduzećima zaštita okoliša jedan od strateških ciljeva (Poli, Lanciano, & Curci, 2009). Nadalje, treću skupinu čine radovi kojima su ciljana skupina potrošači (Carmacho-Otero, Boks, & Pettersen, 2018) (De Kock, Sadan, Arp, & Upadhyaya, 2020). Kružna ekonomija se sve više percipira kao ključni pokretač održive potrošnje (Jaca, Prieto-Sandoval, Psomas, & Ormazabal, 2018), a rezultati istraživanja pokazuju da spremnost potrošača da podrže kružne poslovne modele raste, ali ih je u tome potrebno poticati (Borrello, Caracciolo, Lombardi, Pascucci, & Cembalo, 2017) i dodatno educirati (Boyer, Hunka, Linder, & Whalen, 2021). Konačno, četvrtu skupinu radova čine istraživanja usmjerena na civilno društvo (građane, institucije i neprofitne organizacije), a radovi iz ove skupine najmanje su zastupljeni (van Langen, i dr., 2021). Jedan od ključnih izazova lokalnih vlasti svakako je integracija praksi održive potrošnje i proizvodnje u svakodnevno ponašanje ljudi (Guo, Geng, Sterr, Zhu, & Liu, 2017). Stoga je istraživanje ponašanja građana povezanih s kružnim praksama od iznimne važnosti.

Istraživanja pokazuju da na spremnost građana za podršku kružnoj ekonomiji utječu subjektivne norme i emocije, ekonomske koristi, te razina ekološke osviještenosti (Hao, i dr., 2020) (Testa, Iovino, & Iraldo, 2020). Socio-demografski čimbenici koji oblikuju percepciju i stavove građana prema praksama kružne ekonomije jesu obrazovanje, dob i spol. Istraživanja redovito pokazuju da razina javne svijesti o kružnoj ekonomiji pozitivno korelira s razinom obrazovanja, što sugerira da viša razina obrazovanja doprinosi boljem razumijevanju i prihvaćanju kružnih praksi (Guo, Geng, Sterr, Zhu, & Liu, 2017) (Smol, Avdiushchenko, Kulczycka, & Nowaczek, 2018) (Almulhim & Abubakar, 2021) (van Langen, i dr., 2021). Kada je u pitanju dob, neka istraživanja su pokazala da mlađe osobe bolje razumiju i prihvaćaju koncept kružne ekonomije i s njim povezana ponašanja, dok su starije osobe sklonije konzervativnijim stavovima (Smol, Avdiushchenko, Kulczycka, & Nowaczek, 2018) (Liakos, i dr., 2019) iako ima i suprotnih nalaza (Lee & Cho, 2019). Što se tiče utjecaja spola na znanje, stavove i razinu svijesti o kružnoj ekonomiji, prethodna su istraživanja dala mješovite rezultate (Kuah & Wang, 2020) (Marios, Giannis, & Dimitra, 2018) (Atlason, Giacalone, & Parajuly, 2017) (Pavićević, Jovanović, & Đoković, 2024), što ukazuje na potrebu za dodatnim empirijskim istraživanjima na ovu temu. Teritorijalno gledano, dosadašnja su istraživanja iz ove četvrte skupine radova većinom provedena u Kini (Guo, Geng, Sterr, Zhu, & Liu, 2017) (Xue, Chen, Geng, Guo, & Lu, 2010) (Liu, Li, Zuo, Zhang, & Wang, 2009), pri čemu su rezultati pokazali značajan napredak u usporedbi s 2008. godinom, kada je provedena prva studija na ovu temu (Liu, Li, Zuo, Zhang, & Wang, 2009). S druge strane, istraživanja provedena na području Europske unije još uvijek su malobrojna i većinom ukazuju na nisku razinu javne osviještenosti i nedovoljno razumijevanje koncepta kružne ekonomije među građanima (Vagner, 2021) (Toumba, 2021) (Seiça, 2021) (Ioannidis, Kosmidou, & Papanastasiou, 2023). Izuzetak je istraživanje koje su Smol i dr. (2018) proveli u regiji Malopolska u Poljskoj, koje je pokazalo vrlo visoku razinu osviještenosti i znanje građana o važnosti kružne ekonomije. Neka istraživanja pokazala su da ispitanici imaju pozitivan stav

prema održivim kružnim praksama, ali iskazuju manje sklonosti prema usvajanju istih (Hamari, Sjöklint, & Ukkonen, 2016) (Liakos, i dr., 2019). Krajnc i dr. (2022) svoje su istraživanje usmjerili na mlade (15-30) iz pet europskih zemalja (Austrija, Slovenija, Poljska, Grčka i Litva) i zaključili da su oni upoznati s ciljevima kružne ekonomije, ali da ne posjeduju značajne vještine za praktičnu primjenu kružnih praksi. Također, ne doživljavaju sebe kao pokretače promjena u kontekstu kružne ekonomije, odnosno kao osobe koje osmišljavaju, razvijaju i stvaraju nove poslovne i poduzetničke modele usmjerene prema kružnoj ekonomiji. Ispitujući srednjoškolske učenike u Finskoj, Korsunova i dr. (2015) došli su do saznanja da iznenađujuće velik broj učenika prepoznaje potrebu za smanjenjem kupovine i promišljanjem postojećih navika i načina života. Međutim, učenicima nije posve jasno koje bi mogle biti njihove uloge u novom ekonomskom sustavu.

METODOLOGIJA ISTRAŽIVANJA

Kako bi se ispitala razina javne svijesti građana o kružnoj ekonomiji provedeno je empirijsko istraživanje, a kao ciljana populacija odabrane su punoljetne osobe iz tri hrvatske županije: Šibensko-kninske, Splitsko-dalmatinske i Dubrovačko-neretvanske. Ovo područje odabrano je zbog svog značajnog ekonomskog i društvenog potencijala, ali i ekoloških izazova povezanih s intenzivnim razvojem turizma. S obzirom da kružna ekonomija predstavlja ključan koncept održivog razvoja turizma (Rodríguez, Florido, & Jacob, 2020), te da lokalna zajednica ima izravan utjecaj na turistički sektor, za ove je županije iznimno važno istražiti svijest građana o kružnoj ekonomiji, te koliko oni razumiju i primjenjuju kružne prakse.

Razina javne svijesti građana o kružnoj ekonomiji ispitana je kroz dvije komponente: razumijevanje koncepta i ponašanja povezana s kružnim praksama. Ovdje treba naglasiti da su razlike u terminologiji u području kružne ekonomije u literaturi česte. Tako neki autori kružne prakse nazivaju „principima kružne ekonomije“ (Cheshire, 2019), drugi „aspektima“ (Adams, Osmani, Thorpe, & Thornback, 2017) ili pak „strategijama“ (Foster, 2020). Ovo istraživanje usvaja terminologiju „kružne prakse“, kako su je definirali Benachio et al. (2020). Prema sugestijama Reike i dr. (2018), kružne prakse operacionalizirane su kroz tzv. 5R aktivnosti: smanjenje nastanka otpada (engl. reduce), ponovna uporaba (engl. reuse), recikliranje (engl. recycle), prenamjena (engl. repurpose) i odbijanje (engl. refuse). Odbijanje je aktivnost koja predstavlja proširenu mjeru smanjenja nastanka otpada, a obuhvaća smanjenje interesa za određenim proizvodom koji nije ekološki prihvatljiv (Fuk, 2023). Prednost 5R tipologije leži u tome što građane prikazuje kao aktivne sudionike u kružnoj ekonomiji, a ne samo pasivne potrošače.

U istraživanju je kao sredstvo prikupljanja primarnih podataka korišten upitnik, koji je razvijen na temelju relevantne literature i rezultata dosadašnjih istraživanja. Prvi dio upitnika usmjeren je na procjenu razumijevanja kružne ekonomije među ispitanicima. U skladu s tim, postavljeno je pitanje „Znate li što je kružna ekonomija?“, koje su prethodno koristili i drugi autori (Xue, Chen, Geng, Guo, & Lu, 2010) (Guo, Geng, Sterr, Zhu, & Liu, 2017) (Vagner, 2021) (Alves, Seixas, Castro, & Leitão, 2023). Ispitanicima koji su odgovorili da znaju ili donekle znaju što je kružna ekonomija postavljena su dva dodatna pitanja, kojima se željelo provjeriti kako shvaćaju koncept kružne ekonomije i na koji su način stekli najviše informacija o njemu. Drugi dio upitnika je

usmjeren na svakodnevne aktivnosti i navike građana povezane s kružnim praksama, a pitanja su preuzeta iz istraživanja Guo i dr. (2017) i Smol i dr. (2018), te prilagođena kontekstu predmetnog istraživanja. Posljednji dio upitnika odnosi se na socio-demo-grafska obilježja ispitanika, uključujući prebivalište, spol, dob i razinu obrazovanja.

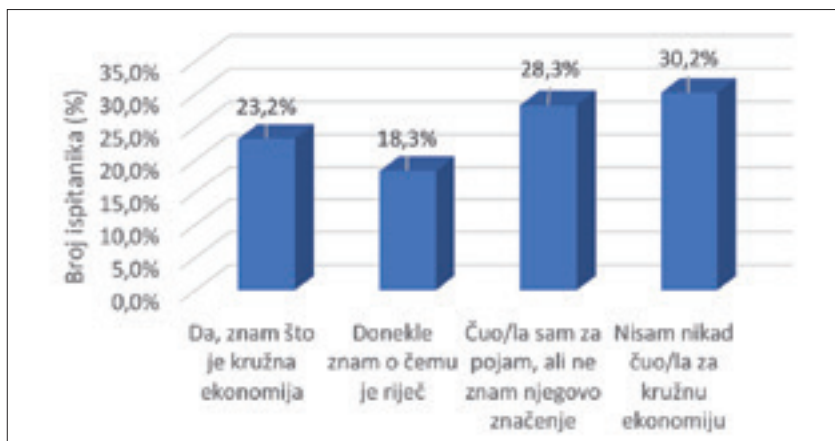
Istraživanje je provedeno online u razdoblju od početka siječnja 2025. do sredi-ne ožujka 2025., a ispitanici su pristupanjem upitniku dali svoj informirani pristanak za sudjelovanje. U prikupljanju podataka korištena je metoda snježne grude, što znači da su autorice poveznicu na upitnik podijelile putem e-pošte i društvenih mreža poslov-nim suradnicima, prijateljima i poznanicima, koji su zamoljeni da upitnik proslijede dalje drugim punoljetnim osobama na području istraživanja. Prema smjernicama Gill i dr. (2010), za procjenu mišljenja stanovnika regije s ukupno 635.352 stanovnika, koliko ih prema Popisu stanovništva iz 2021. godine obuhvaća istraživano područje (DZS, 2021), uz razinu pouzdanosti od 95% i dopuštenu pogrešku od 5%, potreban je minimalan uzorak od 384 ispitanika. Do sredine ožujka 2025. prikupljeno je 427 upitnika, čime je uvjet potrebne veličine uzorka zadovoljen.

Najviše ispitanika (njih 59,3%) dolazi iz Splitsko-dalmatinske županije, slijede ispitanici iz Dubrovačko-neretvanske županije (22,5%), dok je najmanji udio ispitanika iz Šibensko-kninske županije (18,2%). Udio ispitanika iz pojedine županije u uku-pnom uzorku relativno se poklapa s udjelom u ukupnoj populaciji (DZS, 2021). Među ispitanicima, 45,2% su muškarci, a 54,8% žene. Najzastupljenije dobne skupine su 30 - 39 godina (31,4%) i 18 - 29 godina (27,6%). Dobne skupine nisu proporcionalno za-stupljene u uzorku u odnosu na populaciju, što potvrđuje i zaključak istraživanja Lam-za-Posavec (1997) da u Republici Hrvatskoj sudjelovanje u anketnim istraživanjima najčešće odbijaju starije osobe. Dodatni razlog može biti i činjenica da je istraživanje provedeno pretežito putem društvenih mreža, koje u znatno većoj mjeri koriste mlađe osobe. Promatrano prema razini obrazovanja, 45,9% ispitanika ima srednjoškolsko obrazovanje, njih 32,1% je završilo prijediplomski studij, dok 22,0% ispitanika ima završen diplomski studij ili više.

REZULTATI ISTRAŽIVANJA I RASPRAVA

Razumijevanje koncepta kružne ekonomije

Na početku istraživanja ispitanici su upitani znaju li što je kružna ekonomija. Rezultati su pokazali da svega njih 23,2% zna što je kružna ekonomija; 18,3% ispita-nih građana donekle zna o čemu je riječ; 28,3% ih je čulo za pojam, ali ne znaju njego-vo značenje, a čak 30,2% ispitanika nikad nije čulo za kružnu ekonomiju (Grafikon 1).



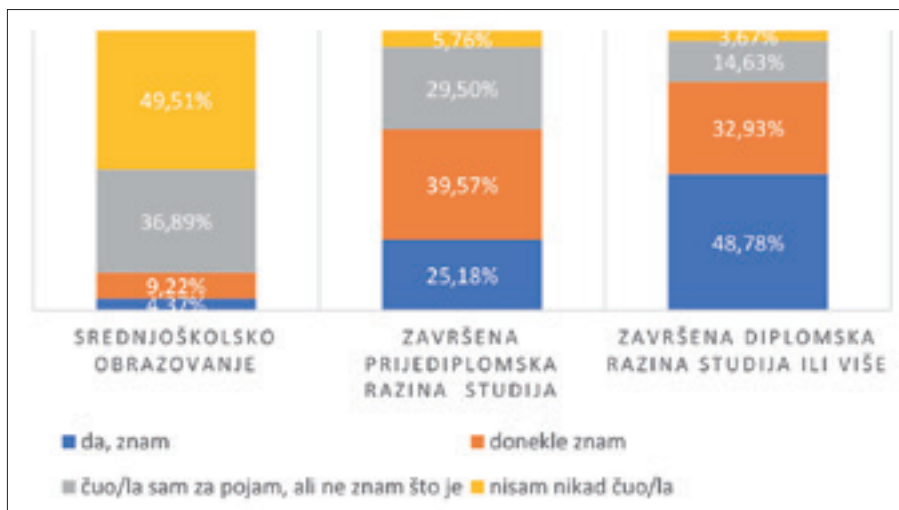
Grafikon 1. Poznavanje koncepta kružne ekonomije

Izvor: rezultati istraživanja

Rezultati upućuju na zaključak da su građani još uvijek skromno upoznati s konceptom kružne ekonomije, što je u skladu s prethodnim istraživanjima provedenima primjerice, u Slovačkoj (Vagner, 2021), Portugalu (Seiça, 2021) i na Cipru (Toumba, 2021). Ograničena razina osviještenosti i nedovoljno poznavanje ovog koncepta mogu biti posljedica nepostojanja općeprihvaćene definicije kružne ekonomije (Kirchherr, Yang, N. H. N., Schulze-Spüntrup, Heerink, & Hartley, 2023), ali i nedostatka interesa građana. Naime, građani često ne percipiraju sebe kao ključne aktere u procesu tranzicije prema kružnoj ekonomiji, već odgovornost prvenstveno pripisuju državi i poslovnom sektoru (Alves, Seixas, Castro, & Leitão, 2023).

Hi kvadrat testom ustanovljena je značajna povezanost razine obrazovanja i javne svijesti o kružnoj ekonomiji ($X^2 = 187,640$; $df = 6$, $p < 001$), a dobivena vrijednost Cramerovog V koeficijenta od 0.469 upućuje da je riječ o jakoj povezanosti (Kolesarić & Tomašić Humer, 2016, str. 26). Ispitanici s najvišom razinom obrazovanja pokazali su značajno bolje poznavanje koncepta kružne ekonomije u usporedbi s onima sa završenim prijediplomski studijem i onima sa srednjoškolskim obrazovanjem (Grafikon 2). Preciznije, 81,7% ispitanika sa završenom diplomskom razinom studija ili više izjavilo je da zna ili donekle zna što je kružna ekonomija, za ispitanike sa završenim prijediplomskim studijem taj postotak iznosi 64,8%, a za one sa srednjoškolskom razinom obrazovanja svega 13,6%. Dobiveni rezultati u skladu su s rezultatima prethodnih istraživanja (Guo, Geng, Sterr, Zhu, & Liu, 2017) (Almulhim & Abubakar, 2021) (van Langen, i dr., 2021).

Rezultati hi-kvadrat testa također su pokazali da ostala socio-demografska obilježja, uključujući županiju stanovanja, spol i dob, nisu statistički značajno povezana s razinom javne svijesti o kružnoj ekonomiji ($p > 0,05$).



Grafikon 2. Poznavanje koncepta kružne ekonomije s obzirom na razinu obrazovanja

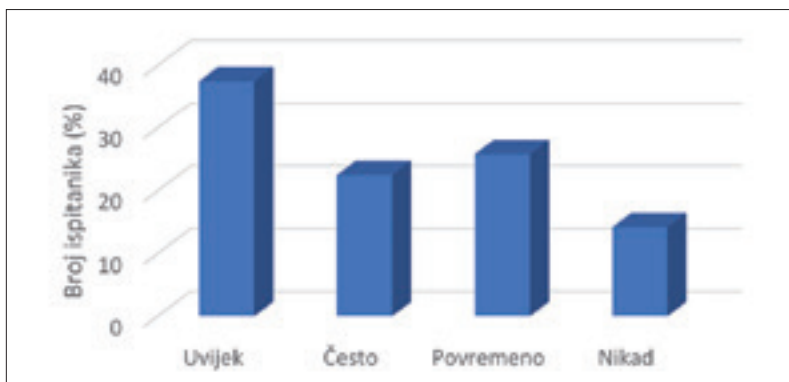
Izvor: rezultati istraživanja

Idućim pitanjem nastojalo se procijeniti kako građani shvaćaju koncept kružne ekonomije. Na njega su odgovarali samo oni ispitanici koji su se u prethodnom pitanju izjasnili da znaju ili donekle znaju što je kružna ekonomija. Rezultati su pokazali kako najveći postotak građana (36,7%) kružnu ekonomiju primarno povezuje s konceptom 3R – smanjenje nastanka otpada, ponovna upotreba, recikliranje. Nadalje, 29,4% ispitanika definira kružnu ekonomiju kao “ekonomiju s nultim otadom”, dok ih 23,2% smatra da ona predstavlja “održiviji način proizvodnje i potrošnje”. 10,7% građana opisuje kružnu ekonomiju kao “ekonomiju koja se može sama regenerirati”. Može se zaključiti da građani koji imaju određeno znanje o kružnoj ekonomiji pokazuju zadovoljavajuću razinu razumijevanja koncepta. Naime, kružnu ekonomiju ne povezuju isključivo s aktivnostima smanjenja otpada i recikliranjem, kao što je to slučaj u nekim drugim europskim zemljama (Toumba, 2021), već i s drugim aktivnostima poput nultog otpada, održivih načina proizvodnje i potrošnje te sposobnosti samostalne obnove.

Građani koji su se izjasnili da znaju ili donekle znaju što je kružna ekonomija također su upitani na koji su način stekli najviše informacija o ovom konceptu. Najveći postotak ih je kao glavni izvor informiranja navelo društvene mreže (37,3%) i razne oblike formalnog obrazovanja ili usavršavanja (27,7%). 16,4% građana o kružnoj je ekonomiji najviše saznalo putem tradicionalnih medija, a gotovo jednako njih (15,3%) kroz razgovor s prijateljima i članovima obitelji.

Ponašanja građana povezana s kružnim praksama

Kada je riječ o kružnim praksama, u ovom se istraživanju najprije analiziralo ponašanje građana povezano uz razvrstavanje otpada. Rezultati su pokazali da 37,5% ispitanih građana uvijek kod kuće razvrstava otpad, 22,5% ih to radi često, 25,8% povremeno, a 14,2% nikad (Grafikon 3).

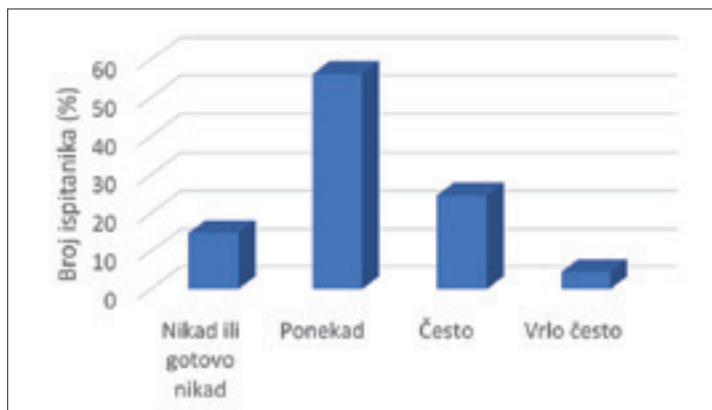


Grafikon 3. Razvrstavanje otpada kod kuće

Izvor: rezultati istraživanja

Ispitanici koji su odgovorili da uvijek ili često razvrstavaju otpad zamoljeni su da navedu koje sve vrste otpada odvajaju, pri čemu im je bilo ponuđeno devet mogućih izbora. Rezultati su pokazali da građani uglavnom odvajaju papir (98,4%), plastiku (97,6%), metal (93,8%) i tekstilne proizvode (92,6%), dok tek manji dio njih odvaja baterije (38,3%), elektronički otpad (35,9%), stari namještaj (35,9%), građevinski otpad (34,0%) i stare lijekove (10,5%).

Ispitanici koji su odgovorili da povremeno razvrstavaju otpad ili to nikada ne čine, zamoljeni su da navedu razloge (višestruki odabir). Najveći broj ispitanika (54,3%) je kao razlog naveo da nemaju uvjete za razvrstavanje otpada, a gotovo jednako ih je navelo da razvrstavanje zahtijeva previše vremena i truda (52,6%). 36,3% ispitanika je navelo da nemaju motivacije, jer smatraju da sav otpad na kraju završi na istom mjestu. 12,3% ispitanika nije sigurno kako pravilno razvrstati određene vrste otpada, dok ih 8,8% razvrstavanje otpada smatra nevažnim.



Grafikon 4. Bacanje hrane

Izvor: rezultati istraživanja

Kružna praksa koja je također iznimno važna u procesu tranzicije prema kružnoj ekonomiji odnosi se na sprječavanje nastanka otpada od hrane. Stoga se u ovom istraživanju analiziralo u kojoj mjeri građani bacaju hranu i koji su razlozi za to. Rezultati pokazuju da svega 14,8% građana nikada ili gotovo nikada ne baca hranu, 56,2% njih je izjavilo da hranu baci ponekad, 24,6% da to radi često, a njih 4,4% vrlo često (Grafikon 4).

Ispitanici koji su odgovorili da hranu bace ponekad, često ili vrlo često zamoljeni su da navedu razloge (višestruki odabir). 59,9% ispitanika je navelo da bacaju neiskorištene ostatke obroka, 38,5% da se hrana pokvari prije nego što je stignu pojesti, 26,2% ispitanika hranu baca jer nisu sigurni je li još uvijek sigurna za konzumaciju, dok je njih 23,0% navelo da zaborave da su hranu kupili pa joj istekne rok trajanja.

Iduća kružna praksa koja se analizirala je kupovina proizvoda izrađenih od recikliranih materijala. Kupovina takvih proizvoda važna je kružna praksa, jer omogućava ponovnu upotrebu resursa, smanjuje količinu otpada i smanjuje potrebu za iskorištavanjem novih sirovina (Calvo-Porrall & Lévy-Mangin, 2020). Rezultati istraživanja su prikazani na Grafikonu 5.



Grafikon 5. Kupovanje proizvoda izrađenih od recikliranih materijala

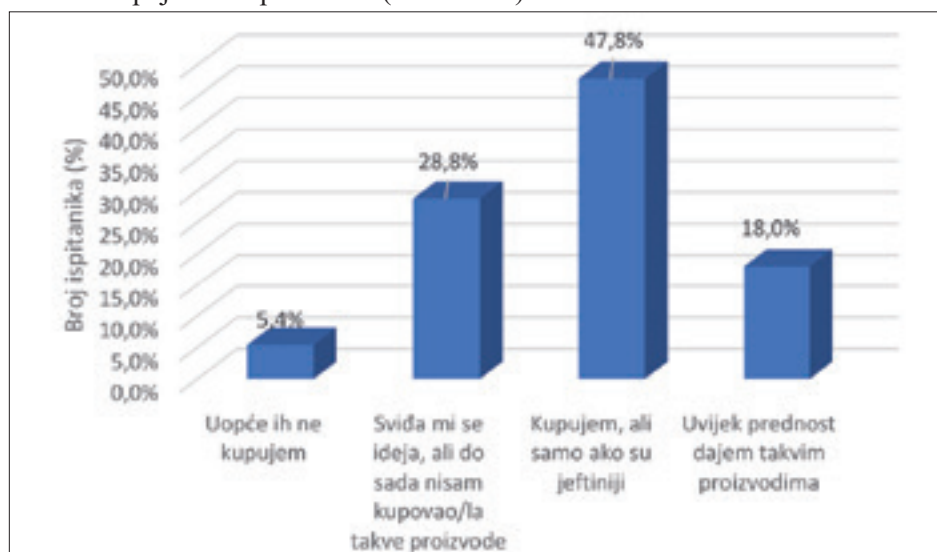
Izvor: rezultati istraživanja

Više od polovica ispitanika (52,0%) ima pozitivan stav prema proizvodima od recikliranih materijala, ali prilikom kupovine ipak ne obraćaju pažnju na to je li proizvod izrađen od takvih materijala. 9,1% ispitanika uvijek kupuje takve proizvode, a njih još 36,1% nema problem s kupnjom proizvoda napravljenog od recikliranih materijala, ali su naveli da ta odluka ovisi o vrsti proizvoda. 2,8% građana ima negativan stav prema takvim proizvodima.

U nastavku se analiziraju rezultati istraživanja povezani uz prakse kupovine obnovljenih proizvoda (Grafikon 6). Za razliku od recikliranih proizvoda koji prolaze kroz proces pretvaranja u sirovine i stvaranja novih proizvoda, obnovljeni proizvodi

ostaju u svom izvornom obliku, ali se popravljaju i poboljšavaju kako bi se ponovno koristili. Kupnja takvih proizvoda jedna je od važnih kružnih praksi, jer produžuje vijek trajanja proizvoda i smanjuje potrebu za novim resursima. Primjer takvih proizvoda su rabljeni automobili koji su servisirani i vraćeni na tržište, stariji komadi namještaja koji su preuređeni ili popravljeni, vintage i second-hand odjeća, itd.

Istraživanje je pokazalo da 18% ispitanika uvijek kupuje obnovljene proizvode. Niža cijena prilikom kupovine predstavlja uvjet za odabir takvih proizvoda za 47,8% ispitanika. Nadalje, 28,5% ispitanika ima pozitivan stav prema ovoj kružnoj praksi, ali do sada nisu kupovali obnovljene proizvode, dok se 5,4% ispitanika izjasnilo da nikada ne kupuju takve proizvode (Grafikon 6).

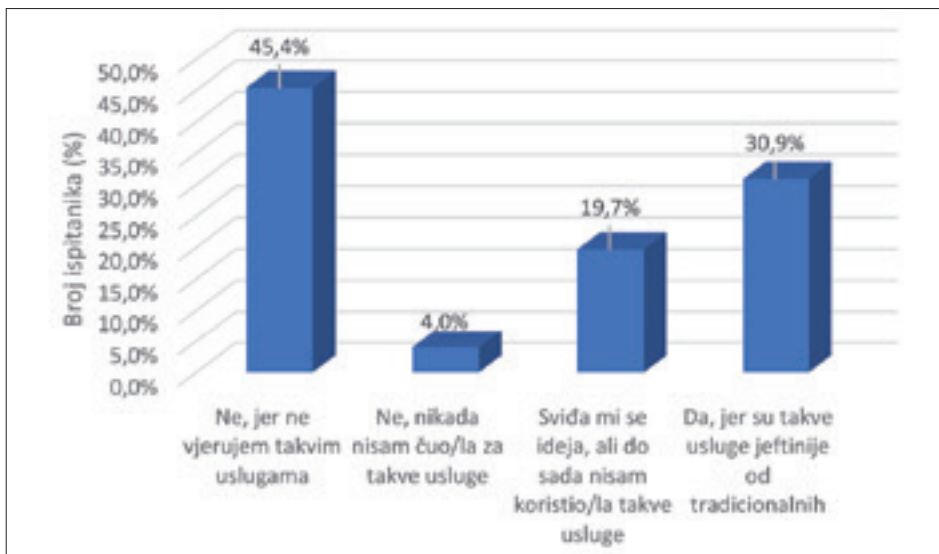


Grafikon 6. Kupovanje obnovljenih proizvoda

Izvor: rezultati istraživanja

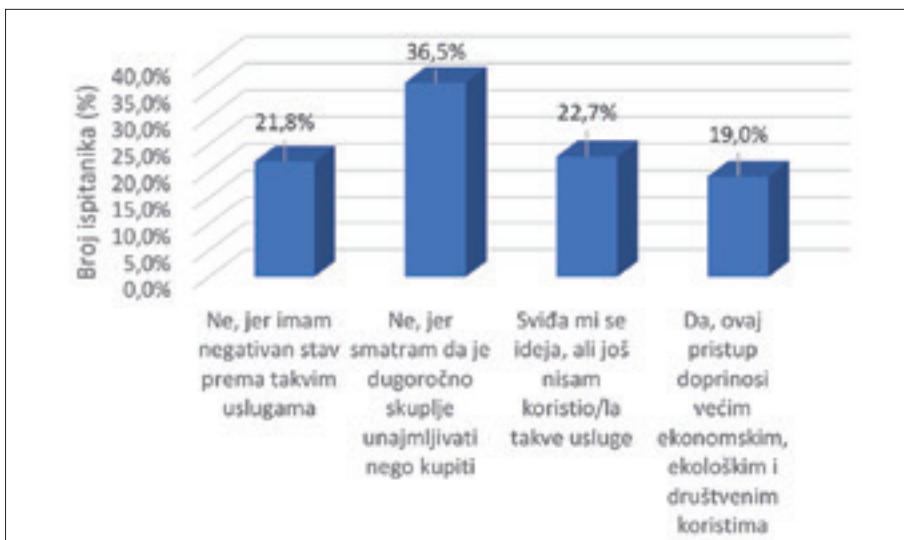
Kružna ekonomija se u mnogim aspektima temelji na ekonomiji dijeljenja (engl. sharing economy), tj. dijeljenju nedovoljno iskorištenih dobara ili usluga, besplatno ili uz naknadu, izravno među pojedincima (Botsman & Rogers, 2010). Rezultati istraživanja o ponašanju ispitanika u vezi s modelom ekonomije dijeljenja prikazani su na Grafikonima 7 i 8.

Polovica ispitanih ima pozitivan stav prema uslugama dijeljenja putovanja i/ili smještaja, kao što su BlaBlaCar, Uber ili Couchsurfing, ali svega 30,9% njih takve usluge zaista i koristi. Druga polovica ispitanika ne koristi usluge dijeljenja prijevoza i smještaja, pri čemu ih 45,4% ne vjeruje takvim uslugama, a 4,0% za njih nikada nije čulo.



Grafikon 7. Korištenje usluga dijeljenja putovanja i/ili smještaja

Izvor: rezultati istraživanja



Grafikon 8. Korištenje usluga najma proizvoda

Izvor: rezultati istraživanja

Istraživanje je također pokazalo da građani još uvijek ne iskazuju sklonost prema uslugama najma proizvoda, uključujući korištenje gradskih bicikala, romobila ili najma odjeće, budući da više od 80% ispitanika ne koristi takve usluge. Samo 19% ispitanika aktivno koristi usluge najma te smatra da one pridonose širim gospodarskim, ekološkim i društvenim koristima. Istovremeno, 21,8% građana izražava negativan stav prema ovom modelu potrošnje, dok 36,5% smatra da je najam dugoročno skuplja opcija u usporedbi s posjedovanjem vlastite imovine. Prethodna istraživanja pokazala

su da građani koncept zajedničke potrošnje (engl. collaborative consumption) percipiraju pozitivno te prepoznaju njegove potencijalne koristi. Međutim, pozitivni stavovi ne rezultiraju nužno odgovarajućim ponašanjem (Hamari et al., 2016). Predmetno istraživanje također je potvrdilo postojanje jaza između stavova i ponašanja, budući da 22,7% ispitanika načelno podržava koncept najma proizvoda, ali ga u praksi ne primjenjuje.

ZAKLJUČAK

Provedeno istraživanje imalo je za cilj procijeniti razinu osviještenosti građana o kružnoj ekonomiji, njihovo razumijevanje koncepta te obrasce ponašanja povezane s promicanjem kružnog gospodarstva, s posebnim naglaskom na tri hrvatske županije: Šibensko-kninsku, Splitsko-dalmatinsku i Dubrovačko-neretvansku. Rezultati su ukazali na nedovoljnu razinu osviještenosti i razumijevanja kružne ekonomije među građanima budući da više od polovice ispitanika nikada nije čulo za pojam kružne ekonomije ili nije sigurno što on podrazumijeva. Nadalje, analiza je pokazala pozitivnu korelaciju između razine obrazovanja i svijesti o kružnoj ekonomiji, pri čemu su obrazovane osobe bolje upoznate s konceptom i njegovim značenjem. Kao ključni izvori informacija o kružnoj ekonomiji istaknule su se društvene mreže i obrazovni programi, što ukazuje na njihov značaj u oblikovanju javne percepcije i ponašanja. Prikupljeni podaci ukazali su i na prisutnost jaza između stavova i ponašanja: iako dio ispitanika izražava pozitivan stav prema određenim kružnim praksama, poput kupovine proizvoda od recikliranih materijala ili korištenja usluga dijeljenja, ti obrasci ponašanja nisu u potpunosti usvojeni. Također, tradicionalne kružne prakse, poput smanjenja otpada od hrane i recikliranja, znatno su prihvaćenije u svakodnevnom životu od novijih modela, poput ekonomije dijeljenja.

Iako rezultati ovog istraživanja predstavljaju važne smjernice za unapređenje politika i strategija usmjerenih na promicanje kružne ekonomije, važno je istaknuti određena metodološka ograničenja. Upitnik nije obuhvatio sve prakse kružne ekonomije, a istraživanje je bilo ograničeno na samo jedno regionalno područje. Istraživanje koje bi se provelo na širem teritoriju zahtijevalo bi puno veće logističke napore i dulje vremensko razdoblje, što u uvjetima ovog istraživanja nije bilo moguće osigurati, ali ostaje preporukom za buduća istraživanja. Studija koja bi se provela na nacionalnoj razini pružila bi dublji uvid u percepciju i ponašanje hrvatskih građana prema kružnoj ekonomiji, te omogućila usporedbu razlika s obzorom na regiju stanovanja. Nadalje, uključivanje psiholoških faktora u buduća istraživanja moglo bi omogućiti bolje razumijevanje motivacija i prepreka koje utječu na prihvaćanje kružnih potrošačkih obrazaca. Zaključno, uspješna implementacija kružne ekonomije u Republici Hrvatskoj zahtijeva sustavnu edukaciju i podizanje svijesti javnosti, kao i oblikovanje poticajnih politika koje će omogućiti širu primjenu kružnih modela potrošnje i proizvodnje.

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INVESTIGATING PUBLIC AWARENESS ON CIRCULAR ECONOMY IN CROATIA

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Summary: *The circular economy (CE) has been globally recognized as a key strategy for achieving sustainable development by addressing resource scarcity and environmental pollution. Despite its significance, there remains a limited body of research in developing countries on the role of public awareness, attitudes, and behavioral patterns in facilitating the transition towards a CE model. Understanding public perception is crucial for identifying the main obstacles to CE implementation and developing effective strategies to overcome them. Therefore, this study aimed to assess the level of public awareness and attitudes towards CE in the Republic of Croatia, with a specific focus on three Dalmatian counties: Šibenik-Knin, Spit-Dalmatia and Dubrovnik. This area was selected due to its substantial economic and social potential, as well as the pressing environmental challenges arising from rapid tourism development. Data for this research were collected through a survey questionnaire distributed to a sample of 427 respondents. The questionnaire was structured into three key sections: (1) understanding of the CE concept, (2) behavioral patterns related to circular practices, and (3) socio-demographic characteristics of the respondents. The results indicate a generally low level of awareness and understanding of CE among the surveyed population. Over half of the respondents (58.5%) had never heard of the term or had only a vague understanding of its meaning. Furthermore, the findings suggest a positive correlation between the level of education and awareness of CE transition, implying that individuals with higher educational attainment are more likely to be familiar with the concept and its implications. Other socio-demographic characteristics, including county of residence, gender, and age, did not prove to be statistically significant predictors of the level of public awareness of the CE. In terms of behavioral patterns, the study highlights a gap between attitudes and actual practices. While a portion of respondents expressed support for circular practices, such as purchasing products made from recycled materials or using shared services, their behaviors did not always align with these positive attitudes. Traditional circular practices, including food waste reduction and recycling, were more widely adopted compared to newer models such as*

the sharing economy. These findings contribute to the empirical literature on CE transition by providing insights into public awareness, attitudes, and behaviors in Croatia. Furthermore, they underscore the need for targeted educational initiatives and policy measures aimed at increasing public engagement in CE practices. Expanding future research to a national scale and incorporating psychological perspectives could offer a more comprehensive understanding of the motivations and barriers affecting the adoption of circular consumption patterns.

Keywords: *circular economy, circular practices, public awareness, citizens, Croatia.*

JEL classification: *H31, M0*



STRATEGIC FRAMEWORK FOR BIODIVERSITY PROTECTION: A CASE STUDY OF THE REPUBLIC OF SRPSKA

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Abstract: *This paper explores the strategic frameworks and financial mechanisms aimed at biodiversity preservation in the Republic of Srpska. Through an analysis of current regulations and strategic documents in the field of biodiversity, the goal of this research is to identify key issues and provide recommendations for effectively financing biodiversity conservation efforts in the Republic of Srpska.*

The central research question addresses whether the existing strategic and legislative frameworks adequately recognize the need for biodiversity preservation. The hypothesis guiding this study is that the current strategic and legislative frameworks do indeed acknowledge the importance of biodiversity preservation and that these frameworks include clearly defined financial allocations for biodiversity investment. Through desk research, analysis of the strategic and legislative framework and planned financial resources, we will confirm or refute the hypothesis.

One of the primary limitations of this research is the limited access to relevant data concerning biodiversity financing in the Republic of Srpska.

Keywords: sustainability, biodiversity, financial management, ecology

JEL Classification: Q01, Q56

INTRODUCTION

According to the Law on Environmental Protection of the Republika Srpska (Official Gazette of the Republika Srpska 20/14), biological diversity (biodiversity) is defined as the totality of genes, species, and ecosystems present on Earth or within a

specific, clearly defined area. Nature conservation, as outlined in the law, encompasses measures and activities designed to protect or restore natural habitats and wild species populations, with the ultimate goal of preserving biological and landscape diversity and safeguarding natural values. (OECD, 2023) The Republic of Srpska is home to a rich diversity of species, genes, ecosystems, and landscapes, making its biodiversity a significant asset deserving focused attention, particularly when considering financing models aimed at achieving self-sustainability. The scope of this analysis is anchored in the fundamental issue of biodiversity loss, with the aim of establishing conditions for the conservation and sustainable use of biodiversity. The analysis also explores innovative financing mechanisms for biodiversity preservation. A key aspect of the analysis is the evaluation of the current legislative and institutional framework for biodiversity. This serves as the basis for assessing existing financial and economic mechanisms in the Republic of Srpska. Such an assessment is crucial for identifying shortcomings in the current system and pinpointing opportunities to establish a more efficient financial framework for biodiversity conservation.

In addition, the analysis seeks to evaluate existing incentives, both positive and negative, to provide policymakers with essential insights into the state of biodiversity across various sectors. The primary sectors under review include environment, agriculture, forestry, and water management. However, the analysis will also consider the indirect effects of sectors like energy, mining, and tourism on biodiversity, as well as their role in financing efforts for biodiversity preservation in the Republic of Srpska. To formulate proposals for future, implementable goals and measures, this document will employ a methodology that compiles and analyzes existing data on current policies, strategic objectives, regulations, institutional frameworks, and financial mechanisms. By identifying gaps, limitations, and opportunities for improvement, the analysis will contribute valuable suggestions for advancing biodiversity financing in the Republic of Srpska.

OVERVIEW OF EXISTING DEVELOPMENT PLANS, GREEN GROWTH PLANS AND THE CONTRIBUTION OF BIODIVERSITY AND ECOSYSTEM SERVICES TO SUSTAINABLE DEVELOPMENT

To evaluate the role of biodiversity and ecosystem services in sustainable development, a comprehensive review of the strategic documents at the administrative level of Republika Srpska has been conducted. This analysis includes currently valid strategies relevant for environmental management, green growth and biodiversity conservation.

The strategic framework in Republika Srpska consists of development plans, sectoral policies and international commitments, many of which integrate biodiversity objectives either directly or indirectly, through broader environmental protection goals, sustainable resource management, and rural development. Given the ongoing EU accession process, alignment with EU directives and global biodiversity objectives plays a key role in shaping policies.

The Framework for the Implementation of the Sustainable Development Goals in BiH represents the first step in the implementation of the 2030 Agenda in the country and is the most relevant in this context. It serves as a joint document of all levels of government, outlining the broad development directions through which authorities

at all levels and society in BiH aim to contribute to the achievement of the Sustainable Development Goals (SDGs). (European Commission, 2024)Based on an analysis of the state of sustainable development – including key development trends, opportunities and challenges, particularly in the context of EU accession – and extensive consultations conducted with representatives of institutions at all levels of government and socio-economic stakeholders between 2018 and 2019, three sustainable development pathways have been identified:

1. Good governance and public sector management
2. Smart growth
3. Equal opportunities society

In addition, two cross-cutting themes have been defined:

- Human capital for the future
- The principle of “Leaving no one behind”

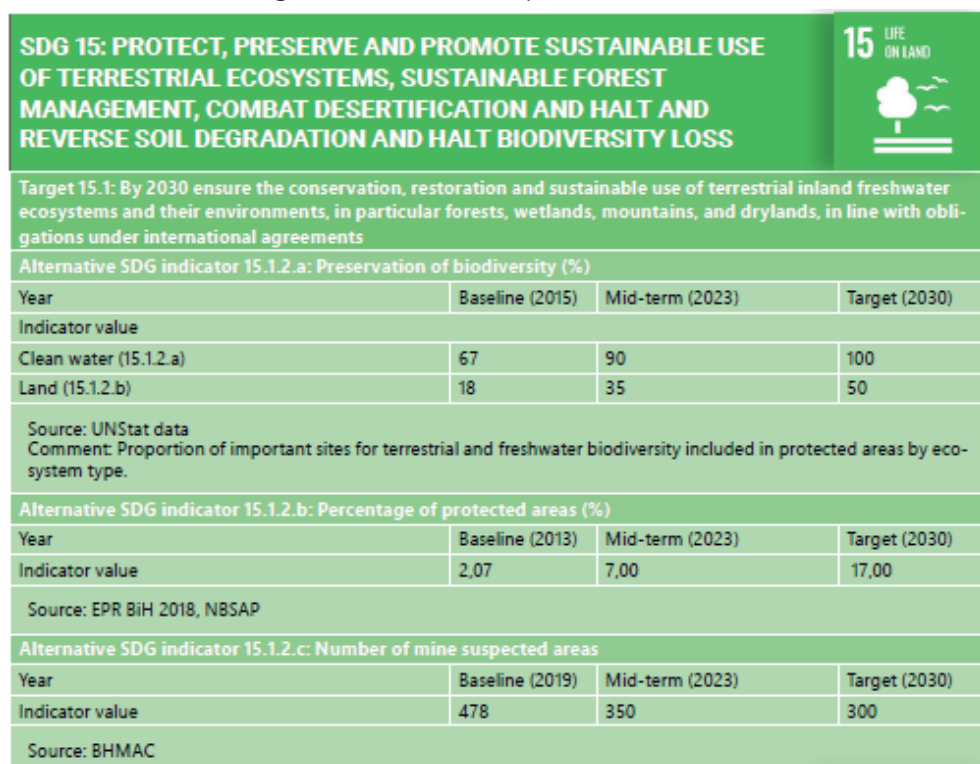
Each level of government in BiH will define its priorities, measures and actions in accordance with its constitutional competences in order to ensure contribution to the goals of sustainable development. The document highlights the critical need for smart management of natural resources and the environment to ensure sustainable economic growth and increased resilience to climate risks such as floods, fires and droughts. (UNDP, 2025)Key aspects include:

- Climate Resilience and Environmental Protection: Addressing climate risks, improving air and water quality, and preserving biodiversity are key to sustainable economic growth, especially in tourism, forestry, agriculture, and water resources. The strategy emphasizes the need for investments in green infrastructure to increase resilience.
- Sustainable waste management and circular economy: Almost all waste in Republika Srpska is landfilled. The transition to a circular economy — including recycling, composting, and energy recovery — is essential to reduce environmental impacts, reduce emissions, and create new economic opportunities in the green sector.
- Conservation of natural capital and management of water resources: Economic growth has depleted natural capital in Republika Srpska and BiH and degraded ecosystems. Protection and restoration of forests, water resources and biodiversity must be a priority. Improving the quality of drinking water and the continuity of supply, especially in rural areas, is a key priority, along with better wastewater treatment and pollution control.
- Regulatory and economic measures for environmental protection:
 - The “Polluter Pays” and “User Pays” Principles: The Republika Srpska still lacks a system for taxation of direct air pollution, but an environmental pollution fee for motor vehicles is paid once a year through the vehicle registration system, upon vehicle registration in accordance with the Air Protection Law.
 - Gaps in EU compliance and funding: Full implementation of the EU Environmental Liability Directive is needed to ensure that polluters pay for their damage. However, energy tariffs and environmental charges do not provide sufficient funds for investments in energy efficiency and environmental infrastructure.

- Mine clearance as a development priority: Mines from past conflicts hinder rural development, tourism, and the exploitation of natural resources (e.g. forestry and hydropower projects). Authorities must integrate mine clearance into all national development strategies.
- Disaster risk reduction and climate adaptation: The increasing frequency of extreme weather events (landslides, floods, droughts, forest fires and earthquakes) threatens socio-economic development. The 2014 floods alone caused damage equivalent to 15% of GDP, leading to long-term setbacks in development. Multisectoral cooperation and disaster prevention strategies are essential for climate adaptation and risk reduction.

This SDG framework emphasizes the need for sustainable economic growth, ecosystem protection, and effective resource management, while mobilizing national and international financing mechanisms to support green development initiatives.

Figure 1. Sustainable Development Goal 15 (SDG 15)



Source: <https://bosniaherzegovina.un.org/bhs/sdgs/15> ,(UNDP, 2025)

To improve financial mechanisms for sustainable development, institutions in Republika Srpska contributed to the creation of the Roadmap for Financing the SDGs in BiH (adopted in 2022). This document aims to mobilize financial resources, enhance coordination among government institutions, and attract domestic and international investments for projects related to the SDGs. The roadmap recognizes the gap in financing mechanisms for biodiversity conservation and emphasizes the need for

increased funding, particularly through international donor programs and EU financial instruments. This strategic approach is aligned with Goal 19 of the Global Biodiversity Framework (GBF), which focuses on enhancing the mobilization of resources for biodiversity protection. The commitment to integrating sustainability into development policies demonstrates Republic of Srpska's dedication to advancing biodiversity conservation alongside broader sustainable development goals. (Vlada Republike Srpske, 2022). Sustainable Development Goal 15 (SDG 15) focuses on protecting, restoring, and promoting the sustainable use of terrestrial ecosystems, sustainably managing forests, combating desertification, halting and reversing land degradation, and halting biodiversity loss. The goal aims to ensure the long-term health and productivity of the planet's land-based ecosystems for future generations. On the figure 1 we can see data for BiH.

STRATEGIC FRAMEWORK

The Environmental Protection Strategy of the Republika Srpska: Key Role in Biodiversity and Sustainable Development

The Environmental Protection Strategy of the Republika Srpska serves as the primary strategic document that guides environmental management and sustainable development in the region. It provides a comprehensive framework for addressing environmental challenges, with a particular focus on the preservation and protection of the natural environment. The strategy is structured around several thematic chapters, one of the most significant being nature protection and biodiversity conservation.

The most relevant is Strategic Objective 3: Maintaining and enhancing biodiversity and protecting ecosystems, with priorities as follows:

- Priority 3.1: Improve the legal framework for biodiversity and nature conservation through harmonization of legislation with EU and international agreements.
- Priority 3.2: Strengthening the institutions of the Republika Srpska responsible for the implementation of laws on nature protection and activities.
- Priority 3.3: Improve coordination, communication and reporting on biodiversity and nature conservation at the level of Republika Srpska - Bosnia and Herzegovina - European Union.
- Priority 3.4: Describe biodiversity at the genetic, species and ecosystem levels, establish monitoring of conditions and changes, and ensure public access to such information.
- Priority 3.5: Expand the system of protected areas in accordance with the Amendments and Supplements to the Spatial Plan of the Republic of Srpska (2025) in accordance with the EU Guidelines "Biodiversity Strategy 2030".
- Priority 3.6: Improve intersectoral cooperation and policy support to integrate the importance of biodiversity and nature conservation into sectoral policies and legislation.
- Priority 3.7: Improve science-based decision-making on biodiversity and nature conservation through dialogue between the scientific community and decision-makers.
- Priority 3.8: Develop public awareness of biodiversity, nature conservation and ecosystem services.

- Priority 3.9: Provide funds for the implementation of defined goals and measures.

The strategic framework of the Republic of Srpska reflects a structured approach to environmental protection, sustainable resource management and economic development, aligned with national and EU policies (Jokic, 2024). The analysis covers existing and expired strategies that remain relevant in guiding sectoral and cross-sectoral planning. In recent years, efforts have been focused on harmonizing legislation with EU directives, improving institutional capacity and securing financial resources for implementation. Key strategies relate to biodiversity conservation, environmental protection, waste management, water protection, climate adaptation and sustainable rural development, and the protection of forest ecosystems.

The Environmental Protection Strategy of the Republika Srpska highlights the need to provide funds for the protection and conservation of biodiversity as a key priority. The Strategy acknowledges that public expenditures directly directed towards the conservation of biodiversity and ecosystems in 2019 amounted to 83,584 KM, indicating the need to increase financial allocations. In addition, it emphasizes the need to improve coordination between institutions and stakeholders in order to improve biodiversity financing mechanisms. The Strategy also recognizes the importance of international funding sources, including EU funds and donor programs, as essential for the implementation of biodiversity conservation measures. However, insufficient budget allocations, the lack of dedicated biodiversity financing mechanisms, and limited private sector engagement remain key financial challenges. At the level of Republika Srpska, data from the Republic Office of Statistics in its statistical yearbooks do not show how much was spent on environmental protection, i.e. biodiversity, during a fiscal year. Data from the Agency for Statistics of BiH show that of the total environmental expenditures, around 21.5% was spent on investments in environmental protection, while 78.5% was spent on environmental protection services in 2023.

RESEARCH RESULTS

Republika Srpska is actively participating in the implementation of the Sustainable Development Goals (SDGs), in cooperation with the United Nations and international partners. The Government of Republika Srpska contributed to the SDG Implementation Framework in BiH (2021–2023), which provides broad development directions rather than a formal strategy, ensuring a structured approach to reporting and monitoring progress on the SDGs. In addition, the Second Voluntary National Review on Progress in the Implementation of the Sustainable Development Goals was published in 2023, where Republika Srpska presented best practices and initiatives for cooperation with local authorities and the business sector, emphasizing sustainability and inclusiveness. (UNFCCC Standing Committee on Finance, 2021) The SDG Intersectoral Council, established by the Council of Ministers of BiH in 2023, includes representatives from all levels of governance, ensuring policy coordination and integration of sustainable development into national and entity strategies. In order to improve financial mechanisms for sustainable development, the institutions of Republika Srpska participated in the development of the SDG Financing Roadmap in BiH, adopted in 2022. This document aims to mobilize financial resources, improve coordination

between government institutions, and attract domestic and international investment for SDG-related projects. In addition, the strategy recognizes the lack of dedicated financing mechanisms for biodiversity conservation and emphasizes the need to increase financing, in particular through international donor programs and EU financial instruments. These efforts are in line with Goal 19 of the GBF, which focuses on increasing resource mobilization for biodiversity protection, demonstrating the commitment of the Republika Srpska to integrating sustainability into its development policies. (Vlada Republike Srpske, 2022)

The Table 1 presents an overview of key strategic documents, classified according to high relevance and key objectives, highlighting their contribution to biodiversity conservation and sustainable development. High relevance implies that the document is in force or about to be adopted, clearly contributes to the priorities of nature and biodiversity protection, has foreseen means of implementation and specific measures or objectives.

Table 1: Strategic Framework – Overview of key development, sectoral and strategic documents in the field of environment and biodiversity at the level of the Republika Srpska

Strategic document	Validity (in force)	Relevance (high, medium, low)	Key goals	Link to KM-GBF target 19	Comments	Amount KM	Amount of KM relevant for biodiversity
Waste Management Strategy in the Republika Srpska for the period 2017-2026.	YES	HIGH	<ul style="list-style-type: none"> • Harmonization of the legal framework with EU regulations, • Strengthening the institutional framework for waste management, • Avoiding and reducing waste generation, • Improving the municipal waste collection system, • Establishing a system for separate collection and treatment of special types of waste, • Establishing a system for separate collection and treatment of hazardous waste, • Establishing a medical waste management system, • Rehabilitation and closure of municipal and illegal landfills, • Establishing a system of joint landfills for the management of remaining municipal and non-hazardous industrial waste. 	No	<p>Public sources of funding are:</p> <ul style="list-style-type: none"> - the budget of the Republika Srpska, - budgets of local government units, - funds of utility companies owned by local government units, <p>– Fund for Environmental Protection and Energy Efficiency of the Republic of Srpska,</p> <ul style="list-style-type: none"> - loans from banks and international financial institutions (World Bank, European Development Bank, European Investment Bank, etc.) for financing projects at the entity or local level, – EU pre-accession funds. <p>Investments for 2017–2026.</p> <p>Separately collect and prepare for recycling waste materials paper/cardboard, plastic, glass and metals from households in an amount of at least 15% in 2021, or 50% of the total mass of waste produced from the above types of materials by 2026. - 1,430,000 EUR</p> <p>Inform the population through various forms of communication campaigns about the benefits and ways to avoid and reduce waste through reuse, repair and exchange of used products that would otherwise become waste</p> <ul style="list-style-type: none"> - EUR 5,000,000 <p>Encourage manufacturers and importers of products to use technology and production that ensures the rational use of natural resources, materials and energy - EUR 5,000,000</p>	No data available.	No data available.

Waste Management Plan in the Republika Srpska until 2029	YES	HIGH	<ul style="list-style-type: none"> • Harmonization of the legal framework of the Republika Srpska with EU regulations, • Strengthening the institutional framework for waste management, • Waste prevention 	No	Estimated total amount of investment in measures to achieve waste management objectives in the Republika Srpska for the period from 2019 to 2029 amounts to approximately 422, / 19,000 KM.	Estimated total amount: 422, / 19,000 KM.	No data available.
			<ul style="list-style-type: none"> • Improving the municipal waste collection system, • Establishing a system for separate collection and treatment of special types of waste, • Establishing a system for separate collection and treatment of hazardous waste, • Establishing an industrial waste management system, • Remediation and closure of unregulated and illegal landfills • Establishment of regional waste management centers (RWMCs). 		<p>Investment:</p> <ul style="list-style-type: none"> -Strengthening the institutional framework for waste management Waste prevention -Improving the municipal waste collection system -Establishment of a system for separate collection and treatment of special types of waste -Remediation and closure of unregulated and illegal landfills 		
Energy Development Strategy of the Republika Srpska until 2035	YES	HIGH	<p>Strategic priorities: Efficient use of resources Safe and affordable energy Efficient use of energy Energy transition and environmental responsibility Development and harmonization of the regulatory and institutional framework</p> <p>Strategic guidelines: Restructuring and transformation of the electricity sector Achievement bigger participation cleaner energy in the future productive mix and consumption Reduction show polluting matter from thermal power plant Plan investment and development production portfolio create in accordance with system needs you goals competitiveness Further improvement markets wholesale and supply electric energy Competitiveness price electricity on threshold power plant Restructuring and modernization of DSOs legal and functional separation activities distribution and supply Deregulation price electric public energy supplier for categories of households , small businesses and commercial customer Production program protection vulnerable customers Transformation thermal sector as a prerequisite for further business optimization mine coal Creation institutional frame which will to encourage constantly mine improvement coal</p>	No	<p>Key areas of investment according to the Energy Strategy of the Republika Srpska until 2035 include renewable energy sources, energy efficiency, and electricity grid development.</p> <p>Financial assets and investment sectors:</p> <p>Renewable energy sources (RES): Planned funds for the promotion of RES amount to 8.2 million euros for 201 /, with a projected growth to 6 / / million euros by 2035.</p> <p>Energy efficiency: The planned investment is 1.1 billion KM (around 560 million euros) by 2035, with an annual investment of / 3.2 million KM (3 / 4 million euros).</p> <p>High-voltage grid: Investments of 150 billion euros are foreseen in the grid at the European level, of which 80 billion are already planned through national and interstate agreements.</p> <p>Green jobs: Plans are underway to boost employment in industries related to energy efficiency, such as construction and architecture</p>	Total (with high voltage network): 301.23 billion KM .	No data available.
			<p>Development and implementation transformation program sector mine coal Update and reconciliation relevant law and regulation with with the aim of creating an institutional frames in accordance with good industrial practices Increase participation of RES in electricity production energy, with adequate organization system Increase RES shares in final consumption in sectors electricity and heating and cooling Achievement aims from 10% share of RES in production energy in transport in 2020, and continuation promotion</p>				

			<p>of the use of biofuels until 2035</p> <p>Expansion and improvement heating sector</p> <p>energy through remote control systems</p> <p>heating</p> <p>Production study feasibility optimal options for systems remote heating</p> <p>Implementation measure energy efficiency in accordance with EU Directive 2012/27/EU</p> <p>Adoption law regarding with the heating sector</p> <p>energy</p> <p>Improvement energy efficiency in the building segment like to the end consumer</p> <p>Increase savings achieved in the sector industries on annual level, with the aim of achievements given goal</p> <p>Increase energy efficiency vehicles all categories</p> <p>New substitute thermal power plant units</p> <p>Reduction technical and commercial losses in the distribution and transmission network</p> <p>SDG expansion and editing legal areas</p> <p>Introduction information campaigns and education about EE</p> <p>Encouraging "green" jobs places and economic activities</p> <p>Development financial frames for projects energy efficiency</p> <p>Alignment law in the Republic Serbian with requests from new Directive 2012/27/EU on energy efficiency</p>				
Strategy for the Development of Agriculture and Rural Areas of the Republika Srpska 2021–2027.	YES	HIGH	<ul style="list-style-type: none"> Increasing the volume and productivity of agricultural production <ul style="list-style-type: none"> Increasing the use of agricultural land Increasing the volume of livestock production Increasing productivity in agricultural production Changing the structure of agricultural production Application of new technologies and scientific achievements in agricultural production Better risk management in agriculture Increasing competitiveness and developing value chains in the agri-food sector Support for investments in the modernization of agricultural production Support for the protection of domestic production Support for improving connectivity between producers, intermediaries and processors of primary products Support for improving the quality system of agricultural products Support for the development of innovation and entrepreneurial capabilities of manufacturers Support for investments in the development of distribution functions Support for the development and promotion of short sales chains Nature protection and sustainable use of natural resources <ul style="list-style-type: none"> Protection and development of agricultural land Protection and sustainable use 	Yes	Most of the objectives and measures require financial resources, which are primarily provided from the agricultural budget of the RS Ministry of Forestry and Fisheries. The budget for 2021 is 75 million KM, with a projected growth of 2% per year, so that in 2027 it should amount to 84.5 million KM. The objectives and measures of the Strategy must be adjusted to the available financial resources.	Total budget projection for 2027: 84.5 million.	No data available.

			<ul style="list-style-type: none">of water in agricultural production<ul style="list-style-type: none">Increasing energy production from renewable sources in agricultureIncreasing the volume of agricultural production based on the principles of organic productionImproving waste management practices from agriculture and the food industryConservation and sustainable management of plant and animal genetic resourcesDelimitation of areas with natural constraints for agricultural productionRevitalization of rural areas<ul style="list-style-type: none">Economic revitalization of rural areasRevitalization of infrastructure and services in rural areasRevitalization of the identity of rural areasDemographic revitalization of rural areas				
			<ul style="list-style-type: none">Improving the institutional and legislative environment for agricultural development<ul style="list-style-type: none">Improving the legislative framework in the agricultural and food industry sectorStrengthening institutional capacities for managing the agricultural sectorEstablishing an agricultural information systemImproving the system for applying knowledge in agriculture				
Environmental Protection Strategy of the Republic of Srpska for the period 2022-2032	YES	HIGH	<ul style="list-style-type: none">Protecting water quality and ensuring the availability of water resources and their sustainability.Reduce the amount of waste and increase the amount of reused materials.Preservation of biological and landscape diversity.Advancing climate change mitigation and adaptation and improving air qualityPreserving human health, improving well-being and quality of life for all.	Yes	<p>The total financial estimate of CSAP 2030+ for the entity level of Republika Srpska is 9.8 billion KM.</p> <p>4 billion KM – Air quality, climate change and energy (41%)</p> <p>4 billion KM – Water Management (41%)</p> <p>1.2 billion KM – Sustainable resource management (13%)</p> <p>438 million KM – Waste Management (4%)</p> <p>76 million KM – Biodiversity and nature protection, chemical safety and noise, environmental management (below 1%)!</p>	<p>Total cost estimate CSAP 2030+: 9.8 billion KM</p>	<p>Biodiversity and nature protection, chemical safety and noise, environmental management (below 1%) - 76 million KM</p>

Source: author's analysis

In the context of the Republic of Srpska, it is necessary to consider the complexity of the administrative system, which can often pose a barrier to the efficient distribution and use of financial resources. Through the analysis of the strategic and legislative framework, we can conclude that these frameworks are fundamentally adequate, which partially confirms the hypothesis set forth. One of the main limitations of this research is the restricted access to comprehensive and up-to-date data on biodiversity financing in the Republika Srpska. Given the scarcity of publicly available sources, there is a possibility that the information utilized in this study may not fully reflect the current financial landscape for biodiversity initiatives in the region. This gap in data availability could potentially affect the overall accuracy and reliability of the analysis. Additionally, while the research explores various strategic and legislative frameworks related to biodiversity, it does not conduct an in-depth review of all existing policies, initiatives, and financial mechanisms that could contribute to or hinder biodiversity financing in the Republika Srpska. This narrower focus means that certain relevant aspects of the biodiversity policy landscape might not be adequately covered, leading to a limited understanding of the full scope of opportunities and challenges in the region.

CONCLUSION

Republika Srpska is facing increasing pressures on its natural resources due to increasing exploitation and trade in materials. While there have been positive steps in reducing certain environmentally harmful activities, a long-term strategy for sustainable management of natural capital is still lacking. There is an urgent need to develop policies that integrate economic activities with biodiversity conservation, including improved monitoring of environmental impacts and directing investments towards green technologies and sustainable practices. Biodiversity-related funding is fragmented and is mostly implemented at the entity and local levels, but there is no single database that tracks all biodiversity-related expenditures. The Ministry of Environment and the Environmental Protection Fund allocate some funds for biodiversity projects, but overall funding remains low. Additional funding comes from grants, EU funds and international donors, often linked to specific biodiversity conservation projects.

One of the recommendations for improvement is to identify the biodiversity protection program when establishing the program budget in order to adequately monitor the financial amounts needed for biodiversity conservation, but also to monitor the invested funds and biodiversity.(Novaković, Čaliyurt, & Salehi, 2024).

Challenges in on-the-ground implementation remain a significant factor in assessing the effectiveness of biodiversity and natural resource protection. Therefore, future research must consider not only the strategic framework but also the specific administrative and political challenges that may affect its actual application. Additionally, the research should encompass proposals for improving administrative procedures, optimizing the use of available resources, as well as opportunities for attracting additional financial sources, such as EU funds or international organizations. Such steps could significantly contribute to greater efficiency and successful protection of the natural wealth of the Republic of Srpska, thus enabling sustainable development and long-term biodiversity conservation.

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THE RELATIONSHIP BETWEEN LIQUIDITY CREATION AND DIVERSIFICATION IN BANKING: A COMPREHENSIVE LITERATURE REVIEW

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Abstract: *This study presents a structured literature review exploring the relationship between liquidity creation and diversification in the banking sector. As banks increasingly adopt diversification strategies—whether in income sources, funding channels, or asset portfolios—to improve performance and resilience, understanding how these strategies influence liquidity creation becomes critically important. While diversification is often associated with enhanced financial stability, its effects on banks' ability to generate liquidity remain inconclusive. This paper synthesizes theoretical frameworks and empirical findings to offer a comprehensive analysis of this complex relationship. In contrast to previous studies that examine diversification or liquidity creation in isolation, this review bridges both areas by drawing on a wide range of academic works, all of which are exclusively referenced from the submitted thesis. The findings suggest that while moderate diversification may support liquidity provision by reducing income volatility and funding risk, excessive diversification can increase operational complexity and systemic vulnerability, thereby weakening liquidity buffers. The review concludes by identifying key gaps in the existing literature and proposing directions for future research to clarify and expand upon these dynamics.*

Keywords: *Liquidity Creation, Diversification, Financial Institutions*

JEL Classification: *G21, G32, G33*

INTRODUCTION

Banks perform a vital financial intermediation function by transforming short-term liabilities into long-term assets, thereby providing liquidity to the economy (Diamond & Dybvig, 1983). Liquidity creation is essential not only for the efficient functioning of individual banks but also for broader financial system stability and economic

growth (Berger & Bouwman, 2009). A growing body of literature has aimed to identify the factors and macroeconomic implications of liquidity creation, including the impact of capital regulation (Berger & Bouwman, 2013), monetary policy (Berger A. N., Bouwman, Kick, & Schaeck, 2016), bank ownership structure (Fungáčová & Weill, 2012), and financial crises (Berger & Sedunov, 2017). In parallel, bank diversification - across income, assets, funding sources or geographical operations - has been widely studied in the context of risk management, performance and financial stability (Stiroh, 2004); (Mercieca, Schaeck, & Wolfe, 2007); (Demirgüç-Kunt & Huizinga, 2010). While the rationale for diversification is theoretically grounded in modern portfolio theory (Markowitz, 1952), empirical evidence on its effectiveness in banking remains inconclusive. Some studies suggest that diversification improves banks' risk-adjusted returns and buffers them against earnings volatility (Chiorazzo, Milani, & Salvini, 2008) ; (Liu, Reichert, & Gramlich, 2013), while others find that it can dilute core competencies, increase operational complexity and increase risk (Acharya, Saunders, & Hasan, 2001); (Stiroh, 2006a).

Despite the richness of these two separate strands of literature, research that jointly examines the relationship between diversification and liquidity creation remains scarce and fragmented. Although research directly examining the link between diversification and liquidity creation remains limited, theoretical arguments suggest a meaningful interplay between the two. For example, banks that diversify their assets or operate across multiple geographic regions may experience changes in their overall risk exposure and funding resilience—both of which are closely tied to their ability to create liquidity. On the other hand, relying heavily on non-interest income streams could introduce greater revenue volatility, potentially impairing banks' capacity to maintain liquidity. A few recent studies have begun to investigate this relationship. However, their findings are still inconclusive and vary across contexts (Fu, Lin, & Molyneux, 2016); (Fungáčová & Weill, 2012); (Roberts, Sarkar, & Shachar, 2018).

This paper provides a systematic and comprehensive review of the literature related to bank liquidity creation, bank diversification, and the nascent line of research investigating the connections between these topics. Methodologically, the analysis is organised by key themes: theoretical foundations, individual empirical findings for each concept, and research that pays direct attention to how the two interact. Through this approach, the study aims to lay a solid conceptual foundation for future empirical work on the joint behavior of diversification and liquidity creation in the banking sector.

THEORETICAL BACKGROUND

Foundations of Liquidity Creation Theory

The origins of liquidity creation theory can be linked to the foundational ideas presented by Adam Smith in *The Wealth of Nations* (1776). In the second volume of this influential work, Smith emphasizes the crucial role of banking in fostering economic growth through liquidity creation. He notes that trade volume in Glasgow doubled just fifteen years after the city's first bank was established—a clear early indicator of the transformative impact of banking on economic activity. (Smith A. , 1776) assertion that the role of banks in fostering trade growth in Scotland, particularly in Glasgow, was indisputable, underscores the significance of financial institutions in catalysing economic development.

(Diamond & Dybvig, 1983) posit that financial institutions encounter the potential for unanticipated withdrawals within the context of liquidity creation. To mitigate the liquidity risk that a bank might face due to unexpected resource outflows, a conservative approach to maintaining all cash deposits can safeguard the bank, though it may hinder its ability to create liquidity. The model developed by (Diamond & Dybvig, 1983) underscores an economic role for banks, namely the conversion of illiquid assets into liquid liabilities. The most significant instrument that enables banks to fulfill this role is demand deposits. (Diamond & Dybvig, 1983) analysis focus exclusively on the liability side of the balance sheet. They contend that deposit insurance fosters liquidity creation by mitigating the risk of bankruptcy triggered by substantial deposit withdrawals.

The asset side of the balance sheet is addressed by (Diamond D. W., 1984) based on the “monitoring” service function of banks. (Diamond D. W., 1984) developed financial intermediation theory based on minimum cost information production. Financial intermediaries (e.g., banks) are tasked with monitoring the firms to which they provide loans. (Diamond D. W., 1984) asserts that banks play a pivotal role in mitigating asymmetric information between investors and firms due to their comparative advantage in monitoring their creditors. The repeated contacts between the bank and the same customer facilitate the acquisition of customer-specific information, a process referred to as “delegated monitoring.”

According to the principles of modern financial intermediation theory, banks fulfill two pivotal roles within the economy. These are liquidity creation and transformation of risks (Bryant, 1980); (Diamond & Dybvig, 1983). These two roles are generally defined as “qualitative asset transformation” (Bhattacharya & Thakor, 1993). Firstly, banks facilitate liquidity by offering their customers the option to withdraw their deposits at their discretion, thereby converting illiquid assets into liquid liabilities. Concurrently, financial institutions encounter funding liquidity risk due to maturity mismatch. In this context, (Bryant, 1980) and (Diamond & Dybvig, 1983) have focused exclusively on the liability side of the balance sheet in their studies, emphasizing funding liquidity risk to understand financial crises. Secondly, banks also engage in risk transformation. They finance risky loans with risk-free deposits (Diamond D. W., 1984); (Ramakrishnan & Thakor, 1984); (Boyd & Prescott, 1986). While the roles of banks in transforming risks and creating liquidity overlap, the amount of liquidity created at a certain level of transformed risk may differ because the two roles do not act perfectly together (Berger & Bouwman, 2009). The functions of liquidity creation and risk transformation exhibit significant overlap. The transformation of risky and illiquid assets into safe and liquid deposits leads to an increase in the liquidity of the non-bank segment. Given the absence of an empirical risk transformation measure for the risk transformation role, the liquidity creation measure is employed to calculate the bank’s total output (Berger, Boubakri, Guedhami, & Li, 2019).

After the studies conducted in the 1980s, the issue of banks’ ability to generate liquidity from off-balance sheet transactions emerged as a central concern, prompting a series of studies in this domain. These studies placed particular emphasis on loan commitments as the primary source of liquidity generation from off-balance sheet transactions. (Kashyap, Rajan, & Stein, 2002)

The first paper to recognize the importance of measuring liquidity and to provide a theoretical solution was (Berger & Bouwman, 2009). They measure the “li-

quidity mismatch” at the bank level, launched a new area of literature focusing on the liquidity of the financial sector(Lacko, 2014).

Capital-Liquidity Creation Theory

A plethora of literature exists that addresses the necessity of elevated capital ratios for financial institutions. It is imperative to comprehend the impact of capital on liquidity creation, irrespective of the minimum capital regulations stipulated by regulatory and supervisory authorities. Capital ratios have been identified as the predominant factor influencing bank liquidity creation processes (Berger & Bouwman, 2015). In this context, the extant literature posits two opposing hypotheses to explain the relationship between capital and banks’ liquidity creation.

According to “Financial Fragility-Crowding Effect Hypothesis”, the relationship between banks’ capital ratio and liquidity creation is inverse (Diamond & Rajan, 2000). As the capital levels of banks decrease, their financial structures become more fragile. This is because a decrease in capital level is accompanied by an increase in deposits. The fragility of deposits stems from the uncertainty surrounding savers’ intentions to withdraw their savings, despite deposits serving as the primary source of liquidity creation. Consequently, financial institutions with vulnerable structures exhibit a greater propensity to closely monitor their debtors. This heightened monitoring by banks, coupled with the availability of more information, is expected to mitigate the asymmetric information problem, thereby fostering an expansion in credit volumes. In summary, banking institutions that accumulate more deposits and allocate funds to loan-related activities are more susceptible to financial instability. However, this heightened susceptibility can also be a catalyst for augmented liquidity creation. Conversely, a bank with substantial capital reserves will exhibit reduced financial fragility, though its capacity for liquidity creation will concomitantly diminish. The financial fragility-crowding-out effect hypothesis is valid under the assumption that there is no full security in the deposit insurance system. According to (Gorton & Winton, 2017), in a general equilibrium, a substantial amount of capital can displace or substitute for deposits, thereby diminishing liquidity creation. In this scenario, deposits, which are the primary source of liquidity creation for banks, are transformed into capital, thereby becoming illiquid liabilities.

The risk absorption hypothesis is a theoretical framework that focuses on the role of banks in transforming risk. This hypothesis posits a positive relationship between capital and liquidity creation. The risk absorption hypothesis is associated with two strands of the literature. Firstly, the liquidity creation process exposes banks to liquidity risk (Allen & Gale, 2004). Secondly, an increase in capital leads to an enhancement in the risk-carrying capacity of banks, a phenomenon that is attributed to the reduction in risk and the facilitation of augmented liquidity creation (Allen & Santomero, 1998). Consequently, the relationship between capital and liquidity creation is positive and bidirectional.

Diversification Theory

Traditional banking theory (Diamond D. W., 1984); (Boyd & Prescott, 1986); (Ramakrishnan & Thakor, 1984) argues that banks can reduce their risk and probability of failure by maximizing diversification. The rationale behind this argument

is that diversification strengthens the intermediation role (Abuzayed, Al-Fayoumi, & Molyneux, 2018) and overcomes the asymmetric information problem between fund providers and fund demanders, thus reducing the cost of financial intermediation. According to (Diamond D. W., 1984) information obtained from activities that generate non-interest income through diversification helps banks in their credit allocation decisions and enables them to better manage credit risks. Thus, banks with diversified financial activities will have a less volatile and more stable loan portfolio in the face of shocks. Because banks with less diversification operate in fewer areas, they are more vulnerable to economic turmoil (Tabak, Fazio, & Cajueiro, 2011).

According to modern portfolio theory, the effect of diversification on bank risk is uncertain. If the volatility of cash flows from non-traditional banking activities is higher (lower) than that of cash flows from traditional banking activities, turning to non-traditional activities will increase (decrease) risk. On the other hand, if the correlation between cash flows is low, turning to non-traditional activities will reduce the risk. As a result, the effect of engaging in non-banking activities on the bank's overall risk will depend on the magnitude of these two effects. In addition, the effect of diversification on the components of total risk, namely systematic and unsystematic risk, is also uncertain. For example, if the cash flows from non-traditional banking activities are perfectly correlated with the return on the market portfolio, then turning to non-traditional activities will increase the systematic risk of the bank (Sawada, 2013).

The view that diversification has an overall negative effect on bank performance is based on agency theory. The agency problem arises because the principal and the agent have different objectives and the principal is not fully aware of the agent's decisions. (Weber, 1920) defined the agency problem as the creation of official secrecy by appointed bureaucrats that deviates from the goals of elected politicians (Çelik & Bedük, 2014). After the theory was addressed by Berle and Means (1932), it was developed by (Jensen & Meckling, 1976) and thus the agency problem was included in the literature as a theory for the first time (Çelik & Bedük, 2014). According to (Jensen M. C., 1986) free cash flow theory, managers of firms with high free cash flows and high borrowing capacity try to maximize their own interests by diversifying beyond the optimal level. Managers prefer this strategy if it serves individual interests, even if the market value of the firm decreases with diversification. At this point, agency costs arise as a result of conflicts of interest between managers and partners. Therefore, according to (Jensen M. C., 1986) in order to minimize possible agency problems, one should focus on traditional activities and not pursue diversification strategies. Since diversification will encourage managers to exceed the optimal size and reduce the transparency of the bank, the value of the bank will decrease.

LITERATURE OVERVIEW

Empirical Studies on Liquidity Creation

Although there are two opposing hypotheses regarding the effect of capital on liquidity creation (financial fragility-crowding out and risk absorption), the literature has found that the relationship is generally negative. In this context, several studies across countries suggest that increasing capital limits liquidity creation. While (Bryant, 1980) and (Diamond & Dybvig, 1983) suggested that banks support economic growth by creating liquidity in the economy, empirical evidence suggests that non-bank financial

institutions create negative liquidity. (Choi, Park, & Ho, 2013) found that insurance companies operating in the United States, and (Mukherjee & Pana, 2010) found that credit unions withdraw liquidity from the market and that there is a negative relationship between capital and liquidity creation in this process.

Regarding the banking sector, (Distinguin, Roulet, & Tarazi, 2013) found that banks in the United States and Europe reduce their capital levels as they create more liquidity. (Freitas, 2014) showed that in the European Union banks with high capital levels are more constrained in their liquidity creation processes. (Horváth, Seidler, & Weill, 2014) found a bidirectional negative causal relationship between capital and liquidity creation for small banks in the Czech Republic. These results suggest that excess capital may suppress the liquidity creation process in small banks.

In terms of regional comparisons, (Fu, Lin, & Molyneux, 2016) find that the relationship between capital and liquidity creation is bidirectionally negative in 14 Asia-Pacific countries. On the other hand, (Fungáčová & Weill, 2012) find that deposit insurance reduces the dampening effect of capital on liquidity creation in banks with more savings deposits in Russia. (Sobiech, 2018) suggests that tax policy in the Japanese banking sector changes leverage ratios and capital levels through the tax-saving effect of debt, which indirectly affects liquidity creation. (Lei & Song, 2013) provide evidence in support of the financial fragility crowding effect in China, finding that higher capital ratios reduce the ability to create liquidity.

These studies show that increasing capital ratios generally have a negative impact on banks' ability to create liquidity. Studies conducted in different geographical regions and across different types of financial institutions show that capital requirements are one of the main factors hindering the liquidity creation process.

Liquidity creation literature in banking started to expand after the famous article by (Berger & Bouwman, 2009). The empirical studies that follow the liquidity creation methodology of (Berger & Bouwman, 2009) are as follows.

(Pana, Park, & Query, 2010) studied how bank mergers impacted liquidity creation and found that banks with high deposit insurance levels produced more liquidity post-merger than other types of financial institutions. (Baltas, Kapetanios, Tsionas, & Izzeldin, 2017) investigated the causal relationship between cost-effective mergers and acquisitions and liquidity creation. Their findings indicated that economic growth is supported as the liquidity creation potential increases.

Economic crises have a direct effect on the liquidity creation activities of the banks. (Lakštutienė & Krušinskas, 2010) note that liquidity creation in Lithuania increased from 2004 to 2007, then decreased to 2006 levels, owing to the global financial crisis in 2008. Likewise, (Fungáčová & Weill, 2012) found evidence that the banking sector in Russia created mostly liquidity from state-owned and large-scale banks from 1999 to 2009. However, significant alterations in liquidity creation dynamics occurred during the global crisis. In a similar vein, (Berger & Sedunov, 2017) found that high levels of liquidity creation in the US banking sector can serve as a predictor of financial crises.

According to (Chatterjee, 2015) loan spreads and asset market liquidity are the main factors influencing the overall amount of liquidity generated in the US banking industry. Conversely, (Davydov, Fungáčová, & Weill, 2018) identified a positive correlation between the liquidity creation processes of banks in the Russian banking sec-

tor and economic cycles. Additionally, (Bawazira, Degl'innocentia, & Wolfea, 2018) found that banks with greater market power in European Union countries tend to generate more liquidity. However, the interplay between market power and government intervention serves to limit liquidity creation. (Jiang, Levine, & Lin, 2019) demonstrated that competition encouraged by regulators suppresses the liquidity creation process in banks with low profitability. In a similar vein, (Roberts, Sarkar, & Shachar, 2018) found that banks implementing LCR (Liquidity Coverage Ratio) exhibit lower liquidity creation compared to banks that do not implement LCR. They argued that this discrepancy can be attributed to higher liquid asset levels and lower illiquid assets observed in banks implementing LCR.

The governance structure of banks and the decision-making mechanisms of managers are also among the determining factors in the liquidity creation process. (Andreou, Philip, & Robejsek, 2016) research indicates that within the US banking sector, the presence of more talented managers is associated with increased risk-taking, leading to augmented liquidity creation. (DeYoung & Huang, 2021) revealed that an augmentation in performance-based incentives (Delta) for Chief Executive Officers (CEOs) led to a reduction in systemic risk and liquidity creation. Conversely, an escalation in risk-based incentives (Vega) exhibited a modest positive influence on liquidity creation. Furthermore, (Silva, 2019) posited that banks' liquidity conversion activities are influenced by the policies of competing banks, and these decisions are typically asymmetric.

A growing number of studies have examined how bank liquidity creation contributes to economic growth. Most of this research suggests that liquidity generated through financial intermediation supports economic activity by facilitating investment and production. In their analysis of the Russian banking sector, (Fidrmuc, Fungáčová, & Weill, 2015) found a clear positive link between bank-created liquidity and economic growth, highlighting the role of liquidity in supporting broader macroeconomic development. Similarly, (Berger & Sedunov, 2017) reported a strong and positive relationship between liquidity creation and real economic growth, emphasizing that liquidity provided through banking activities can enhance economic stability and promote long-term growth.

Empirical Studies on Diversification

The concept of diversification has long been associated with risk distribution and optimal portfolio construction in financial markets. (Smith & Schreiner, 1969) analyzed the degree of diversification into industry sectors by holding companies based on standard portfolio theory. (Wagner & Lau, 1971) found that portfolios that contained more securities had less risk than portfolios composed of fewer holdings. (Johnson & Meinster, 1974) looked at the potential benefits to Banking Holding Companies (BHCs) of diversification into non-banking activities. Diversification could lead to an increase in BHCs' overall income. In a similar vein, (Boyd & Graham, 1986) examination of the impact of BHCs' diversification into non-banking activities on bankruptcy risks during the period 1971-1983 revealed an absence of a significant relationship between diversification and risk in general. (Meinster & Johnson, 1979) found that the outcomes of diversification strategies varied significantly across banks due, in part, to differences in managerial ability, financial resources, market factors and geographical area.

In the extant literature on diversification in banking, the traditional-non-traditional banking distinction has been adopted, and the effects of banking and non-banking activities on a variety of topics have been examined. Empirical studies have predominantly focused on diversification in terms of income, assets, liabilities, balance sheets, and geographic dimensions. However, there is a lack of consensus regarding the impact of diversification on banks. The outcomes observed in these studies have been found to vary due to the consideration of distinct countries, the variety of banking institutions in terms of type and size, the extent of diversification, and the disparities in interest rates across nations.

(Acharya, Saunders, & Hasan, 2001) examined the diversification in the Italian banking sector as industrial, sectoral, and geographical credit diversification and found that industrial credit diversification reduces the return and creates riskier loans for banks; sectoral credit diversification is ineffective in the risk-return balance at high-risk levels; geographical credit diversification does not improve the risk-return balance (trade-off) at low-risk levels. Similar to Acharya et. al. (2001), (Morgan & Samolyk, 2003) found that geographic diversification did not increase returns and did not reduce risk.

(Stiroh, 2006a) examined 635 BHCs, and found that banks with a greater reliance on non-interest income-generating activities experienced higher income volatility. (Hayden, Porath, & Westernhagen, 2007) found in their study of 983 banks in Germany that any kind of diversification reduces the returns of banks. (Demirgüç-Kunt & Huizinga, 2010) study, which encompassed 101 countries, revealed that the increase in non-deposit funding was found to have a negative impact on ROA. Conversely, (Abuzayed, Al-Fayoumi, & Molyneux, 2018) concluded that income and asset diversification negatively affect bank stability (Z-Score and NPL). (Lee, Chen, & Zeng, 2020) found that income diversification by banks increases the systemic risk for the banking sector as a whole, as measured by the Z-Score with weighted mean.

(Curi, Lozano-Vivas, & Zelenyuk, 2015) examined whether there is an optimal business model for foreign banks in terms of asset, funding, and income dimensions and concluded that they should not diversify their assets, funding, and income. (Liang, Moreira, & Lee, 2020) concluded that systemic risk increases as diversification increases,

A multitude of studies have evaluated the effect of diversification on banks' risk management, and the results indicate that diversification reduces risks. (Liang & Rhoades, 1991) study, which encompassed 4,751 banks, and (Templeton & Severiens, 1992) study, which focused on 100 BHCs, both concluded that diversification reduces bank risk. (Rossi, Schwaiger, & Winkler, 2009) examined the impact of credit portfolio diversification on risk, efficiency, and capitalization in Australia further substantiates this claim, demonstrating that diversification leads to a reduction in banks' risk. (Goetz, 2012) examined how geographic diversification affects the risk-taking behavior of the bank and its competitors (the inverse of the Z-score) with 17,331 banks in 50 different states. The findings indicated that increases in geographic diversification led to alterations in banks' lending behavior and market interest rates.

(Stiroh & Rumble, 2006b) examined the impact of diversification into non-interest income on the performance of FHCs operating in the United States and found that the volatility of the benefits from diversification outweighs the costs incurred due to high non-interest income. Additionally, there is a substantial body of research in the

literature examining the effect of diversification on risk-adjusted bank performance. (Mercieca, Schaeck, & Wolfe, 2007) identified an inverse correlation between non-interest income and risk-adjusted bank performance of credit institutions in Europe. (Chiorazzo, Milani, & Salvini, 2008) concluded that income diversification enhanced risk-adjusted income in Italy. (Goddard, McKillop, & Wilson, 2008) identified a positive effect of diversification on both adjusted and unadjusted returns. (Gamra & Plihon, 2011) examination of the impact of diversification on risk-adjusted income revealed that the benefits of diversification exceed the costs associated with the volatility of trading income, which constitutes the lower portion of non-interest income. In a similar vein, (Liu, Reichert, & Gramlich, 2013) examined the impact of diversification on the performance of the US banking sector across five distinct dimensions: international geographic diversification, domestic geographic diversification, credit portfolio diversification, fee income diversification, and off-balance sheet diversification. Their findings indicated that fee income diversification exhibited the most pronounced positive effect on risk-adjusted bank performance. (Meslier, Tacneng, & Tarazi, 2014) concluded that income diversification had a positive effect on bank performance in Philippines.

(Sanya & Wolfe, 2011) studied 226 banks in 11 developing countries, (Tabak, Fazio, & Cajueiro, 2011) studied 96 banks in Brazil, and (Chen, Wei, Zhang, & Shi, 2013) studied 16 banks in China and examined the effects of diversification on performance and risk simultaneously. (Sanya & Wolfe, 2011) found that diversification increased profitability and decreased bankruptcy risk. (Tabak, Fazio, & Cajueiro, 2011) also found that credit portfolio diversification increased income and decreased bankruptcy risk. Conversely, (Chen, Wei, Zhang, & Shi, 2013) revealed that sectoral credit diversification led to a decline in both return and risk.

Among the extant studies that examine the effects of diversification on value and risk together, (Sawada, 2013) examined the effects of income diversification on value risk in the Japanese banking sector. The study's findings indicate that income diversification enhances bank value. (Filson & Olfati, 2014) examined how the Gramm–Leach–Bliley Act influenced bank value and risk. Their findings suggest that the GLB Act allowed BHCs to expand into these areas and, as a result, increase their overall firm value. In a related study, (Elsas, Hackethal, & Holzhäuser, 2010) reported that income diversification contributes positively to both bank profitability and market valuation. Similarly, (Khan, Hassan, Maroney, Boujlil, & Ozkan, 2020) showed that diversified financial holding companies tend to have higher residual value compared to specialized institutions.

(Amidu & Wolfe, 2013) empirically examine the effects of revenue diversification on banks in the context of competition and financial stability. In more competitive contexts, banks do diversify sources of income through expansion of into interest and non-interest income activities. This, in turn, seems to bolster more financial stability. (Shim, 2019) proposed a link between loan portfolio diversification, market concentration and financial stability. Banks with more diversified loan portfolios tend to be more financially stable, particularly in markets with higher levels of concentration. While both studies explored different angles, they also highlighted how competition and diversification interact in shaping banks' stability profiles. (Lin, Shi, & Zheng, 2021) investigated whether bank diversification amplifies bank market power and the role of foreign capital in this relationship. The findings indicate a positive effect of di-

versification on market power, with foreign ownership serving to reinforce this effect.

(Tran D. V., 2020) examined the effect of diversification on funding costs and concluded that banks that focus on non-traditional activities have lower deposit costs. (Doumpos, Gaganis, & Pasiouras, 2016) examined diversification in three different dimensions in 111 countries. Findings suggest that diversification may offer particular benefits to banks in developing countries.

(Baele, De Jonghe, & Vander Vennet, 2007) examined the hypothesis that the long-term performance (bank franchise value) and risk situations of banks create a comparative advantage compared to other banks. Systematic risk (β) or bank-specific total risk was selected as the risk indicator. On the performance side, it was found that banks with higher non-interest income ratios exhibited higher franchise values. On the risk side, while income diversification increased the systematic risk of banks, it decreased the bank-specific total risk, and a non-linear relationship was observed between income diversification and bank risk. Consequently, (Edirisuriya, Gunasekarage, & Dempsey, 2015) concluded that the MV/BV¹ ratio increased as banks in South Asian countries diversified up to a certain point. (Deng & Elyasiani, 2008) examined the impact of geographic diversification on BHC value and risk. Geographic diversification enhances the value of BHCs while concurrently reducing their risk. Furthermore, (Cai, Xu, & Zeng, 2016) examined the impact of geographic diversification on financial performance in the Chinese banking industry. Geographic diversification enhances a bank's market share and net interest margin. However, diversification can concomitantly lead to an increase in both operating expenses and non-interest income.

(Pennathur, Subrahmanyam, & Vishwasrao, 2012) examined whether there was a difference in the effect of diversification on risk in terms of ownership structure. Fee-based income reduced risk in state-owned banks. Conversely, the effect is inverse in domestic and foreign private banks. (Kim, Batten, & Ryu, 2020) examined the effect of bank diversification on the financial stability of banks. It was found that diversification has a significant effect on financial stability in the form of an inverted U. While it increases stability up to a certain point, excessive diversification has the opposite effect.

Empirical Studies on Diversification and Liquidity Creation

The subject of diversification in the banking sector has been extensively studied in the literature. Comprehensive findings have been obtained on the effects of diversification on the risk, stability, and performance of banks. However, research examining the impact of diversification on banks' liquidity creation capacity remains sparse. Examination of the relationship between diversification and liquidity creation emerges as a current and developing research area in banking literature.

A group of researchers found a positive relationship between diversification and liquidity creation, while other researchers concluded that there is a negative relationship between diversification and liquidity creation. The first study that examined the effect of diversification on liquidity creation was (Tu, 2015). The study concluded that there is a negative relationship between asset and income diversification and excess liquidity creation in the US banking sector. In other words, specialized banks tend to create excess liquidity. Similarly, (Tran D. V., 2020) revealed a decline in the liquidity

created by banks with higher non-interest income levels in the US banking sector. Concurrently, (Dang, 2020) and (Hoang, Nguyen, Tran, & Hoang, 2020) discovered that creation of liquidity is reduced when banks derive income from non-traditional banking activities within the Vietnamese banking sector.

(Sinha & Grover, 2021) hypothesized that the diversification level of banks at the same level of competition would have an effect on liquidity creation. The study is conducted in Indian banking sector and conclusions show that banks with a high degree of diversity are more severely impacted by competition's detrimental effects on the creation of liquidity. (Ali, Rubbaniy, Syriopoulos, & Tee, 2025) discovered that asset diversification and income had a detrimental impact on the development of liquidity in a study on banks in GCC nations. According to their findings, diversity can hinder a bank's ability to provide liquidity even while it may assist lower risk.

In the U.S. banking industry, banks tend to produce more liquidity when they are under pressure from competitors and diversify their revenue streams (Tran V. T., 2016). (Chavaz, 2017) was one of the first to investigate the causal relationship between liquidity and diversification in both stable and crisis situations. Diversified U.S. banks produced more liquidity, mostly due to their larger proportion of illiquid loans. (Toh, Gan, & Li, 2020), in a study on Malaysian banks, explored how diversification affects the relationship between competition and liquidity creation. The research showed that as banks' market power declined, so did their liquidity creation. However, this inverse relationship was weaker—or even nonexistent—among highly diversified banks. (Tran & Nguyen, 2023) found that competition and revenue diversification have a positive impact on banks' propensity to create liquidity in the U.S. banking sector. While competition primarily affects on-balance sheet liquidity creation, revenue diversification is a major driver of off-balance sheet diversification. Furthermore, (Kinini, Ocharo, & Kariuki, 2023) have demonstrated a positive correlation between revenue diversification and liquidity.

FUTURE RESEARCH DIRECTIONS

The literature on the relationship between bank diversification and liquidity creation is still fragmented, inconsistent, and geographically concentrated, despite recent increases in empirical study on the subject. Studies examining this association frequently produce conflicting results, as was disclosed in the previous section. More income or asset diversification may make it harder for banks to generate liquidity, according to some studies ((Tu, 2015); (Hou, Li, Li, & Wang, 2018); (Tran D. V., 2020). On the other hand, other studies argue that diversification can help banks better handle competition or economic shocks by promoting the creation of liquidity ((Tran V. T., 2016); (Chavaz, 2017); (Toh, Gan, & Li, 2020). These contradictory results raise several significant issues that may be further investigated in further studies.

First, the context-dependency of the relationship between diversification and liquidity creation should be further investigated in future research. The patterns seen in different nations may be considerably changed by the roles played by institutional structures, regulatory frameworks, and financial development levels. It would be possible to determine if the association is genuinely universal or context-specific by extending empirical research to underrepresented areas, such as Southeast Asia, Eastern Europe, and Sub-Saharan Africa.

Second, if there is a non-linear link between diversification and liquidity creation, this might be investigated in future studies. Diversification advantages may taper off or even turn negative after a certain degree, despite the fact that many research now in existence presume a simple correlation. When contrasting widely diverse banks with specialized banks, this line of investigation might be very pertinent.

Third, more focus should be placed on the effects of various forms of diversification, including geographic, funding, asset, and income diversification, on the generation of liquidity. The majority of research just looks at income diversification, while models that take into account multiple factors at once might provide a more comprehensive view.

Fourth, more research should be done on the connection between market rivalry and diversification. Diversification may mitigate the adverse effects of competition on liquidity creation, according to some evidence (Sinha & Grover, 2021); (Toh, Gan, & Li, 2020). However, further research is required to fully comprehend how this relationship manifests itself in various market settings.

Fifth, it would be worthwhile to investigate whether diversification's effect on the creation of liquidity varies over time, especially during times of economic stress or financial crises. Researchers could examine how these dynamics change in reaction to monetary policy or regulatory changes, or compare patterns between normal and crisis periods.

Lastly, more sophisticated approaches—like quantile regressions, dynamic panel data models, or machine learning techniques—might be useful in future research to better infer causality and capture variances between banks. Incorporating management and behavioral elements, like CEO compensation or governance frameworks, may also provide insightful information.

Filling in these gaps would contribute to a more comprehensive knowledge of the relationship between bank diversification and liquidity production and might offer useful advice to practitioners and scholars in a financial climate that is becoming more complex.

CONCLUSION

This paper provides a comprehensive review of the empirical literature on bank liquidity creation and diversification, with a particular emphasis on the emerging strand of research that examines the interaction between these two key banking functions. While both liquidity creation and diversification have individually attracted substantial scholarly attention, studies that analyze their relationship in a unified framework remain scarce and fragmented.

The review highlights that the effect of diversification on banks' liquidity creation capacity is far from uniform. Some studies suggest that diversification—particularly across income or assets—reduces liquidity creation due to increased complexity or reduced focus on core intermediation activities. Others argue that diversification enhances liquidity provision by improving funding stability and shielding banks from competitive pressure or economic shocks. These divergent findings underline the importance of contextual factors such as institutional structures, competitive dynamics, and bank-specific characteristics.

By systematically classifying and synthesizing the empirical findings, this paper contributes to a more integrated understanding of the channels through which diver-

sification can influence liquidity creation. It also identifies methodological and geographical gaps in the literature, offering a roadmap for future research. In doing so, the study not only bridges two parallel strands of banking literature but also lays the groundwork for future empirical investigations that seek to assess banks' dual role as liquidity providers and risk managers in an increasingly dynamic and diversified financial environment.

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FROM ALGORITHM TO AESTHETICS: ARTIFICIAL INTELLIGENCE'S PLACE IN CREATIVE SECTOR

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Abstract: *Traditional ideas of authorship, creativity, and artistic originality have been challenged by the nexus of artificial intelligence (AI) and art, which has ushered in a revolutionary era for creative practices. Both professional and amateur artists can now create images, music, poetry, and movies using AI-driven tools and algorithms like GANs, CANs, and machine learning models. In addition to increasing productivity and creativity, these technologies raise moral questions about authorship, copyright, and the possible replacement of human artists. While platforms like DALL·E and Stable Diffusion push the limits of visual expression, projects like DeepBach and Beethoven X show how AI can mimic classical composition. AI's wider societal utility is also demonstrated by its application in cultural heritage and restoration, including the analysis of historical paintings and the reconstruction of lost artwork. AI has also changed marketing strategies through content automation, emotional targeting, and data-driven personalization. AI lacks contextual sensitivity and emotional depth, which are traits derived from human experience, despite these advancements. Therefore, it is crucial to strike a balance as AI develops so that it enhances rather than replaces the fundamental human characteristics that characterize true artistic creation.*

Keywords: Artificial Intelligence (AI), Art, Creativity, Algorithms, Marketing

JEL classification: O33, Z11, M31, D83, L86

INTRODUCTION

Technology shares the progress made by science in the form of new machines, products and processes and in past ten to fifteen AI. Art, on the other hand, conveys ideas and emotions, which sustain our society and our conversations. Art and technology have always been linked. As Marshall McLuhan said, "The medium is the mes-

sage” (McLuhan & Lapham, 1994). The technical framework we live in informs our creativity. Yet this framework is changing, as ideas expressed by using technology are becoming increasingly common. The ongoing digitalization of our societies is creating a new playground for art, through virtual worlds, extended reality an AI. This transformation is also rewriting the rules of the game, fundamentally altering the very notion of what it means to be an artist in the age of networks (Hello Future, Artistic creation and hybridization in the age of the Internet, 2022). The rise of the internet and web technologies has profoundly impacted artistic creation, fostering a shift toward greater collaboration, appropriation, and audience participation. Artists are no longer isolated creators but active participants in a decentralized and often collective creative process, where boundaries between creator and viewer continue to blur.

The rise of the internet and web technologies has had a deep impact on artistic creation, which includes much more collaboration, appropriation, and participation. This new revolution is far more delicate than previous revolutions (Manovich & Arielli, 2024). Yet despite certain similarities, the scale of digital affects is fundamentally unique. This distinction is crucial, as it supports two key arguments: one concerning the comparative nature of digital versus analogue affects, and another regarding the vastly different levels of impact they produce (Langdon, 2014).

In the 1990s, the development of the internet gave rise to what became known as Net art refers to a category of artistic practice specifically conceptualized in relation to the Internet—created *by*, *for*, and *through* the online medium. Artists working within this genre engage with the Internet not merely as a channel for distributing their work, but also as a central instrument for artistic creation. Moreover, the Internet functions as an evolving, interactive environment in which the artwork exists and develops, highlighting its dynamic and participatory nature. Drawing inspiration from the internet’s unique characteristics, its interactivity, decentralization, and immediacy, they create original works while simultaneously experimenting with new modes of creative process and audience engagement. Also, artists and collectives like *This is Not Art* and *Jodi.org* adopted earlier avant-garde strategies, including parody and mimicry, while also integrating the mundane and often problematic aspects of digital technology into their works such as system crashes, pop-up ads, frozen screens, visual glitches, and hacker interventions. Conversely, groups such as *®™Mark* and *The Yes Men* utilized digital tools to create satirical corporate-style websites that mimicked and critiqued global institutions and high-profile figures (Langdon, 2014).

The influence of the internet on contemporary art extends well beyond the confines of the Net art movement. Ongoing technological advancements are reshaping the practices of emerging generations of artists, while the foundational culture and values embedded in the internet’s early development continue to redefine modes of artistic production and disrupt conventional relationships among artists, their creations, and audiences. Broadly speaking, the arrival of artificial intelligence and machine learning onto the creative tool scene to help amateurs (generally with no previous training or education in art) to produce images, sounds, and texts from the analysis of huge data pools. While artificial intelligence has made it increasingly feasible for amateur creators to replicate established artistic styles and even produce complex compositions, an essential question arises: can these individuals genuinely compete with professional artists? Despite the technical sophistication of AI-generated outputs, critical aspects of

artistic creation such as originality, emotional depth, and the nuanced vision that stems from lived experience remain inherently human. These attributes, cultivated over time through personal and cultural contexts, continue to distinguish professional artistry from algorithmically generated imitations. Therefore, while AI can emulate form, it arguably falls short in replicating the profound intentionality and creative intuition embedded in human artistic expression.

Different arts and design connected with AI

Over the past fifty years, whenever a human ability or skill, traditionally considered uniquely human, was automated through computer technology, it was typically labeled as “artificial intelligence” (AI). However, once this automation became seamlessly successful and fully operational, it was no longer referred to as AI. In other words, “AI” refers to technologies and methodologies that aim to automate human cognitive functions and are in the early or developing stages of functionality. AI has been embedded even in the earliest tools for computer-based media production. For instance, the first interactive drawing and design system, Ivan Sutherland’s *Sketchpad* (1961-1962), featured a function that automatically completed the shapes of rectangles or circles initiated by the user. In essence, the system could predict the user’s intention. Within the broad conceptual framework outlined here, this functionality can be unequivocally considered an early form of artificial intelligence (Manovich, 2023). “In addition to recommendations and automatic editing, AI is now widely used to generate new synthetic artifacts, including artworks, music, designs, and texts” (Manovich & Arielli, 2024).

In 2016, Sony Computer Science Laboratories in Paris developed a neural network, called DeepBach, that produces choral cantatas in the style of J. S. Bach. The resemblance is extraordinary. In 2019, Deutsche Telekom put together a team of international experts in music and AI to complete Beethoven’s unfinished 10th symphony, thus celebrating the 250th anniversary of his birth. The completed symphony, Beethoven X - The AI Project, premiered on October 2021 in Bonn (Fulde, 2021). There are YouTube videos that invite listeners to participate in a sort of a musical Turing test, challenging them to distinguish AI-penned compositions from human ones. For people with some musical training, the task still seems straightforward, but for inexperienced listeners, this is not the case.

One interesting project that combines arts (in particular music) and AI is The MUSICA (MUSical Interactive Collaborative Agent) project seeks to develop an artificial intelligence (AI) system capable of playing jazz and improvising in real time alongside human musicians. The system is trained using a large database comprising thousands of transcriptions of performances by renowned jazz artists, employing machine learning techniques to analyze and extract underlying musical patterns. By identifying these models, the AI gains the capacity to generate original musical responses, enabling it to compose and perform live music collaboratively with human players. One could say that this sounds very cool and on a first view definitely it is. But, I have to say that the project is financed by the US Defense Advanced Research Projects Agency, in the scope of a wider program called Communicating with Computers. Brian A. Miller, a music scholar at Yale University, suggests that jazz improvisation serves as a paradigmatic model of broader human interactive behaviors. Consequently, its

technological simulation could possess strategic military significance that transcends its intellectual or artistic dimensions (Miller, 2020).

In May 2023, Google introduced MusicLM, an innovative application capable of generating music based on textual prompts such as “rock-inspired meditation music”, which garnered considerable public attention. Shortly thereafter, the launch of Voice-Swap by DJ Fresh marked a significant shift in music production practices by enabling the legal use of cloned voices of real artists. This controversial platform permits users to utilize AI-generated vocal replicas in exchange for licensing fees when the content is monetized. In addition, platforms such as AIVA.ai offer tools for generating original, copyright-free compositions that emulate the stylistic features of existing musical works, thereby expanding the creative possibilities available to composers and producers while raising complex questions regarding authorship and intellectual property.

Numerous start-ups are producing computer programmes with the capacity to generate music and include it in multimedia projects. For example MatchTune, formally known as Muzeek, has created an AI-based musical marketplace that allows users to create soundtracks for their videos using royalty free music. For its part, Sony's Computer Science Laboratory has developed the algorithm (named Flow Machines), which notably crunched 1,300 scores of songs by the Beatles and other bands of the 1960s to create music in the style of the Fab Four. Last but not least, we should also mention Taryn Southern's 2018 album, *I am AI*, which was entirely composed using artificial intelligence (Hello Future, Creation, restoration, music: artificial intelligence tools in the arts, 2023).

In poetry, AI has been making waves ever since Google researchers fed a neural network with 11,000 unpublished books and created a machine capable of generating transitions between suggested opening and closing sentences back in 2016. In the same year, 20th Century Fox called on IBM's supercomputer Watson to come up with a trailer for its film *Morgan* using an algorithm that had been fed with 100 horror film trailers cut into separate moments and scenes. However, the machine did not do all the work: it simply recommended extracts of the film to be included in the trailer, while a human editor was still needed to patch the scenes together to tell a coherent story. In a further example, the Benjamin algorithm developed by film director Oscar Sharp and researcher Ross Goodwin, which was fed with dozens of science fiction film and television scripts, created the screenplay for the short film *Sunspring*.

In the world of graphic design there is an open-source LAION-5B dataset, used by DDG's Text 2 Dream. Kaloyan Chervnev, founder of DDG, says that the dataset comprises “largely public domain images sourced from the internet”, but many artists and illustrators say that databases will often also include a lot of copyrighted images (Shaffi, 2023). This raises an additional ethical concern: although prompts used in image-generating models can be broad and nonspecific, they may also explicitly request outputs that emulate the work of specific artists. Such practices risk further obscuring the boundaries of authorship and originality, as they can result in images deliberately designed to replicate another artist's distinctive style or technique. Today neural networks are progressively used to assign semantic labels (“meanings”) and to automatically extract aesthetically relevant features through the analysis of large databases of liked images to mimic something or what AI has analyzed that consumers

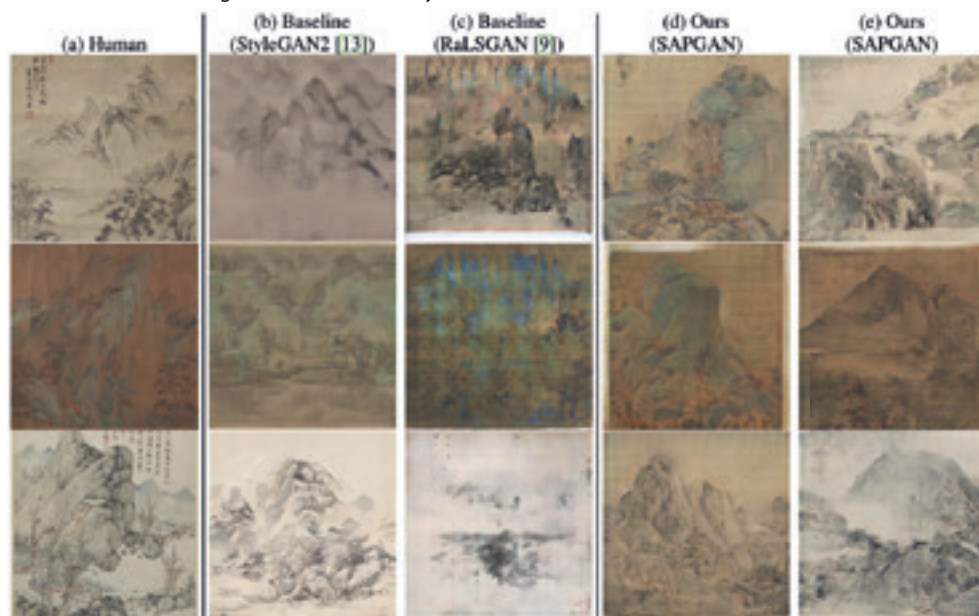
prefer (Wilde, 2023). Based on the research conducted by the authors of this paper, the launch of DALL·E in January 2021 marked a significant milestone in the evolution of artificial intelligence in the creative industries, enabling computers to generate highly detailed images based solely on textual descriptions. This development has since been complemented by the emergence of advanced multimodal models capable of converting text into animations, 3D visualizations, and even musical compositions. Tools such as DALL·E, Midjourney, and Stable Diffusion have become central to this transformative wave, prompting considerable debate within artistic and design communities. Key concerns include questions of intellectual property ownership, the potential for copyright infringement and plagiarism, and the broader ethical implications of automating creative labor.

Particularly within the animation industry, the integration of AI technologies is accelerating rapidly. Leading studios have begun to acknowledge the disruptive potential of these innovations, with some projections indicating that up to 70% of jobs traditionally associated with animated film production could be replaced or significantly altered by AI-driven systems. This anticipated shift raises urgent discussions not only about employment but also about the future role.

For instance, Figure 1 illustrates the work of Princeton undergraduate student Alice Xue, who, in 2021, developed a novel Generative Adversarial Network (GAN) framework for generating Chinese landscape paintings. The figure presents a comparative visualization of paintings produced using various artificial intelligence model configurations. The layout is organized into multiple columns, with each column representing outputs from a different generative model. Columns b and c display paintings generated by baseline models, which serve as reference systems commonly used in previous generative art research. These models typically rely on conventional GAN architectures and have limitations in stylistic fidelity and structural coherence. Columns d and e, on the other hand, show the results produced by the Sketch-and-Paint Generative Adversarial Network (SAPGAN) framework proposed by the authors. SAPGAN is a novel dual-stage model consisting of two separate GANs: one for sketch generation (SketchGAN) and another for translating sketches into fully rendered paintings (PaintGAN). Column d presents outputs from a configuration combining StyleGAN2 and Pix2Pix. StyleGAN2 is utilized to generate detailed sketch structures, while Pix2Pix converts these sketches into color-rich, stylistically consistent paintings.

Column e illustrates results from the RaLSGAN configuration (Relativistic Average Least Squares GAN), which offers an alternative adversarial training approach to improve realism and reduce artifacts. The overall comparison clearly demonstrates that the SAPGAN models (d and e) outperform the baseline models (b and c) in terms of aesthetic coherence, brushstroke emulation, and adherence to the traditional elements of Chinese landscape painting. This qualitative enhancement supports the authors' claim that SAPGAN provides a more authentic and human-like artistic output, of human creativity in an increasingly automated cultural economy (Xue, 2021).

Figure 1. Comparisons between Chinese landscape paintings generated by baseline models (columns b and c) versus models in our proposed Sketch-and-Paint framework (columns d and e). Specifically, the SAPGAN configurations shown are StyleGAN2+Pix2Pix (d) and RaLSG (Xue, 2021)



Source: Proceedings of IEEE WACV, 2021, pp. 3863–3871. arXiv, <https://arxiv.org/abs/2011.05552>.

In gaming AI is making big changes. Machine learning has enabled independent developers working on new games to extensively explore their technical potential, notably by using ChatGPT to generate code for game mechanics, and to translate games more efficiently. And in the world of mobile games, AI can simplify the generation of visual content. Designers use an AI model like Stable Diffusion to simplify the process of design of simple objects and operations. This has enabled artists to save time that used to be devoted repetitive tasks, because they no longer need to manually complete every stage of a process. However, it is also essential to point out that artists are not being fully replaced by AI, but that it helps to simplify their work (Hello Future, Video games: AI paves the way for a new generation of visual content, 2024).

Advancements in artificial intelligence (AI), particularly in the domains of environment, character, and scenario generation, have provided game designers and visual artists with powerful tools that not only streamline but also enhance the creative process. These tools allow for the rapid development of visually compelling content while preserving the artist's creative autonomy and vision. Although AI technologies have not yet reached a level where they can independently handle complex gameplay mechanics or perform sophisticated coding tasks, they are increasingly capable of automating and supporting various aspects of game development.

The integration of cutting-edge technologies, such as Light Detection and Ranging (LiDAR) and generative diffusion models, marks a significant milestone in the evolution of game design. These tools contribute to the production of hyper-realistic visual assets and dynamic in-game environments with minimal manual input. One notable example is Club Koala developed by Play for Fun, which demonstrates

the capabilities of generative AI in customizing virtual worlds. Using diffusion models, players are empowered to shape unique digital landscapes, compose original music, and personalize non-player characters (NPCs).

According to the game's publisher, these AI-driven NPCs exhibit a high degree of autonomy; they adapt their behaviors in response to player interactions, generate individualized quests, and contribute meaningfully to intricate, evolving narratives. This dynamic responsiveness fosters a more immersive and personalized gameplay experience. Furthermore, the game introduces groundbreaking innovations in narrative generation. By leveraging techniques such as prepossessing, pan-dialogue modeling, natural language parsing, and structured AI behavior trees for NPCs, Club Koala can produce one-of-a-kind storylines that mirror the creativity and choices of individual players. This fusion of AI with interactive storytelling represents a significant shift in how narratives are constructed and experienced in digital gaming. It not only enhances player engagement but also reflects the broader trend toward increasingly adaptive and co-creative virtual environments.

GANs and CANs

Algorithms are now capable of creating original works of art by taking inspiration from huge to enormous numbers of images and inventing new artistic styles. Here follows an overview of these “artist-algorithms” that are shaking up the art world and questioning the classical conception of creativity. Utilizing methodologies such as Generative Adversarial Networks (GANs), artists are now capable of producing artworks that autonomously adapt in response to audience engagement and feedback. This dynamic interaction reconfigures the traditional relationship between the artwork and its viewers, fostering a more participatory and responsive aesthetic experience. GAN consists of two competing neural sub-networks: a **generator** and a **discriminator**. The discriminator has access to a dataset of real images (the training set) and aims to distinguish between authentic images from this set and synthetic images generated by the generator. In contrast, the generator attempts to create images that mimic the distribution of the real data, despite not having direct access to the actual training samples. Initially, the generator produces random visual outputs and receives feedback from the discriminator indicating whether the generated images appear real or fake. Through this iterative feedback loop, the generator incrementally improves its outputs. At convergence, the discriminator is no longer able to reliably differentiate between the real and generated images. This outcome indicates that the generator has effectively learned to reproduce samples from the same underlying distribution as the training set (Elgammal, Liu, Elhoseiny, & Mazzone, 2017).

One of the first examples of algorithmic art (art generated by algorithms) dates to 1973, when English painter Harold Cohen wrote a computer program called AARON that could produce original drawings. American artist Jean-Pierre Hébert drew the outlines of this artistic movement twenty years later and invented the term “algorist”. An artist is an algorist when they create a work of art from an algorithm that they have designed themselves. The act of creation is in the writing of the code, which becomes an integral part of the final work. Advances made in artificial intelligence (AI) are questioning this definition and bringing about a new generation of technologies, techniques and models. Thanks to machine learning, algorithms no longer simply follow

a set of pre-defined rules by the programmer-artist. Fed with a large amount of data, they assimilate the aesthetic characteristics of artistic styles or movements and become ever more autonomous in the production of content. Since the 2010s, many families of algorithms have been used to explore new practices and keep on pushing back the boundaries of “artificial creativity”.

One of the most compelling models in the intersection of algorithms and creativity is the Generative Adversarial Network (GAN), which has become emblematic of algorithmic innovation in the visual arts. This prominence was cemented by the highly publicized 2018 auction of *Portrait of Edmond de Belamy* at Christie's, an artwork created by the artist collective Obvious using a GAN. Originally introduced in 2014 by machine learning researcher Ian J. Goodfellow, GANs are a class of unsupervised machine learning algorithms composed of two competing neural networks: the generator and the discriminator. The system is trained on a dataset, such as thousands of early twentieth-century Cubist paintings allowing the generator to produce new images that mimic the style. The discriminator's role is to distinguish between authentic artworks and those generated by the algorithm. Through continuous feedback, the generator iteratively improves its outputs until the discriminator can no longer reliably tell the difference, effectively creating convincing, machine-generated art.

The artist plays a more or less active role in this process. Failing building the generative algorithm (this was not the case of the members of Obvious who borrowed the code from another programmer-artist), they select it, change it to obtain the desired result, and they run it. The artist gathers entry data (with the help of a “scraping” tool, a technique for automatically extracting data from websites), selects it (pre-curation), then sorts the content generated by the machine (post-curation). In *Fall of the House of Usher II* (2017), English artist Anna Ridler chose to create her own dataset by producing over 200 drawings. One could say that artist and machine work together to cocreate a piece of art and this is an interesting collaboration, but it could lead us to the moment of opening a Pandora's box.

A similar project same year, but with an upgrade option, a very important option is CANs invent new artistic styles. Researchers from the Art and Artificial Intelligence laboratory of Rutgers University in the United States suggested a new method for generating original art, inventing creative GANs, Creative Adversarial Networks (CANs).

On the assumption that GANs are limited in their creativity due to the way in which they have been designed (their aim being to imitate existing works of art from a specific style as well as possible), they changed the process to make them capable of generating creative art by maximizing deviation of the system from established styles.

CANs pursue three goals. They must generate works that are new (1), but without being too much so, i.e. swaying too far from the entry data, to avoid creating dislike (2). The work generated must also increase stylistic ambiguity, meaning it is difficult to classify in a particular style (3). Just like GANs, CANs are made up of two adversarial networks. The discriminator uses a large set of labelled works of art to learn the difference between artistic styles (baroque, impressionism, expressionism, etc.). The generator produces the work from a random entry. However, unlike GANs, it receives two signals. The first tells it if the discriminator thinks the work presented is art or not, and the second whether the discriminator has been able to classify this work into an established style. These two signals act as opposing forces as the first pushes the generator to

emulate art whereas the second penalizes it if the discriminator manages to classify its style. This pushes the generator to explore creative space and to create works that, not only misled humans but were also better ranked than the original works. Generative art, powered by AI and machine learning, enhances virtual reality by enabling dynamic, responsive artworks. These pieces evolve based on audience interaction and real-time data, creating personalized experiences without direct artist intervention, showcasing the fusion of technology and creativity (Anantrasirichai & Bull, 2022).

Evolutionary algorithms imitate creative thought

Less widely publicized, evolutionary algorithms are also used to generate credible works of art. Inspired by Charles Darwin's theory of the evolution of species, they are based on the three fundamental principles of natural selection. According to these principles, there are differences between individuals of a same species (principle of variation). Some traits are more advantageous than others and enable the individuals that have them to survive and reproduce better than their counterparts (principle of adaptation). These traits are passed on from one generation to the next (principle of heredity). The idea behind creative evolutionary algorithms is to reproduce the intellectual approach of the artist, who imagines, tests, and selects new ideas. This means modifying entry data randomly and in a variety of ways, selecting the best-adapted variant or variants, and repeating the process until a satisfactory idea emerges. During this interactive process, the artist intervenes to choose the most aesthetic variations of a generation, but it is also possible to automate this step.

Although described examples are more machine learning oriented and the AI is still based on this, the evolution of creative algorithms may have gone in the direction of increased autonomy in the production of works of art, but has this made them more creative? Are they destined to replace artists, or will they stay confined to the role of tools at the service of augmented creativity? These questions are the topics of debates. One thing is certain, the transmission of creativity, a notion intrinsically linked to human nature, to machines, is a huge challenge for machine learning!

Art and science are often pitted against each other. Yet, art seeks also to describe the world, and science contains a creative and imaginative part. Art in all its forms injects new ideas, which inspire researchers and engineers. Film, literature, music, etc. show us new possibilities both from the point of view of the technologies themselves as well as from that of their uses and impacts on society, they often harbor solutions to solve very real engineering problems.

In the end, every technology begins in the imagination and imagination is the foundation of art and creativity, therefore AI and Art have the same foundation, but let's hope that in the future Art will not merge too much with AI, because Art, especially good art is one of the highest achievements of mankind and human spirit.

AI and cultural heritage

In this section we will present some fine examples of AI usage and interventions in cultural heritage. The European RePaIR (Reconstructing the Past: Artificial Intelligence and Robotics) project aims to develop a robotics system boosted by AI that is capable of recreating shattered artefacts, such as amphora or frescos. The idea is to build a robot equipped with mechanical arms, which scans fragments, recognizes

them, and assembles them, handling them with care thanks to advanced sensors. The first to benefit from this new method is none other than the archeological site of Pompeii in the south of Italy. Two world-renowned frescos, thousands of pieces of which are currently in storage, are being restored.

Advanced imaging technologies, such as X-ray radiography, infrared reflectography, and spectral scanning, when combined with artificial intelligence (AI), enable a comprehensive and non-invasive analysis of artworks, uncovering visual information imperceptible to the human eye. These techniques are particularly valuable in revealing compositional changes made by artists during the creative process, known as *pentimenti*, where elements may be added, removed, or modified. In other cases, entire sections or even complete works, may have been repainted by the same or another artist. Through the examination of these alterations, art historians and conservation experts gain critical insights into the materials, techniques, and working methods of the artist, refine authorship attributions, and, in some instances, uncover previously unknown masterpieces.

One notable example is the hidden painting *The Lonesome Crouching Nude* by Pablo Picasso, which lay concealed beneath another of his works. In 2021, researchers at University College London used X-ray imaging to reveal the obscured composition and subsequently reconstructed it with the aid of AI and 3D printing. A deep learning model, trained on a dataset of Picasso's Blue Period artworks, was employed to learn and emulate his distinctive stylistic features. Upon completion of the reconstruction process, the painting was physically printed onto canvas, demonstrating the capacity of AI not only to analyze but also to materially revive lost or hidden elements of art history.

Some examples of AI generated art that attracted attention of general public and experts

Artificial intelligence (AI) tools developed for artistic production, such as Stable Diffusion, Midjourney, DALL·E 2, and Adobe Firefly, are gaining substantial popularity within creative industries. Despite their growing accessibility, the process of generating compelling visual content through these platforms is often more complex than generally assumed. Achieving aesthetically impactful results that align with high artistic standards entails a creative process that may span several hours, even if it differs fundamentally from traditional artistic practices. As Nir Eisikovits, Professor of Philosophy and Director of the Applied Ethics Center at the University of Massachusetts, and Alec Stubbs, Ph.D. in Philosophy at UMass Boston, assert in their article published in *The Conversation*, "There's no separating ideas and execution," highlighting the inseparability of conceptual intent and its realization in AI-assisted artistic endeavors (Eisikovits & Stubbs, 2023). Nevertheless, technical innovation is offering artists more space to concentrate on concepts and the messages they wish to convey, rather than on technical difficulties and time constraints.

In 2018, three French students from an arts-collective named Obvious produced a painting entitled *The Portrait of Edmond de Belamy* using an algorithm that identified common features in 15,000 works from the 14th to the 20th centuries. The painting auctioned by Christie's in New York sold for a whopping \$432,500 (Hitti, 2018).

In 2023, German artist Boris Eldagsen sent shockwaves through the world of

photography. The winner of the Creative category of the prestigious Sony World Photography Award refused to accept his prize for a surprising reason: his haunting 1940s style, black and white portrait of two women from different generations was not in fact a photograph, but an image generated by artificial intelligence. “I wanted to test to see if the world of photography was ready to manage the intrusion of AI in international competitions. Clearly, it is not,” he explained (Hello Future, Creation, restoration, music: artificial intelligence tools in the arts, 2023).

The event which astonished the artistic community speaks volumes about the creative capacities of AI, definitively demonstrating that the world of art has not escaped the tidal wave of change ushered in by artificial intelligence. Today’s algorithms have now shown that they can not only write poems, but also compose music and even produce paintings with help from robots.

Integration of AI into current marketing practices

Artificial intelligence’s (AI) diverse character is demonstrated by the way it is revolutionizing several fields, such as marketing, cultural heritage, and the arts. By enabling generative art, interactive installations, and algorithmic composition, artificial intelligence (AI) tools have revolutionized traditional creative processes and opened new avenues for artistic creation and design. AI-driven tools help with style-based restoration, digital archiving, and artifact reconstruction, increasing the longevity and accessibility of historical works. This same technological infrastructure also extends to cultural heritage preservation. AI’s potential to simultaneously spur innovation, democratize access, and reshape disciplinary boundaries is demonstrated by its convergence with these disparate but related fields. Together, these uses highlight AI’s potential as a cultural force that shapes art production, cultural preservation, and consumer engagement, in addition to its potential as a technological tool.

Furthermore, AI is essential to the marketing industry because it makes data-driven decision-making, automated content creation, and hyper-personalization possible. With today’s marketing environment marked by increasingly dynamic technological development, artificial intelligence (AI) has become a pivotal driver transforming the way business directly connects with its marketplace. Its usage is no longer an add-on but an intrinsic aspect of contemporary marketing strategy. Artificial intelligence allows marketers to recognize target groups with unprecedented accuracy by utilizing sophisticated analysis patterns, facilitating real-time, individualized communication design. Also, the pandemic has accelerated the development of the creative economy, at the same time putting megatrends such as digitization in the spotlight. In the era of crisis and rapid globalization, many leading countries have recognized the importance of the creative economy not only as a segment of business that increases value but also as a key field of the future where “young creative talents play” (Milovanović & Dušanić-Gačić, 2024).

According to Milovanović and Novaković (2025) with predictive analytics, AI enables forecasting of customer behavior, thus enabling hyper-personalized marketing based on personal needs and interests (Milovanović & Novaković, 2025). Efficiency and speed of decision-making in marketing departments are greatly improved by automating activities like data analysis, content creation, and ad optimization. One of the most important aspects of AI marketing is its continuous ability to learn and adjust

according to changes in market conditions and customer behavior (Kotler, Kartajaya, & Setiawan, 2023). AI tools facilitate machine-based interaction with the customer through chatbots and virtual assistants, which provide personalized product suggestions, information, and assistance throughout customer journeys. All this greatly enhances customer experience as well as operational cost optimization.

Targeted ad algorithms enable ads to reach certain users at exactly the right moment, thus enhancing message relevance and campaign performance. Additionally, AI solutions are utilized to condition content for voice search, thus promoting brand discoverability in digital media. In contemporary customer relationship management (CRM) solutions, AI plays a role in creating advanced loyalty programs and optimizing customer relationship management by analyzing customer actions and behaviors in depth. AI also makes it possible to generate content across digital mediums, ranging from text to imagery and video content, to create uniform as well as contextual brand messaging. Besides this, marketing practitioners make use of AI to monitor the emotional impact of campaigns, understand users' sentiments, and adjust messaging based on emotional triggers. All this makes their emotional connection with consumers much more powerful. With voice-controlled devices becoming increasingly ubiquitous and real-time bidding algorithms becoming more common in digital marketing, there can be little doubt but that AI's role in marketing will only increase going forward. Its ability to analyze immense volumes of data and generate highly accurate insights constitutes a virtual business imperative in the digital economy (Milovanović, Dušanić-Gačić, & Novaković, 2024).

Finally, marketing AI integration does not come as a byproduct of future technological progress so much as a reflection of a larger shift toward more customer-centric, agile, data-driven business models. Business organizations embracing the potential of AI technologies and implementing them as an integral part of their business strategy will gain a compelling advantage in business in the decades ahead (Milovanović & Novaković, 2025).

CONCLUSION

Artificial intelligence is a vital and strategic technology that is changing the society and many industries. „However, the current regulation of modern technologies is already lagging behind worldwide“ (Luknar, 2024). The very first law that deals AI by Europe Union at the end of 2023. This law preceded by numerous directives and (ethical) guidelines that have no legal binding. So, to regulate and harmonize AI there should be a sort of international law, that is updated every year, because the number of issues upon AI is growing and there are no clear answers.

The production, perception, and distribution of art have all changed significantly because of the convergence of artificial intelligence and the arts. By using machine learning, big data, and generative models, artificial intelligence (AI) has made it possible for both experts and amateurs to create music, images, texts, and designs. These tools expand creative possibilities and increase productivity, but they also bring up philosophical and ethical issues about originality, authorship, and the nature of creativity. Machine-assisted storytelling, algorithm-generated visual art, and AI-finished symphonies are a few examples that highlight the possibilities and difficulties of this technological revolution. The limits of artistic expression are being pushed by genera-

tive models like GANs and CANs, which now create works that are indistinguishable from human creations.

AI systems are capable, but they lack the contextual awareness and emotional nuance that come from human experience. AI has also shown promise in the preservation, restoration, and reconstruction of historical artifacts in domains like cultural heritage.

Simultaneously, the use of AI in marketing has made it possible to implement data-driven, hyper-personalized strategies, which has completely changed how customers interact with brands. AI is gradually but fundamentally transforming marketing by enabling hyper-personalization, real-time decision-making and more efficient allocation of resources. All this leads to stronger and deeper consumer engagement and increased brand loyalty. Using advanced data analytics, emotional intelligence tools and adaptive communication models, AI empowers marketers to go beyond traditional segmentation and develop interactive and responsive campaigns. It is an unavoidable conclusion that artificial intelligence is becoming an indispensable element of modern marketing systems, and its integration signifies not only technological progress, but also a paradigm shifts towards business strategies, which are based on data and focused on the customer. A balanced approach is necessary to guarantee that human creativity stays at the forefront as AI becomes more and more integrated into the arts, marketing, and culture. In the end, AI should be seen as a potent instrument to enhance creative and expressive expression rather than as a replacement for the human spirit that drives genuine innovation.

AI art tools, programs, algorithms and generators may provide for most amateur users, but the blurring of creative and ethical boundaries is leaving many artists and designers raging against the machine. Also, there is a concern that is gaining intensity: will AI replace some positions in creative sector and arts, in simple words: will AI replace artists and designers because machines could reach a point at which they are truly creative? And questions that follow: How could machines tackle the conceptual turn in contemporary art movements? What role could they have in helping us to understand “good taste” and “bad taste”?

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THE STRATEGIC INTEGRATION OF ARTIFICIAL INTELLIGENCE IN MARKETING: PREDICTIVE ANALYTICS AND PERSONALIZATION - THE CASE OF MERCEDES-BENZ

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Abstract: *This paper explores the evolution and growing importance of artificial intelligence (AI) in contemporary marketing, with particular emphasis on predictive analytics, hyperpersonalization, and user engagement. Beginning with the earliest applications in the 1950s through market segmentation algorithms, and continuing with the introduction of Customer Relationship Management (CRM) systems in the 1980s and the rise of big data and machine learning in the 2010s, AI has gradually transformed marketing practices. Modern AI tools facilitate the automation of routine processes, enable large-scale personalization of communication, and provide valuable insights derived from vast datasets. Generative AI, particularly through platforms such as ChatGPT, has revolutionized content creation and consumer interaction by mimicking human language with minimal human input. Recent labor market findings point to the rapid and widespread adoption of AI, especially in marketing and advertising sectors. Predictive algorithms are increasingly employed to anticipate consumer behavior, manage campaigns, and enhance segmentation strategies. Furthermore, the integration of AI with voice assistants, augmented reality (AR), and virtual reality (VR) is opening up new possibilities for real-time, interactive marketing campaigns. Despite challenges related to data integrity and algorithmic transparency, the advantages of AI-driven strategies are substantial, and continued investment in research and innovation is crucial to realizing its full transformative potential. A dedicated section of this paper presents a case study of the global company Mercedes-Benz and its implementation of AI technologies in business operations and marketing strategy.*

Keywords: artificial intelligence (AI), marketing, predictive analytics, Mercedes-Benz

JEL classification: M31, C88, D83, O33

INTRODUCTION

In the field of marketing, achieving a competitive advantage has always been of paramount importance. Marketers have come to recognize that the application of artificial intelligence (AI) technologies offers opportunities to act more efficiently, target audiences with greater precision, and enhance communication with clients. Accordingly, AI marketing refers to the process of employing artificial intelligence to generate user insights and automate critical marketing decisions. This primarily involves the collection of large datasets, their analysis, the use of natural language processing (NLP), machine learning (ML), big data analytics, and AI platform-based solutions (Figure 1).

The main rationale behind the implementation of AI in marketing lies in its ability to facilitate the creation of hyper-personalized marketing content, extract meaningful insights from customer data, and improve existing marketing strategies. Given the vast volume of data collected from various channels, and the strategic value of leveraging such data, AI technologies have become increasingly important for companies striving to maintain a competitive edge. Artificial intelligence plays a pivotal role in modern marketing strategies, enabling seamless alignment between advertisers and their target audiences. The evolution of AI components tailored specifically for the marketing sector aims to bridge the gap across large-scale datasets by providing marketers with actionable insights to optimize performance (Tadimarri, Gurusamy, Sharma, & Jangoan, 2024). The ability of AI systems to analyze complex data structures and generate useful findings has revolutionized marketing approaches, allowing for more precise and efficient consumer engagement (Russell & Norvig, 2021). AI-powered tools have further simplified content creation, enhanced customer interaction, and improved the overall effectiveness of marketing operations (Rissland & Stillings, 1987).

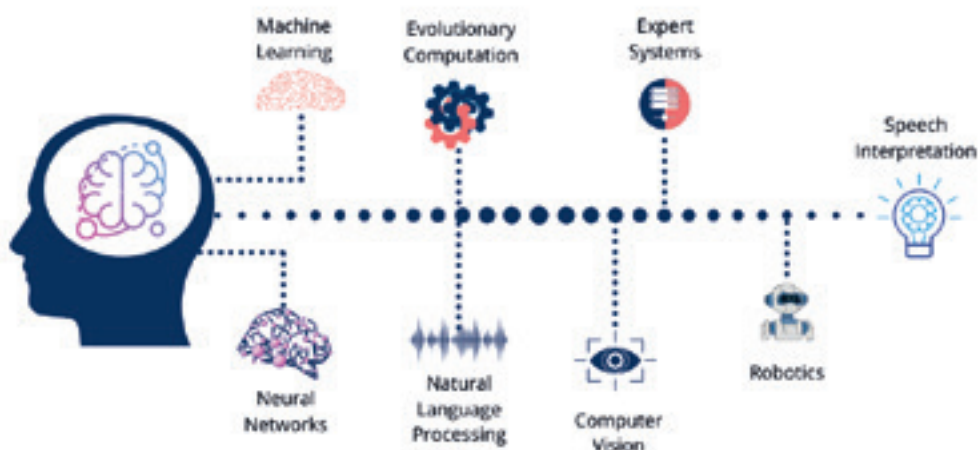


Figure 1. Key functional elements of AI: From neural processing to intelligent automation

Source: (Digital Front, 2024)

Also, recent labor market insights provided by Microsoft reveal that approximately 75% of surveyed employees actively incorporate artificial intelligence (AI)

into their professional tasks, leaving only 25% who have yet to adopt the technology. Among various industries, the marketing and advertising sector exhibited the highest AI adoption rate, with 37% of professionals reporting the use of AI tools in their workflows - surpassing the technology sector by two percentage points, which held the second-highest rate of adoption. In terms of perceived impact, user-reported outcomes underscore AI's role in enhancing workplace productivity and employee experience. A significant 90% of users affirmed that AI contributes to time savings, while 85% stated it enables better concentration on critical tasks. Furthermore, 84% reported that AI fosters creativity, and 83% claimed it increases their overall job satisfaction (Microsoft & LinkedIn, 2024).

According to a study conducted and presented by researchers from the international consulting firm McKinsey, it is stated that **employees are more ready for the change than their leaders imagine: 3 times** more employees are using generative AI for a third or more of their work than their leaders realize. Over **70%** of all employees believe that within **two years**, generative AI will transform **30% or more** of their work. Millennials are 1.4 times more likely than other age groups to report extensive familiarity with generative AI tools. They are also **1.2 times** more likely to expect workflows to change within a year. **Companies need to move fast - employees trust their leaders to balance speed and safety: 47%** of C-suite executives report that their companies are developing generative AI tools **too slowly**, even though **69%** began investing over a year ago. Employees are **1.3 times** more likely to trust **their own companies** to deploy generative AI effectively than to trust **external institutions**. **Companies are investing in generative AI but have not yet achieved maturity: 92%** of companies plan to increase investment in generative AI over the **next three years**. Only **1%** believe their current investments have reached **maturity**. **Leaders need to recognize their responsibility in driving generative AI transformation**. The C-suite is **2.4 times** more likely to cite **employee readiness** as the primary barrier to adoption, rather than challenges with leadership alignment - despite employees already using generative AI **three times more** than leaders estimate: **48%** of employees consider **training** the most crucial factor in generative AI adoption. However, nearly half report receiving only **moderate or less** support (Meyer, Yee, Chui, & Roberts, 2025).

THE CHRONOLOGY OF AI IMPLEMENTATION IN MARKETING

Several authors suggest that the application of artificial intelligence (AI) in marketing can be traced back to the 1950s and 1960s, when marketing researchers began employing cluster algorithms to segment markets based on demographic data and purchasing patterns. This is considered one of the earliest examples of AI utilization in marketing. The focus during this period was on fundamental data analysis and consumer segmentation, both of which are foundational elements in marketing. Even seventy years ago, this approach enabled companies to make data-driven decisions for more accurate targeting. This indicates that marketing is one of the fields where AI made its earliest impact.

A significant next step occurred in the 1980s and 1990s with the emergence of Customer Relationship Management (CRM) systems. These systems allowed for the tracking of consumer behavior, shopping habits, and direct interactions with customers. At the same time, companies began engaging in data mining processes involving

large volumes of high-quality customer data. These practices are still widely used today, particularly for direct marketing (targeting customers with the highest likelihood of response), user profiling (to identify behavioral patterns and deliver relevant offers), segmentation (grouping consumers with similar traits), cross-selling, and the analysis of product sales correlations (Milovanović & Novaković, 2025).

With the advancement of digital technologies, which have become deeply integrated into everyday life, there has been an exponential increase in the amount of data relevant to marketing. This “Big Data” wave, especially prevalent from 2010 onward, has become the foundation for machine learning algorithms. The focus of marketing has shifted toward the consumer, who increasingly prefers personalized content and advertisements tailored to individual interests (Milovanović, Miljanović, & Novaković, 2022).

This shift marked a fundamental change in consumer expectations and fostered a transition toward customer-centric marketing models, namely Marketing 4.0 - marketing in the digital age and Marketing 5.0, which leverages advanced technologies to mimic human behavior and create social and human-centered value (Milovanović & Novaković, 2025).

One of the most significant advancements in AI-driven digital marketing has been the development of content generation and optimization tools. Modern platforms utilize natural language processing (NLP) combined with machine learning (ML) algorithms to autonomously generate text, analyze existing content, and optimize key SEO components such as meta tags, keywords, and content structure (Hartmann & Netzer, 2023) (Rasa.io, 2024). The release of ChatGPT and later ChatGPT-4 by OpenAI marked a major leap toward automated content creation that closely resembles human language, requiring minimal human input (Almeida, Gaio, & Gonçalves, 2025).

In addition to content generation, artificial intelligence has significantly transformed the domain of customer service over the past decade. The implementation of chatbots and virtual assistants has enabled uninterrupted interaction with consumers. Companies successfully utilize these tools to provide personalized product recommendations and educational tutorials, thereby enhancing customer experience and increasing engagement in digital environments (Miroslavljević & Milovanović, 2022).

Looking ahead, the application of AI technologies in marketing is expected to expand and evolve further. In particular, predictive analytics is gaining prominence as a means of forecasting consumer behavior based on historical data and behavioral patterns, enabling more precise and strategically grounded decision-making (Okeleke, Ajiga, Folorunsho, & Ezeigweneme, 2024). Additionally, voice search optimization is becoming increasingly important with the growing adoption of digital assistants such as Amazon Alexa, Google Assistant, and similar technologies. This mode of interaction requires a content strategy focused on conversational tone and natural language.

Furthermore, just as human voices can evoke mental imagery without visual cues, artificially generated voices can be deliberately designed to trigger imagined representations in listeners (Efthymiou, Hildebrand, de Bellis, & Hampton, 2023). There is also a growing trend toward integrating AI with augmented reality (AR) and virtual reality (VR), which opens up new possibilities for interactive and personalized marketing campaigns that transcend traditional digital channels. These technologies are collectively reshaping how brands communicate with consumers and are laying the

foundation for a new era of AI-driven digital marketing based on intelligent automation and real-time personalization (Milovanović & Novaković, 2025).

AI AND PREDICTIVE ANALYTICS

The artificial intelligence (AI) market surpassed 184 billion USD in 2024, marking a significant increase of nearly 50 billion compared to 2023. This rapid growth is expected to continue, with projections indicating that the global AI market will exceed 826 billion USD by 2030 (Thormundsson, 2024). As the e-commerce sector expands, traditional advertising models are increasingly insufficient to meet contemporary demands. Consequently, marketing professionals and advertisers are integrating AI technologies into their advertising operations to enhance efficiency, increase productivity, and respond to evolving market expectations (Qin & Jiang, 2019).

In their work, Roetzer and Kaput (2022) emphasize that deepening user engagement must be both data-driven and human-centered. They argue that the current state of AI enables a more concrete realization of anticipatory design — an approach to creating products, services, and user experiences based on the prediction of consumer needs before those needs are explicitly expressed. One illustrative example is a food delivery application that, based on intelligent personalized predictions, suggests a lunch option at the appropriate time and offers delivery based on the user's current location. In this case, the decision-making process is significantly accelerated, as the number of decisions required by the user is minimized (Roetzer & Kaput, 2022).

The integration of artificial intelligence (AI) into digital marketing across platforms such as social media, email marketing, search engine optimization (SEO), mobile applications, and display advertising has the potential to significantly enhance consumer engagement with organizations in the online environment. Moreover, the adoption of AI-driven marketing strategies enables businesses to maintain competitiveness amid rapid technological and market changes. One of the key advantages of AI is the automation of repetitive tasks. AI systems can manage routine operations such as pre-scheduling social media posts, distributing email campaigns, generating website traffic analytics, and conducting automated webinars. This allows marketing professionals to shift their focus toward more strategic and creative endeavors, such as customer relationship building and the exploration of emerging marketing channels. AI also improves customer segmentation by analyzing complex datasets using machine learning algorithms. It can categorize consumers based on purchase history, behavioral patterns, and digital interactions, allowing for more targeted and effective marketing efforts. Furthermore, AI's predictive capabilities enable marketers to anticipate customer needs by recognizing trends and patterns in user data, thereby facilitating the development of highly personalized campaigns.

Predictive algorithms play a pivotal role in enhancing modern marketing operations by enabling more efficient campaign management, advanced data analysis and reporting, and streamlined email communication workflows. These algorithms support lead scoring by evaluating the likelihood of conversion, allow for accurate customer segmentation based on behavioral and demographic data, and assist in conversation and sentiment analysis to better understand consumer attitudes and emotional responses across various communication channels (Kumar, Ashraf, & Nadeem, 2024).

The use of AI and predictive analytics is key to delivering customer experienc-

es that not only meet expectations but also foster loyalty and long-term engagement. Event-driven architectures, combined with AI and predictive analytics, are shaping the future of business in the digital era. This process is continuous, requiring all companies to evolve in order to successfully position themselves in the context of the Fourth Industrial Revolution (Verma, Sharma, Deb, & Maitra, 2021).

Moreover, **AI-powered predictive analytics has emerged as a transformative instrument for analyzing market dynamics and consumer behavior.** Its capacity to generate actionable insights and inform strategic decision-making has led to notable changes in business practices across a broad range of industries. **AI driven predictive analytics serves as a critical instrument for identifying market patterns and understanding consumer behavior.** Its capacity to generate data-informed insights and support strategic decision-making processes has significantly influenced business models across multiple sectors. Although certain limitations persist, such as data integrity concerns and algorithmic transparency, the advantages of predictive analytics are considerable, offering substantial potential for **innovation, competitiveness, and long-term growth.** To fully realize these benefits, **ongoing investment in research and technological development remains essential,** enabling firms to respond proactively to rapidly evolving market conditions and maintain a competitive advantage in an increasingly complex business environment (Okeleke, Ajiga, Folorunsho, & Ezeigweneme, 2024). Predictive analytics is a complex form of artificial intelligence (AI) that allows users to predict future trends and events by analyzing past data in a systematized manner. Predictive analytics uses algorithms to apply machine learning and statistical modeling to help marketers predict consumer behavior, trends in the marketplace, and quantify the probable success of marketing campaigns. This ability to think ahead allows the organization to proactively develop adaptive strategies as it is not just a reactive mode of decision-making. When organizations can see evolving likely future scenarios, they can plan their resources more effectively, adapt marketing phrasing to the evolving needs of customers, and respond quickly to changing market dynamics. Thus, the strategic use of predictive analytics supports not only better decision-making but also enhances advantage as companies become more data-driven (Digital Front, 2024).

CASE STUDY: MERCEDES-BENZ

One of the most significant global companies in the automotive sector, Mercedes-Benz is well-known for its dedication to luxury, innovation, and technological superiority. The integration of AI in a variety of fields, such as operations, product development, marketing, customer service, and employee training, will be examined in the sections that follow. The company maintains a strong strategic focus on vehicle electrification, AI implementation, and improving the customer experience despite fierce competition, especially from China. When taken as a whole, these factors help Mercedes-Benz maintain its position as a top brand in the market for luxury automobiles.

AI in Star: Mercedes-Benz's strategic integration of AI

Mercedes-Benz (Mercedes) positions itself as a symbol of luxury, quality, and prestige, targeting the premium market segment of high-income consumers. Its prod-

uct development is driven by innovations encompassing safety systems, electric vehicles, and advanced technologies, while the brand's strength is cultivated through sophisticated design and emotionally resonant marketing campaigns. The company's global strategy is adapted to local markets by taking into account cultural differences and economic conditions. According to recent studies, China emerged as the largest individual market for Mercedes passenger vehicles in 2024, in terms of units sold, surpassing Europe, which had remained the leading regional market until 2020. In the reported year, approximately 683,600 vehicles were sold in China, accounting for over one-third of the company's total global sales of new vehicles. These figures indicate a significant geographical shift in luxury automobile consumption and highlight the growing influence of the Chinese market on the global automotive industry (Carlier, 2025).

While independently developing and managing its hardware and software infrastructure, Mercedes also engages in strategic partnerships with major technology companies such as NVIDIA, Google, and Microsoft to enhance its AI capabilities. These collaborations support advancements in autonomous driving, production optimization, digital twins, personalized navigation, and intelligent voice assistants collectively improving user experience and operational efficiency. Sustainability and social responsibility are integrated into the company's core strategy, further solidifying its position as a global leader in the luxury automobile segment.

Mercedes actively incorporates generative artificial intelligence into its production and administrative processes, particularly through the MO360 platform. This platform allows the company to create a digital twin of its entire vehicle production process, interlinking data from domains such as assembly, logistics, planning, and quality control. This virtual model facilitates the simulation and pre-optimization of manufacturing processes, resulting in enhanced efficiency and reduced CO₂ emissions.

The company is also exploring ways to expand the platform through integration with other sectors, aiming to promote continuous learning and innovation across the organization. By automating routine tasks, AI enables more creative forms of work. Mercedes regards continuous education as essential for successful digital transformation and the adaptation to new roles within the evolving workplace.

Through its "Turn2Learn" initiative, the company provides employees across all departments, not limited to IT with AI training. This includes access to thousands of courses on machine learning, programming, and natural language processing. They plan to invest over €2 billion in upskilling and educating its global workforce by 2030, ensuring a transformation in knowledge and, consequently, in job roles. They are already productive in applying generative AI, utilizing tools such as GitHub Copilot for software development and ChatGPT for customer interaction and data handling within the MO360 production environment. By leveraging large language models, employees are enabled to use natural language for data queries, thereby bringing AI capabilities closer to all sectors within the organization. The greatest potential for AI has been identified in software development, customer support, and parametric engineering, alongside the ongoing development of training in prompt engineering. One of the main challenges remains the issue of "hallucinations", inaccurate responses, which are mitigated through verification mechanisms but require careful management. Mercedes trains its AI models exclusively on proprietary data within secure environments, while

also exploring open-source solutions. The company emphasizes that AI must be deeply embedded within all systems and processes (Mercedes-Benz, 2023).

The Mercedes-Benz Operating System (MB.OS) has been developed as an integrated solution that enables a functional decoupling of software updates from vehicle hardware components. This architectural advancement significantly accelerates the software upgrade process compared to previous systems. Its integration with the Mercedes-Benz Intelligent Cloud (MIC), which leverages advanced artificial intelligence methodologies, ensures that vehicles remain continuously updated. Furthermore, the global distribution of software optimizations within a matter of hours substantially enhances the real-time safety, reliability, and quality of vehicles. Within the framework of a case study conducted for this research, it was found that Mercedes-Benz is the first automotive manufacturer to have formally established a set of ethical principles guiding the development and deployment of artificial intelligence (AI). These principles constitute the foundation of the company's approach to digital transformation and the implementation of AI technologies across all sectors of operation ranging from manufacturing and product development to customer service, administration, and legal compliance.

Official company statements emphasize that the primary purpose of these ethical principles is to reinforce trust between this company and its customers, partners, and the general public. Additionally, the principles serve as a practical guide for employees, offering clear directions for the responsible, safe, and transparent use of AI in everyday tasks. In this way, they not only underscores its commitment to technological innovation but also to ethics, integrity, and corporate social responsibility in the era of digitalization. This proactive and systematic approach may serve as a model for other industries facing the complexities of responsible AI implementation in dynamic business environments.

They have adopted a responsible use framework in applying AI, maintaining that AI must generate real-world benefits and align with the company's core values. Every AI application undergoes a transparent evaluation process to ensure that it promotes efficiency, fairness, and inclusiveness. One of the central pillars of this framework is explainability, which fosters trust by ensuring clarity regarding the parameters influencing AI decision-making and recognizing potential biases.

Privacy protection constitutes the third foundational element of the company's AI ethics. Personal data are processed locally, in accordance with legal standards, and anonymized whenever feasible. Finally, safety and reliability are treated as top priorities, with a focus on the conscientious training of algorithms and the application of the highest quality standards, particularly in the context of autonomous driving systems.

The overarching goal of utilizing AI at Mercedes is to enhance vehicle safety, comfort, and efficiency. The autonomous driving system employs AI algorithms to analyze sensor data, enabling the vehicle to make independent decisions and respond in real time. Through predictive maintenance, vehicles can detect potential faults before they occur, thereby reducing costs and improving safety. Personalization of the user experience is achieved by learning driver preferences and automatically adjusting settings such as climate control and seat position. The AI-powered voice assistant, integrated into the MBUX system, allows drivers to manage vehicle functions without diverting attention from the road. Lastly, advanced AI-driven safety features facilitate

rapid recognition and response to hazards, significantly decreasing the risk of accidents.

Artificial Intelligence in Mercedes-Benz marketing

One of the key innovations within Mercedes-Benz's digital strategy is the Mercedes-Benz Virtual Assistant (MVA), an AI-powered sales assistant based on a large language model. This assistant facilitates test drive bookings and initiates the vehicle purchasing process using natural language. Within the realm of e-commerce, tools like MVA are transforming the way customers explore and purchase vehicles, effectively making the digital showroom an extension of the physical dealership. The assistant's user interface enables rapid product and service search, significantly enhancing the overall customer experience. Following a successful pilot in the United States, the company also plans to integrate AI into its call centers to improve responsiveness to customer inquiries.

The company further aims to use AI for personalized marketing strategies, as well as to enhance the functionality of its websites through improved data management and user interaction. Moreover, these technologies will be essential in developing the next generation of advanced driver assistance systems (ADAS) (Bureau, 2024).

Customer experience lies at the heart of the company's approach, supported by luxury showrooms, tailored services, and premium after-sales support. To attract a younger audience, they use digital marketing, social media and virtual tools such as online consultations and immersive vehicle tours.

In terms of internal marketing, in November 2023, they launched an internal web application called Direct Chat for its employees. This tool, powered by ChatGPT technology, assists staff in drafting emails, reports, documentation, and other professional materials (Mercedes Benz, 2023). The company is actively pursuing a direct-to-consumer (DTC) sales model, redefining how vehicles are sold and experienced. Through the *Mercedes me* platform, users can remotely interact with their vehicles, access personalized services, and receive predictive maintenance alerts. By reducing reliance on traditional dealerships, the company offers online purchasing, flexible financing, and subscription-based ownership. Integration of AI into systems like MBUX improves user experience, enhances customer loyalty, and contributes to revenue growth.

The future of artificial intelligence offers vast potential in software development, vehicle manufacturing, environmental sustainability, and user experience improvement including autonomous driving, intelligent navigation, personalized comfort, and voice control. Mercedes-Benz positions itself at the forefront of this technological revolution, delivering this future directly to its vehicle users (Östberg, 2023). Figure 2 illustrates the artificial intelligence tools and platforms employed by Mercedes-Benz across multiple domains, including operations, product development, marketing, customer support, and employee training.



Figure 2. AI tools and platforms utilized by Mercedes-Benz up to the year 2024.

Source: created by authors according to research

To conclude this paper, we will derive the 7P marketing mix in the context of applied marketing based on the data presented (Milovanović & Novaković, 2025).

- **Product:** Mercedes-Benz's vehicle portfolio, from the luxurious S-Class to the dynamic AMG GT, demonstrates exceptional diversity and the ability to satisfy a wide range of customer desires. Their vehicles stand out not only in variety but in advanced technological innovations. In 2023, the company invested approximately €7 billion in research and development, resulting in advanced systems such as MBUX, which adapts to driver habits, and DRIVE PILOT, a semi-autonomous driving system enhancing comfort and safety.

- **Price:** Their vehicles are in the premium price segment, averaging around 160,000 KM (~80,000 €), which signifies quality and prestige. According to recent financial reports, the company experienced a 4.5% decline in global vehicle sales, with its market value currently estimated at €90 billion. In 2024, vehicle sales fell by 9% in Germany and 7% in China, while the U.S. market grew by 9%. However, with the introduction of U.S. punitive tariffs, projections for 2025 suggest potential further decline.

- **Place:** The company operates global manufacturing facilities strategically located in countries such as Germany, Poland, Romania, Czech Republic, Slovenia, China, Thailand and USA, enabling it to respond to regional demands. A strong network of sales and service centers, along with continuous investment in research and development centers, ensures superior service quality and maintains the brand's leadership in innovation.

- **Promotion:** The company implements sophisticated and emotionally driven promotional campaigns that emphasize luxury, safety, and innovation. Marketing content often features inspirational storytelling, celebrity endorsements, and impactful visuals that portray the brand as a symbol of success and prestige. With a strong emphasis on digital marketing, Mercedes-Benz leverages social media, video campaigns, and virtual car tours to reach digitally literate younger audiences. Sponsorship of sports and cultural events, as well as collaborations with fashion and tech brands, further reinforce its luxury market positioning.

- **Physical evidence:** The brand's modern showrooms, conveniently located and equipped with high-end design and expert personnel, offer tangible proof of luxury. The interior of Mercedes-Benz vehicles features premium materials and cut-

ting-edge design. The company boasts a global dealership network of over 6,500 authorized outlets across 130+ countries.



Figure 3. The 7P marketing mix of Mercedes-Benz in the context of applied marketing, based on the analyzed data for 2024.

Source: created by authors according to research

- *People*: The Mercedes-Benz ownership experience is deeply shaped by its people (~56,000), from engineers to customer service representatives. As previously discussed, the company continually invests in employee training in both technical skills and customer interaction. Programs such as Turn2Learn and AI-focused education ensure that the workforce remains a driver of digital transformation. Personalized service from well-trained employees helps foster trust and long-term customer loyalty.

- *Process*: Every step of the sales and delivery process is meticulously managed to ensure a seamless, luxurious customer journey. Digital transformation enables direct-to-customer sales, online vehicle configuration, and transparent delivery tracking. Through AI systems like the MO360 Data Platform, the company is continuously improving its manufacturing processes and customer service. These optimized, intelligent, and personalized workflows give customers more than just a vehicle - they deliver a superior experience (Figure 3).

CONCLUSION

This paper demonstrates how artificial intelligence (AI) is changing how marketing is conducted in today's world. From segmentation and modeling-based algorithms to machine learning and generative-based models, AI has developed into a key enabler of hyperpersonalization and predictive decision-making as it relates to marketing strategies. When companies deploy AI, they utilize it in a positive way to not only automate tedious and time consuming processes, but to produce customized, data-driven experiences that meet the digital consumer's expectations. Using AI enhances marketing workflow efficiencies, accelerates responsiveness to changing dynamics, and continually propels innovation in organizational strategy across all communica-

tion channels. For instance, predictive analytics allow marketers to forecast consumer behavior reliably, and to make strategic plans with the highest possible accuracy. AI also assists in anticipatory design to buoy a solid progression in marketing strategies from reactive to proactive. The data case study from Mercedes-Benz illustrated how AI can be embedded into all layers of a business and still remain compliant with ethical standards. From sales and customer service to internal operations and production, AI (via platforms such as MO360 and MBUX and programs such as Turn2Learn) offers opportunities for both customer value and employee capacity building. Their commitment to fairness, explainability and data privacy offers standard for responsible use of AI. The 7P Marketing mix informs how intelligent automation and digital integration change each dimension of marketing. The integration of the marketing strategy in alignment with AI reflects how a Business model is embracing a twenty-first consumer sentiment with technology. Widespread fear about transparency, data governance and use has not slowed adoption of AI, the potential benefits are too useful, and endless. In conclusion, who moves early to adopt AI use within their operational practice will create a sustainable competitive edge in the ongoing digital marketplace transformation.

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BRIDGING THE AI GAP: CHALLENGES AND OPPORTUNITIES IN THE ADOPTION OF AI IN THE CROATIAN HOSPITALITY AND TELECOMS INDUSTRY

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Abstract: *This study analyses the implementation of Artificial Intelligence (AI) and its impact on operational processes in the Croatian hospitality and telecommunication industry. By applying a qualitative research methodology, the study reveals a significant gap in the adoption of AI in these sectors. The key findings show that telecoms companies are leading the way in the integration of AI, while the hospitality industry is lagging behind. Factors influencing AI adoption include ownership structure, market dynamics and cultural influences. The results show that AI is improving customer service, data analysis and operational efficiency in the industries analyzed. Although both industries recognize the potential benefits of AI, they are approaching implementation differently, with the telecoms industry making greater progress. The study also looks at challenges such as implementation costs and the need to educate and train employees, which can be critical to the successful adoption of AI. Importantly, AI is seen as a tool that complements, rather than replaces, human resources. This study contributes to understanding the role of AI in Croatian industry and provides insights for future implementation strategies.*

Keywords: *Artificial Intelligence, operational processes, hospitality industry, telecommunications industry.*

JEL classification: *O31, O33, M15*

INTRODUCTION

The rise of artificial intelligence (AI) and its crucial role in improving business processes makes AI one of the most exciting and valuable areas of research (Helo & Hao, 2022).

AI is one of the fastest growing areas of technology. The more companies incor-

porate it into their strategies, the more important it becomes in overcoming operational challenges. Its ability to mimic the cognitive processes of humans in searching, analysing and making decisions based on vast amounts of data makes it a crucial factor in transforming operations management (Yao et al., 2025). The increasing use of AI will influence global competition and pave the way for new collaborations between companies and countries around the world (Xiong et al., 2021). AI is being used in various industries to improve user experience, enhance supply chain management efficiency, increase operational effectiveness and deliver consistent and reliable quality while reducing costs (Pallathadka et al., 2023). AI has a significant impact on all aspects of business, especially supply chain operations (Dogru & Keskin, 2020), and the link between AI implementation, supply chain resilience and better business performance has been proven (Mukherjee et al., 2024).

The adoption of AI has expanded across e-commerce, finance, science and technology, smart manufacturing, supply chain management and other business areas to improve business processes and revolutionise various industries while transforming the way we live and work (Zuo, 2024).

The transformative potential of AI for addressing various business-related challenges is widely recognized (Kitsios & Kamariotou, 2021), but the practical implementation of AI in business processes also poses risks and challenges. In this context, the ethical considerations related to the implementation of AI have been extensively discussed, especially with regard to the jobs that could be lost in the future and the human resources that could be replaced by the automation of organizations (Wright & Schultz, 2018).

LITERATURE OVERVIEW

Implementing AI into business processes is critical for organizations that want to remain competitive in today's turbulent business world and succeed in global markets (Suryadevara, 2017). Competitive pressures have driven companies to accelerate their digital transformation and adoption of AI, a trend that was particularly evident during the Covid-19 pandemic when numerous companies were struggling to survive (Chen et al., 2023). While companies adopted AI primarily to minimize human interaction and contain the spread of disease, the result of improved decision-making based on the data provided by AI was compelling (Li et al., 2021).

AI development has increased customer satisfaction and improved business processes (Bhagat et al., 2023). It is argued that AI has the potential to dramatically change business operations by using new technologies to redefine the role of the labor force, the way business is done and the global economy (Dirican, 2015). AI, robotics, IoT, block chain and other advanced technologies are dramatically transforming various aspects of industry, especially in the supply chain (Attaran, 2020). The transformative power of AI in various sectors has also been recognised in terms of decision-making processes, automation and service delivery, as well as in terms of delivery times, customer data, customer service (Allioui & Mourdi, 2023) and achieving competitive advantage while reducing costs (Cannas et al., 2024). (Grover et al., 2022) refer to AI as the new electricity that is critical to numerous aspects of operations management, including manufacturing, product development, services and supply chain. Ultimately, AI is seen as essential to a company's survival and success (Saroja et al., 2023). AI of-

fers many benefits, such as improved decision making and resource allocation, leading to more streamlined operations(Durach & Gutierrez, 2004; Gupta et al., 2022). On the negative side, AI should be evaluated based on its potential to stifle organizational creativity and the adaptability of human resources to change, which could have a negative impact on the sustainability of the business in the long term. However, AI is advancing inexorably, completely revolutionizing business and making the adoption of AI inevitable(Sena & Nocker, 2021).

The ever-increasing use of AI in business raises ethical questions, as morals and ethics are deeply human and can hardly be transferred to AI systems. To this end, various ethical aspects of AI have been explored, including transparency and accountability (Sison et al., 2023) and algorithmic bias(Manchidi, 2024). However, one of the most intriguing ethical considerations regarding the adoption of AI concerns human resources and the potential for the human factor to be replaced by AI in the future. AI is designed to replace routine and repetitive tasks, but it cannot yet replace the unique skills and abilities of human resources. Therefore, companies should use AI to ensure job security, emphasizing its ability to improve human capital by helping employees become more creative and productive in their daily work. In addition, insufficient training of employees on AI implementation can negatively affect the implementation process and reduce the potential for significant improvements in operations(Rana et al., 2022).

As more companies realize the benefits and potential of AI, many are looking for the best strategies to improve adaptability, optimize business processes and increase operational efficiency. With this in mind, an AI strategy has become essential. The key steps in developing an AI strategy are conducting preliminary research and assessments, setting clear goals, identifying potential partners, creating a plan, presenting the AI strategy, training and educating employees, and establishing ethical guidelines (Finio, 2023). Implementing AI can incur significant costs(Jadhav, 2023), but the numerous benefits certainly justify the implementation(Duggal, 2024). Although AI has a significant and positive impact on the global economy, there is still a lack of understanding of AI, particularly in relation to its impact on human resources and ethical issues.

METHODOLOGY

In order to contribute to our understanding of the role of AI in Croatian industry and the factors that determine its adoption, the main research question that this study addresses were formulated as follows: How the implementation of AI affects operational processes in different industries in the Republic of Croatia and what are the main challenges, and opportunities involved?

This study uses a qualitative approach to investigate how the implementation of AI affects operational processes in different industries in the Republic of Croatia. The qualitative study was exploratory and served to gain a deeper understanding of the role of AI in shaping operational efficiency in various industries(Saunders et al., 2007). To explore the current situation of AI implementation and its impact, eight participants from the hotel and catering, and telecommunication industries were interviewed in semi-structured in-depth interviews to compare their perspectives on AI integration and related challenges.

These two industries differ significantly. The former relies heavily on a human touch and a customized approach to ensure customer satisfaction in an increasingly competitive landscape (Solnet et al., 2019). In contrast, the latter relies on digital transformation and the integration of AI to increase efficiency and agility as high-tech industries operate in a highly competitive environment characterized by rapid changes that force companies to react quickly to new market conditions (Vasques, 2024). However, due to the increase in operational costs and the challenges of keeping up with growing market demands, the hospitality industry is currently undergoing a digital transformation and utilizing AI tools to address these issues and improve customer service and satisfaction (Peng et al., 2024).

Participants were selected using the snowball principle (Saunders, 2012) to ensure a wide diversity in terms of age, education level and professional background. They were contacted via publicly available email addresses and/or LinkedIn profiles. Five participants were from the telecommunications industry and three from the hospitality industry. Two participants from the telecoms industry held senior positions (Chief Marketing Officer and Regional Manager), while three were employees. The participants from the hospitality industry were one member of management and two reception managers. Five female and three male participants were included in the sample. All participants were informed about the anonymity of their participation and contributions and could choose between online interviews via the Zoom platform or on-site interviews in their respective organizations.

Each interview lasted approximately 40 minutes and focused on topics such as AI implementation, digital transformation, AI tools, the benefits and costs associated with AI implementation, expectations for the future of AI and labor market dynamics, and the catalysts and barriers to AI implementation. All interviews were transcribed, coded and analyzed using thematic analysis to identify recurring patterns in attitudes towards AI implementation and its impact.

FINDINGS AND DISCUSSION

The participants were asked about their familiarity with AI and the tools available and all were well informed and used to AI. They all use different AI tools in their daily lives, albeit in different ways and for different purposes. All agreed that AI simplifies their lives, both professionally and personally.

The participants from the hospitality industry agree that digital transformation and the integration of AI are still insufficiently represented in the Croatian hospitality industry compared to other industries. From the participants' point of view, the reason for this "lagging" behind is a lack of knowledge due to a lack of education. One hospitality industry board member emphasized that foreign-owned hotels and large hotels, especially chain hotels, are more open to the integration of AI, as he explained:

"...looking at the current state of AI integration in the industry, the results are very poor and unsatisfactory because people in Croatia are still very conservative regarding AI due to the lack of knowledge... big hotels that operate on the global scale are far better performing regarding this issue..."

Other participants also recognized the ownership factor as relevant for the implementation of AI, stating that private ownership and especially foreign-owned companies play a pioneering role in Croatia, as state-owned companies, companies

that are predominantly state-owned and companies owned by local governments play an important role in many industries. From the participants' perspective, competition is crucial for the implementation of AI, as competitive pressure drives companies to improve their services, streamline business processes and automate data through the introduction of AI. In the telecoms industry, executives agree that AI has been gaining a foothold for some time, which is also confirmed by the employee in the telecoms industry:

"...as soon as AI came along, we started using some of the AI tools, especially in customer support and related services. Virtual assistants are fundamental. Our chatbots simplify the handling of simpler problems..."

Since the participants from the telecommunications industry represent two large companies and the Croatian telecommunications market is a classic oligopoly, a growing number of users were recognized as a catalyst for the implementation of AI. They use AI for big data management and analyses, which contributes to operational efficiency:

"...the use of AI allows us to better monitor the performance of the network... it helps us to recognize problems more quickly and solve them more efficiently... Employees alone would need much more time to recognize these problems..."

In addition, both telecoms companies have dedicated significant resources to the implementation and development of AI. Their R&D departments are dedicated to innovating and introducing AI tools that meet the specific needs of their respective businesses. In the hospitality industry, respondents believe that AI tools are primarily used for customer service or for providing feedback in reviews:

"We use ChatGPT for certain questions from hotel guests and for managing guest feedback... we get tons of emails, and responding quickly is very important in our industry... AI tools help us to work better..."

AI tools are also proving to be very helpful in analyzing customer and employee satisfaction, which respondents believe are two cornerstones of a successful hospitality business. The CEO of the hospitality industry is concerned that many Croatian companies are not proactively responding to industry and global trends and have not developed digitalization strategies or even recognized the benefits of AI integration:

"Tourism is one of the main drivers of economic growth in Croatia... competition in the market is fierce... in order to keep up, AI needs to be implemented in daily operations... I believe that the reason for the insufficient use of AI tools in Croatian hotels is ignorance."

Although AI "is becoming more and more present in the hospitality industry", the reception manager recognizes that it must be approached with caution as it is not considered risk-free. He emphasizes the importance of "educating and training staff to equip them with the knowledge and skills they need to use AI tools effectively." There is a consensus in the hospitality industry that AI has brought the sector to a "tipping point", but there is no concern that people will lose their jobs due to an AI takeover. People will always be at the heart of the hospitality industry.

The benefits of AI implementation in the hospitality industry have been identified:

"...although there may be an initial cost to implementation, it can lead to time savings, increased efficiency, the ability to manage large amounts of data and ultimately a reduction in operating costs."

One of the biggest weaknesses in the implementation of AI in the hospitality industry is the misinterpretation of data, which can lead to inaccurate insights and decisions. In addition, AI-generated content often lacks authenticity and can be repetitive, detracting from the personalized experience guests expect. Another major challenge is guest interaction with AI-driven systems, such as chatbots, as many guests may feel uncomfortable communicating with a non-human interface. These factors underline the need for a more sophisticated and human-centered approach to integrating AI into hotel services.

In the telecommunications industry, participants are aware that AI is gaining a foothold in all sectors, but believe that the dynamics of the labor market will not change dramatically in the medium term. In the long term, the changes are inevitable, as one participant emphasized:

“In the past, we have seen many jobs swept away by one of the industrial revolutions....

However, technological progress, including AI development, is having a positive impact on operational efficiency and streamlining business processes, “making work easier for employees”.

Another interesting point was identified from the perspective of participants in the telecommunications industry. Cultural attitudes contribute a lot to the overall perception of AI and its future impact on the Croatian economy. As one participant said:

“In Japan it might be completely normal to have robots serving customers in bars and restaurants, but in Croatia it’s a science fiction scenario.”

In this sense, historical cultural influences, especially from the Mediterranean and Central Europe, that have shaped today’s cultural environment in Croatia, determine not only the way people prefer to be served their coffee, but also how they think about AI. Traditional cultures tend to be reluctant to embrace technological advances. Their resistance to change is a significant obstacle that needs to be overcome in order to fully realize the potential benefits of these advances for the economy and society as a whole.

CONCLUSION

This study analysed the implementation of AI and its impact on operational processes in the Croatian hospitality and telecommunications industries. The results show that there is a significant gap in the adoption of AI in these two sectors, with the telecoms industry leading the way in integration while the hospitality industry lags behind.

The research findings reveal several key factors that influence the adoption of AI.

Ownership structure is important for the adoption of AI. Privately owned and foreign-owned companies are more likely to adopt AI, especially in the hospitality industry. Another important factor is market dynamics, as market pressures force companies to improve their services and streamline their operations with the help of AI. Educational and cultural influences have been shown to be critical to the adoption of AI. A lack of understanding of the benefits of AI hinders adoption, especially in the hospitality industry. In addition, traditional cultural values can slow down the adoption of AI compared to more technologically advanced countries.

Key findings show that AI is increasingly being used to improve customer service, data analysis and operational efficiency. In general, AI is perceived positively as

a tool that improves daily work rather than replacing human jobs.

Challenges associated with the introduction of AI include the high implementation costs. However, the long-term benefits justify these initial outlays, as does the ongoing need for targeted employee training and development.

While both industries recognise the potential of AI to improve operational efficiency, customer service and data management, the telecoms sector has made greater strides in implementation. While the hospitality sector recognises that AI is a game changer, it is proceeding with caution due to the sector's reliance on human contact.

Finally, AI is seen as a tool that complements, rather than replaces, human labour. Both industries emphasise the need for continuous education and training of employees in order to use AI technologies effectively.

The main limitations of this study result from the small number of participants from only two industries. Future studies should therefore include more participants and other industries in Croatia to provide a more comprehensive perspective on the adoption of AI across the economy.

Longitudinal studies that would track changes in AI implementation and attitudes, especially in the hospitality industry, would be beneficial. Research on the role of cultural and educational factors could deepen our understanding of the mechanisms that influence AI adoption and its key outcomes.

Finally, studies that look at the economic impact, quantify the benefits of AI adoption in the Croatian economy and focus on productivity gains and cost savings are very welcome.

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DECONSTRUCTING FAIR VALUE: A POSTMODERN ANALYSIS OF ACCOUNTING AS A SOCIAL REALITY

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Abstract: *The human-centric structure that emerged after the Enlightenment placed deterministic and mathematical models at the forefront of scientific thought. As a result, the historical cost concept became the dominant valuation method in accounting, and it continues to be partially used in some countries today. However, since the 1980s, leading academic journals have increasingly discussed the cost-based valuation approach within the framework of Foucault's concept of the "dispositive" a mechanism of control within the surveillance society. In contrast, Baudrillard argues that in the contemporary information society, reality is no longer directly represented but instead transformed into a performance through codes and models. This perspective raises important questions about whether real-time exchange transactions in financial markets truly reflect economic reality, particularly in underdeveloped markets. This study critically examines the concept of fair value, introduced by IFRS 13, which prioritizes market values. Using Jacques Derrida's deconstruction approach, the study analyses how fair value is constructed as a financial and social reality. The findings emphasize that economic reality is shaped by language and social structures, making it a dynamic and periodically shifting phenomenon rather than an objective truth.*

Keywords: Postmodern Accounting; Discipline Power; Simulation; Fair Value.

JEL classification: M40, B59

INTRODUCTION

This study explores whether control and governmentality exist within the framework of *disciplinary power theory* and, if so, the mechanisms through which they operate. Scholars drawing on *Foucault's perspective* argue that traditional state mechanisms—particularly tax and fiscal policies—have shifted from centralized government control to production enterprises through *micro power dispositifs* (Akdeniz, 2012). Businesses, in turn, exert control over society not only through marketing and

public relations but also via consumerization policies that shape economic and social behaviour. However, as financial capital and market-based valuation systems gain dominance, traditional stakeholders increasingly lose influence.

In this *postmodern economic order*, representation has been dissolved, and fundamental concepts such as value no longer carry intrinsic meaning. Baudrillard (2013: 15-17)) argues that contemporary financial markets create a value simulacrum, where value is detached from any tangible reference and sustained by self-referential indicators. Unlike earlier periods, when commodities derived their worth from use value or exchange value, the simulation universe replaces economic reality with financial symbols that lack a definitive counterpart. The perpetual circulation of financial instruments—debt, credit, stock, and derivatives—contradicts the transience of life, introducing a paradox where economic constructs outlast their material foundations.

The postmodern paradigm traces its roots to *dialogism*, where consciousness is shaped through socially constructed indicators rather than objective reality (Ilum, 2015: 44-45). Unlike dialectics, meaning emerges from open-ended dialogues among multiple perspectives. Nevertheless, communication and knowledge remain essential for interpreting reality, requiring objective judgments (standards) to be contextualized within linguistic and epistemological frameworks.

Foucault (2012, 2015) conceptualizes disciplinary governance as a system of power dispositifs designed to structure social order through surveillance. Once concentrated in sovereign rule, power has now fragmented into dispersed practices that permeate every aspect of society. Accounting, typically regarded as a technical and neutral discipline, has evolved beyond its economic function to become a social, ideological, and governance tool, shaped by industrialization and capitalism ((Hopwood, 1987; Hoskin, 1986; Miller & Napier, 1993).

This study adopts a *historical and conceptual approach* to examine accounting as a *social reality*, analysing its evolution across different periods. Early accounting practices—such as clay tablets used in ancient city-states—contrasted sharply with Renaissance accounting, where aesthetic and religious symbols played a significant role. The Industrial Revolution marked a further shift, transforming markets from embedded social functions (Polanyi) into independent institutions. The genealogy of accounting as a *disciplinary power* can be traced through conceptual frameworks such as *Miller and Napier's (1993) genealogy of calculation*, *Hopwood's (1987) archaeology of accounting systems*, and *Miller's (1998) concept of accounting margins*.

Within this disciplinary framework, studies typically address accounting's role in the post-industrial era. However, Baudrillard (2013), in *Forget Foucault*, challenges this notion, arguing that governance structures no longer serve an empirical truth but rather a hyperreal discourse sustained by financial models. This hyperreality is particularly evident in modern accounting standards, where market-based valuation has become the primary metric.

In recent decades, International Financial Reporting Standard (IFRS) 13—alongside its Turkish equivalent, TFRS 13—has reinforced market value as a dominant valuation criterion. This shift prioritizes externally derived active market values, often independent of intrinsic or operational worth. Within the context of postmodern theories, fair value represents a detached signifier, lacking a direct equivalent in material use value. Consequently, accounting systems may no longer function as a

disciplinary mechanism (Foucault) but rather as a self-referential financial construct (Baudrillard).

The power dynamics between ruler and ruled do not fit into a strict binary. Instead, as Boje (Boje, 1995) argues, the pre-modern, modern, and postmodern periods are not entirely distinct but rather fragmented and competitive. Historical development should not be viewed as a linear progression but as a cyclical process with recurring patterns. In terms of value theory, pre-modern societies were dominated by use value, modern economies by exchange value, and postmodern markets by the relationship between the signifier and the signified. The postmodern era is characterized by self-referential financial indicators, such as leveraged transactions in derivative markets, which derive their value from their own internal systems rather than external economic fundamentals.

This study critically examines accounting's role in constructing financial reality through postmodern theories. The evolution of accounting—from its origins in Sumerian record-keeping to its financialized role in global capitalism—is analysed through the deconstruction approach of Jacques Derrida. Special emphasis is placed on IFRS 13, where fair value is contextualized as a linguistic and economic construct rather than an objective measure of worth. The following sections explore:

- *The historical transformation of accounting* and its conceptualization as a social reality.
- *The evolution of value* from anthropological origins to its role in the *political economy of signs*.
- *The methodological framework*, applying postmodern theories to *deconstruct IFRS 13*.
- A final discussion, concluding whether modern accounting remains a disciplinary tool or has become a simulacrum of financial reality.

LITERATURE REVIEW

Accounting as a Social Reality

In social sciences, theories are expected to describe and explain rather than predict. Unlike natural sciences, they face the question of whether institutions created by individuals act independently and whether researchers affect what they study. For instance, the exchange of goods often obscures the production processes behind them. As Polanyi notes, when the economy becomes disembedded from society, the concepts of production, exchange, and the use value begin to merge.

According to Searle (2005: 192), the world exists independently of language and of our representations—thoughts, beliefs, and perceptions. We relate to reality through symbolic systems like tables, maps, and graphs, whose validity depends on how well they correspond to the external world (correspondence theory of truth). Yet intentionality and context lead to conceptual relativity, which undermines epistemological objectivity. Social constructs such as money and bureaucracy arise from shared language and rules. As such, value can only be legitimized through social rules and standards, such as TFRS/IFRS.

As Foucault emphasized, institutions normalize behavior through repetition. While accountants are often viewed as objective observers, they actually help construct a specific version of social reality. Abandoning objectivity opens up a view of

accounting as interpretive, metaphorical, and communicative. Numbers gain meaning through usage and context, not neutrality. Thus, accounting is shaped by various metaphors, such as:

- Accounting as language
- Accounting as discipline
- Accounting as ideology
- Accounting as economy
- Accounting as history

Each metaphor frames how accounting constructs social meaning. With the rise of market-based valuation, especially the fair value, Barker and Schulte (2017: 56) note a shift in metaphor from “accounting as history” to “accounting as economy.” This marks a move from recording past transactions to projecting market-driven representations of economic reality.

Postmodern Condition

Although the metaphors shaping accounting theory, as discussed in the first section of this study, cannot be strictly categorized, they may be broadly divided into two groups. The first group views accounting as an impartial information system, designed to transmit historical data from an economic perspective. In contrast, the second group interprets accounting as a language that constructs reality—a disciplinary and control tool (*dispositif*) employed rhetorically to shape human relationships (i.e., politics), with the aim not of reflecting reality but of directing it and transferring ideological content. In this section, the discipline of accounting is examined through the lens of the second group of metaphors, which emphasize its constructive and regulatory functions.

Historical studies of primitive societies reveal that commercial relations among individuals predate written language. The earliest form of exchange—what Mauss (2005) calls the “gift economy”—operated without money or substitutes. In this system, reciprocity was governed by the spirit of the gift (*Hau*), wherein failure to return a gift with appropriate interest would disturb the recipient. This intertwining of the sacred and the worldly, expressed through ritual, illustrates the symbolic and moral dimensions of early economic systems. As Ökse (2018) notes, such practices, though symbolic and rooted in early societies, have persisted into modern times, evolving into traditions shaped by social transformation.

With the emergence of the first city-states and growing populations, the need for centralized administration and economic oversight increased. Archaeological evidence from Tell Brak, dating back to the Chalcolithic period (Photo 1), reveals the construction of an Eye Temple and numerous eye-shaped artifacts—interpreted as symbols of surveillance employed to legitimize authority. This era marked the beginning of social specialization, stratification, and ritual institutionalization, driven by the division of labor and centralized governance (Batihan, 2018: 25).

Photo 1. Eye Idols From the Late Chalcolithic Period

Source: (Batıhan, 2018: 22)

Based on Foucault's theory of surveillance and power, the literature frequently identifies accounting as a tool of control over employees. However, in contemporary systems, this overt disciplinary relationship has been replaced by the invisible hand of the market, which now functions as a surveillance mechanism akin to Hau—where market value takes on a sanctified and normative role.

Taburoğlu (2007: 34) argues that individuals subjected to this form of sanctification—through mechanisms such as market value—are secularized into compliant subjects who internalize their duties and responsibilities. In this sense, the collective body is transformed into a controlled mass, whose vitality and productivity are regulated. This dynamic aligns with Foucault's concept of biopolitics, in which management governs the biological and productive lives of individuals through systems of surveillance and normalization.

According to Foucault (2006b: 252), just as classical prophets once interpreted divine will, modern traders and market actors function similarly within the economy of signs and symbols. These actors assign value to commodities or stocks based on market demand, and their success often depends on privileged access to information. Foucault suggests that objects no longer possess intrinsic value, but rather acquire sign value as determined by systems of governance and control.

Value, then, is no longer inherent or “pure,” but contingent on human-centered metrics such as utility, pleasure, or scarcity. While Foucault does not endorse the idea of a truly “fair value” that can objectively quantify worth, he nevertheless acknowledges the central importance of value and money in structuring modern economic systems.

Accounting as Dispositif

Accounting systems often shift attention from human behavior to economic outcomes. In Foucault's framework, disciplinary mechanisms operate within discourse, meaning the disciplinary effect of accounting does not rely on physical enforcement. His concept of genealogy, unlike traditional history, explores how discourse and practice are shaped by mutually reinforcing power and knowledge.

Viewed as a panopticon, accounting functions by recording, monitoring, and evaluating employee behavior, aligning it with institutional norms (Armstrong, 1994: 30).

Miller and O’Leary (1987: 239) use Foucault’s genealogy to show how control evolved: early 19th-century supervision gave way to 20th-century discipline through standards and calculation norms. Techniques like standard costing and budgeting enabled predictive models and performance evaluation based on past profits, reinforcing economic rationality. This marked the rise of scientific management and, with Taylorism, performance-based incentives and penalties shaped employee behavior. Managers, too, were governed through profit plans and budget targets. As ownership and control separated, investors used financial reports to monitor managers—defining the modern period of accounting.

The adoption of market-based standards raises the question of whether we are now in a postmodern accounting era. Standards create norms and expose deviations for correction. Hopwood (1987: 208) critiques the tendency to treat accounting changes as mere technical improvements, rather than discursive transformations shaped by assumptions of economic rationality and functionalist thought.

Earlier, accounting was seen as responsive to organizational needs. More recently, it is viewed as an active force within social struggles—producing visibility and control, not merely processing data. For instance, while early industrial accounting had little managerial use, financial crises led to a focus on cost accounting and internal efficiency.

In summary, Foucault sees the market as a governance tool replacing law, with homo economicus as its ideal subject. In contrast, Baudrillard argues that in the postmodern condition, the hyperreal replaces the real, and the fair value becomes a simulation—divorced from intrinsic worth. In this simulated environment, control becomes more elusive, shaped by speculation and signs rather than substance.

Accounting as Simulacra

Baudrillard (2016a: 13) defines the simulation, or the hyperreality, as a reality created by models that lack any original reference. Unlike falsification, which hides what exists, the simulation treats what does not exist as if it does. It is more than pretending—it is the full substitution of reality. For instance, Baudrillard (2016a: 16) compares simulation to showing symptoms of a disease that one does not have.

Modern financial markets, especially electronic ones, are prime examples. Transactions involving currencies, loans, or securities reproduce themselves endlessly, driven by speculation rather than actual economic needs. In this simulated world, Baudrillard’s theory helps explain how control functions without tangible anchors.

In *Forgetting Foucault*, Baudrillard (2013) argues that power has not evolved—it has vanished into the simulation, leaving only signs of its past existence. He critiques Foucault for describing a structure that has become mythic, rather than empirical. In contrast, primitive societies, through gift economies or totemic rituals, operated on symbolic and reversible power relations (Baudrillard, 2014). Today, this symbolic exchange is replaced by abstract systems like GDP, which present value through sanitized and transparent data (Baudrillard, 2013: 30).

Power, now hyperreal, operates by concealing itself—hidden behind virtue or morality (Baudrillard, 2013: 53). While Foucault (Foucault, 2015: 106) sees competi-

tion as a modern replacement for law, Baudrillard sees power surviving only through belief in signs ((Baudrillard, 2013: 74).

According to Baudrillard (2016b: 58), capital has eliminated the use value, replacing it with abstract sign systems. Finance capital, detached from production, represents the purest form of this abstraction. Hilferding (1995: 65) observed that money once grounded in the use value of gold had already become symbolic. Today, value survives through consensus, not through material backing. Baudrillard (2012: 9) takes this further—arguing that the world has no equivalent and thus cannot be measured, verified, or truly exchanged.

This detachment causes economic models to deviate from reality, pushing them into radical uncertainty, where the sign value circulates independently of any referent. In this system, debt and credit—no longer grounded in physical reality—are kept alive through endless symbolic exchange.

Thus, accounting's transformation cannot be fully explained through linear or rational progress. As Hoskin and Macve (1986: 112) show, power operates in systems like exams and accounting records. Notably, while large banks in 19th-century Europe still used single-entry systems, local actors had adopted double-entry, challenging economic rationalism as a sole explanation.

Macintosh et al. (2000) argue that modern accounting indicators no longer reflect real physical or social processes. Since ancient Sumer, accounting had mirrored real events. But in today's world of codes, models, and simulations, it now constructs rather than reflects.

They outline four stages in accounting history:

Feudalism: Records tracked goods and obligations, serving social hierarchy.

Imitation: With the Enlightenment, double-entry systems emerged.

Production: Capital and income became measurable with long-term firms.

Simulation: Rights and obligations become tradable—even before they exist ((Macintosh et al., 2000: 19-28).

Political Economy of Sign Value

Abstract labor creates commodities for abstract needs, producing the exchange value, conceptually represented by money. Contracts institutionalize this process, turning mutual recognition into formalized agreements. As individuals break free from nature through labor, they simultaneously engage in this structured social acceptance (Habermas, 2013: 27). Although political economy focuses on labor and the shaping of nature, the treatment of value as a sign predates this framework.

In early civilizations, clay tokens used for accounting marked both quantity and significance of goods. Once grouped on tablets, they indicated assets individually and capital collectively. Though primitive, this system introduced subjective interpretation and uncertainty, laying the foundation for today's valuation dilemmas (Mattessich, 1987: 79).

In classical thought, value was defined through exchange. Goods had to be desirable, own inherent worth, and be tradable. Over time, the value created during exchange eclipsed any preexisting value. Consumption, not production, became central to value creation. As Foucault (2006b: 275) notes, the exchange renders the useless useful—and vice versa.

In Nietzschean philosophy, individuals are not passive economic agents but creators of value. The value, therefore, stems from interpretive hierarchies—not from supply and demand. It is the philosopher, not the market, who defines what value is.

Lazzarato (2015: 71) builds on this, challenging Polanyi's notion that economy and society have split. He argues that economic structures now control society directly via financial markets and state mechanisms, where value is not discovered but designed as part of a system of control.

According to Baudrillard (2009: 147), there are four different value logics, which he calls the ideological formation process of needs, in the context of stages as in the table below:

Table 1. Theorization of the Value Logic Comparatively

	Value in Use	Exchange Value	Sign/Exchange Value	Symbolic Exchange
Value in Use		Productive consumption phase (1)	Unproductive consumption-differentiation phase (2)	Waste phase (3)
Exchange Value	The consumption phase, which is brought into exchange value and use value (4)		The vanity value/economy phase (5)	The stage of overcoming stages (2) and (5) is (6)
Sign/Exchange Value	The stage where the Sign Value gains Value in Use (7)	The cultural dominance phase established with phase (5) (8)		The phase of imposing the Symbolic value by changing the Sign value (9)
Symbolic Exchange	The opposite of phase (3)	The opposite of phase (6)	The opposite of phase (9)	

Source: (Taburoğlu, 2007).

The use value is typically considered a feature of a good, but it does not define the essence of that good and varies with subjective perceptions. For instance, beyond its practical utility—such as warmth or protection—a coat's material and design shape the use value through individual preferences. Thus, the use value fluctuates based on time, context, and personal taste. As Bremond and Geledan (1981: 96) argue, it represents a subjective estimation of the satisfaction a product provides.

Hançerlioğlu (1999: 53) classifies value into objective and subjective categories. Following Aristotle, he states that the exchange value is objective while the use value is subjective, and only goods with both can be truly valuable. This duality implies that value cannot exist apart from usefulness. Table 1 illustrates this relationship.

Over time, theories of value evolved. The Physiocrats emphasized land as the source of value. Later, Cantillon and Locke introduced labor, and Adam Smith added capital goods. Smith distinguished between the natural value (based on production cost) and the market value (shaped by supply and demand).

To explain value's complexity, (Baudrillard, 2009: 60) proposes four interrelated logics:

- The functional logic (the use value),
- The economic logic (the exchange value),
- The symbolic logic (reciprocity),
- The sign logic (difference/status).

These correspond to utility, market, gift, and prestige logics. In today's consumer society, the sign logic prevails; goods serve as status symbols rather than tools. As Baudrillard (2016a: 18) notes, simulation replaces reality with signs that no longer reflect value but become value.

The simulation discards equivalence and creates systems where signs reference only other signs. Discounted cash flow models, where values reflect expectations, illustrate this mechanism. Baudrillard outlines four phases of imagery:

- Reflecting reality,
- Masking it,
- Hiding its absence,
- Existing solely as simulation.

McGoun (1997: 107) applies these stages to money: initially a symbol of wealth, then a medium for exchange, then a manipulated value, and finally a sign divorced from reference. In the simulation phase, prices exist independently of any real asset.

Thus, the sign value lacks a physical referent. The signifier and the signified collapse, and market-driven norms—like fashion—regulate behavior. These norms function as codes rather than reflections of intrinsic worth.

The “pure gift,” as described in gift economies, carries symbolic rather than transactional value. In modern society, this symbolic exchange includes networks of firms, rating agencies, auditors, and governments—illustrating the logic of actor-network theory.

Because concepts like the sign value, the symbolic value, and the symbolic exchange are used interchangeably, confusion often arises. Financial instruments may act as symbolic stand-ins for other assets, while also reflecting cultural meanings such as prestige. As Baudrillard emphasizes, the exchange value may emerge not only from the use value but also from the signification (McGoun, 1997: 103).



Figure 1. Hyperreality in Accounting of Financial Instruments

Source: (Macintosh et al., 2000: 13-50)

Figure 1 illustrates how accounting income, already an indicator, is influenced by the prices of financial products—also indicators—which in turn are affected by the accounting figures themselves. This recursive relationship exemplifies the hyperreality theorized by Baudrillard, now reflected in accounting and finance. Indicators no longer represent reality; instead, they feed into each other and gain the status of independent subjects.

Market participants use historical accounting data—such as the accounting income—to value assets via pricing models. These values then inform the pricing of derivative instruments under arbitrage-free assumptions. Finally, as previously discussed, these asset prices are recorded back into accounting through the fair value method, influencing future income. This cycle forms a closed simulation loop, where signs generate new signs, detached from original referents.

A key feature of this loop, from the simulation theory perspective, is the collapse of temporal boundaries—especially through discounted cash flow models that reduce future expectations into present values. Time itself becomes compressed, reinforcing the hyperreal.

In his work on primitive societies, Mauss (2005: 205) begins his discussion on gift exchange with a poem from medieval Iceland, which captures the tension between generosity and equivalence. Though gifts seem voluntary, they carry social obligations rooted in prestige and symbolic meaning. These exchanges reflect a pre-market regime based on relational value rather than measurable equivalence.

Baudrillard (2016b: 36) emphasizes that symbolic social relations generate a surplus that resists capitalist logic. The gift, performed in public and within a communal framework, fosters both competition and cohesion. What matters is not the use value or the exchange value of the object, but the sign value it carries in social context.

Derrida (1994) adds that the temporal delay in gift-giving acts as a safeguard, reflecting how symbolic exchange challenges the calculability of market logic. For Derrida, expressing a price or asserting equivalence destroys the symbolic act. Therefore, symbolic exchange is non-computable and resists commodification.

Yet, in modern economic systems, the price functions as both a symbol of agreement and a tool for planning—central to the accounting process. While this provides structure and control, it erases things that cannot be priced—the symbolic, the intangible. What remains is a consensual silence about the nature of exchange.

This erasure forces economists and theorists to question not just the value itself, but the foundations of shared meaning in economics—what is often referred to as common knowledge.

METHODOLOGY

Paradigm of the Study

In defining the field and scope of this study, it is noted that mainstream literature in accounting largely follows a positivist-empirical approach rooted in the natural sciences. While this model has been widely applied, its suitability for social sciences—and especially human sciences—is debated. Human sciences tend to rely on critical and interpretive methods, emphasizing meaning-making over empirical regularity. This tension is evident in accounting, where definitions often invoke concepts from arithmetic, philosophy (Avery, 1953), art, communication, history, and culture

(Sterling, 1975). As such, academic journals have increasingly incorporated alternative paradigms, such as interpretive and critical approaches, alongside the traditional positivist-functionalist paradigm.

Searle (2005) argues that the hidden structures of social reality—our unexamined perceptions of the world—cannot be fully understood through purely subjective or objective lenses. Positivist paradigms, particularly those aligned with functionalist or behaviourist thinking, aim to identify universal laws via inductive reasoning. In contrast, post-positivist approaches maintain that reality, knowledge, and truth are socially constructed. Meaning, in this view, emerges through active human interpretation (Yıldırım & Şimşek, 2013: 30). This also applies to International Financial Reporting Standards, where the meanings within texts are socially negotiated.

Accordingly, this study adopts a hermeneutic (interpretive) approach. This paradigm overlaps with aspects of critical theory, normative inquiry, and dialogism. Neuman (2007) defines hermeneutics as the process by which the subject uncovers deep meaning in texts—whether composed of conversations, written words, or images—by examining both the whole and its parts. Unlike positivism, which seeks numerical precision, hermeneutics explores how individuals construct social worlds and interact within them. In accounting, where textual communication among stakeholders is central, such an approach is particularly appropriate.

The interpretive paradigm encompasses various strands: hermeneutics, constructivism, ethnomethodology, cognitive theory, idealism, phenomenology, subjectivism, and qualitative sociology. For instance, Sart (2015) draws from Husserl to argue that reality consists of objects and events as perceived by individuals. This emphasis on experience and understanding contrasts with the objectivity of positivist knowledge.

Importantly, the emergence of interpretive approaches in social sciences does not imply a complete break from positivism or realism. The assumption that realists are necessarily positivists and constructivists are relativists stems from misconceptions about epistemology. Sargut (2007: 16), referencing Burrell and Morgan (1979: 3), emphasizes that such paradigmatic shifts should be seen as part of an evolutionary process, rather than a strict functionalist opposition.



Figure 2. A scheme for analysing assumptions about the nature of social science

Source: (Burrell & Morgan, 1979)

In contrast to the functional positivist approach to social sciences, it is seen that the interpretive approach is dominant in German idealism, which approaches subjectively and in summary exhibits nominalist, voluntarist, symbolist and anti-positivist features. Based on Figure 2, the fact that this study deals with businesses or accounting standards as a social reality, and therefore these phenomena are not independent of thought, causes the subject to be characterized as nominalist from an ontological perspective. In terms of epistemology, the study is anti-positivist in that it looks at the subject from an anti-objective relativist perspective. However, in this epistemological approach, it is not possible to clearly separate the boundaries from each other as in postmodern techniques. Another feature of the subjective approach, volitionism, opposes the relativity of human will to the determinability (knowability) of the future. Methodologically, in the subjective approach, instead of standard measurements and laws as in natural sciences, the subject should be addressed qualitatively closely, from a contextual, cultural and historical perspective (Sargut, 2007: 17-18).

Therefore, it is possible for researchers who adopt different approaches to benefit from other paradigms and methods. When this situation is considered in the form of methods and methodologies, especially in the postmodern context, it is seen that different approaches are intertwined. Although the fact that the boundaries cannot be drawn clearly causes the formation of hybrid research titles, it is possible to show the main theme between them as language theories that are an alternative to the rationalism of the enlightenment, which started with Saussure in the 20th century and reached its peak with Derrida (Somekh and Lewin, 2006: 283). In fact, this situation also reveals an understanding that supports Feyerabend's (1999) "Against the Method" thesis. The concept of dialogism addresses meaning not through the monology in the world of objects, but through mutual dialogues. Therefore, especially in the context of the texts considered, truths cannot be characterized independently (impartially) from the person; on the contrary, meaning is created by constant repetition in the communication sent by the parties through codes. With this feature, dialogue is an open-ended process that requires at least two people and is different from dialectics, which can exist on a single consciousness or object plane (without needing a specific consciousness). Written sources (secondary discourse types), which are a more advanced dimension of verbal communication, undergo a certain structure due to the subjective evaluation of their author. Therefore, these structures should be evaluated with the criteria and conceptual tools of the people who created that dialogue, whether in the past or today (Ilim, 2015: 6-44).

In postmodern discourse, unlike modernism, systems have their own lives independent of human control. Therefore, systems that only express themselves can only be understood by analyzing their self-referential working situations. For postmodern thinkers, the system has no meaning or purpose. Because this idea is essentially based on the assumption that man is at the center of the world and controls it. For this reason, postmodernism takes man from the center where he elevates himself with narcissistic rationality and brings to the fore his side of the society that observes and establishes the interpretation of the world. However, unlike modernism, these interpretations do not contain certainty and universality (Cooper & Burrell, 1988: 94).

Strategic Approach of the Study and Deconstruction

Derrida (2014: 100), influenced by Saussure, states that language is a tool of social acceptance in constructing social reality and must be evaluated within its social context. He introduces the concept of “différance”, highlighting the non-essential and shifting relationship between the signifier and the signified. As Akdeniz (2012:37) puts it, this reflects the lack of direct contact between the sign and reality—a gap Derrida describes as the space between the two sides of a page (Derrida, 2014: 21).

The core of postmodernism lies in the notion of difference and the indecision it generates in discourse. This concept underpins Nietzsche’s genealogy and later Foucault’s development of that method. Derrida further argues that meaning is not inherent but constructed, thus necessitating deconstruction. The goal is to reveal how rationality conceals the contradictions within human existence (Cooper & Burrell, 1988: 100). Drawing on Nietzsche, Derrida asserts that writing is not subservient to speech or reality, and must be deconstructed due to its historicity (Derrida, 2014: 32).

Within this framework, there are no absolute truths or solutions—only interpretations of interpretations. Unlike hermeneutics, which seeks to uncover hidden meaning, deconstruction aims to expose hierarchies between conflicting truths or binaries (Yanık, 2016: 92). Rather than resolving crises, postmodernism opens space for disagreement and marginalized voices.

Deconstruction differs from analyzing network contradictions in psychology or sociology; it focuses on how internal tensions and emotional ambiguities are encoded within texts. It challenges logocentrism, the assumption of unity between speaker and word, by identifying censored focal points within texts that falsely create stability. Deconstruction dismantles binary structures—such as good/evil, male/female, or rational/irrational—and restructures the text. This is seen in how many words contain opposing meanings within their etymological roots (Cooper, 1989: 483).

In Plato’s Pharmacy, Derrida (2016) uses the term “pharmakon”, which means both poison and remedy, to explore the ambiguity of writing. Unlike speech, writing lacks a “father” to defend it and becomes a repetitive narrative rather than a truth-bearing act (Derrida, 2016: 38). It is built on binary oppositions, eliminating the authority of the original subject and opening the text to multiple interpretations. Kırmacı (2019: 7-8) emphasizes that Derrida critiques teleology, where the speaker claims authorship and authority over meaning. However, writing, once created, escapes control and becomes a fixed structure that guides societies.

Derrida suggests that this applies to texts like standards, which must also be deconstructed. The binary of subjectivity and objectivity embedded in rationalism—such as market logic vs. intuition—must be leveled, just as pharmakon is both cure and poison. Unless standards are approached this way, as Derrida (Derrida, 2016: 87) notes in reference to the myth of Theuth, only the simulacrum of reality is conveyed—not reality itself. Those who rely solely on written texts may believe themselves knowledgeable, yet remain untrained in understanding.

In this light, the TFRS 13 Fair Value Standard is examined in the next section through Derrida’s lens of deconstruction as a mode of constructing social reality. Following Dunbar and Laing (2017: 15), the analysis proceeds in three stages:

Identifying the core components of the standard.

- Revealing the hierarchical contrasts and embedded theoretical tensions.

- Reversing and re-evaluating the structure, especially the fair value hierarchy, to expose its ideological underpinnings.

IFRS-13 Deconstruction

An examination of the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) definitions reveals that the history of fair value is relatively recent. Initially defined by the Accounting Principles Board (APB) in the USA in 1973, fair value emphasized current market value, or exit price (Bromwich, 2011: 51). Over time, definitions have evolved to include terms such as price, exchange, and the presence of informed and willing market participants. Consequently, the concept of market value has gained prominence in the definition of fair value.

According to the relevant standard, fair value is defined as: “The price that would be obtained from the sale of an asset or paid to transfer a liability in an ordinary transaction between market participants on the measurement date.”

As outlined in the definition, IFRS No. 13 aligns the valuation of assets or liabilities—whether individually or in groups—with prices set by market participants. If markets for the relevant liabilities or asset groups are absent, the “most advantageous” market assumption applies. If market prices cannot be determined, the valuation is conducted based on subjective criteria from the parties’ perspectives.

Therefore, IFRS 13 emphasizes a rational market perspective, but in the absence of this, the market participant’s perspective takes precedence. This economic actor, defined in the subsequent section, is portrayed as one who seeks to maximize benefit. Consequently, the purpose and value of assets and liabilities are left to market participants’ criteria, with the claim that these assets are used “at the best and highest level.” This approach contrasts sharply with gift economies in primitive societies, where social functions take precedence over pure economic rationalism, as detailed earlier.

Regarding financial reporting, IFRS 13 defines fair value as the estimated price of a transaction between market participants under market conditions, regardless of whether the items are traded on a specific market. While assets, liabilities, and equity are evaluated based on external, market-based criteria, subjective participant criteria should be used due to market risk. However, the intention of companies to hold or dispose of assets should not factor into the measurement. The standard prioritizes observable market data, assuming these as objective valuation criteria. Moreover, experts may vary in their assessment of asset and liability characteristics (Article 12), and the standard evaluates the main market based on the company’s perspective (Article 19).

Bougen and Young (2012) demonstrate how fair value, influenced by political forces, departs from internal and external value systems in US Financial Reporting Standards (SFAS), transforming the concept into a simulacrum, particularly through derivatives. The fair value hierarchy in SFAS is also found in IAS and TAS, as convergence studies progressed. The third-level valuation methods used for derivatives—whose market volume or observable value is insufficient—are based on internal company criteria, obscuring the financial crisis of 2008 in accounting records.

Particularly, non-financial assets—without an active market—are addressed separately in IFRS 13 (Articles 31-33). These articles state that non-financial assets are evaluated based on their “best and highest use,” irrespective of a company’s usage in-

tentions. This explanation aligns with Article 22, emphasizing that market participants aim to maximize benefits. The fair value hierarchy prioritizes input characteristics over valuation methods, with data derived from the present value method falling under Levels 2 and 3.

This structure shows how institutions like IASB and FASB strengthen their authority over peripheral countries and lower-level actors in the sector's network. Unlike central countries, peripheral nations serve as starting points for developing market-based standards. As noted, Anglo-Saxon practitioners claim that their profession cannot be learned from books or standard texts; rather, it must be experienced and internalized (Mennicken, 2008: 402).

This definition of power is more aligned with Searle's theory of social reality construction than Foucault's concept of authority. Collective intentionality, status functionality (such as debt and receivables), and social acceptance are essential for institutional reality's establishment. Here, the rights and responsibilities in money, promissory note, and security relations are defined as external power relations. These ontologically subjective realities accept market data as objective in an epistemological sense. The third-level fair value determination contradicts this rule: with no market participation and no observable prices, institutional reality cannot be formed. Practically, this leads practitioners to transfer valuation issues to other channels (Barker & Schulte, 2017: 61).

CONCLUSION

This study explores the structures that Baudrillard conceptualizes—drawing on Mauss's anthropological insights on primitive societies—as defining characteristics of today's post-production or consumer society, within the framework of simulation theory and postmodernism. Although each period leaves unique traces, it is impossible to draw strict boundaries between them. For example, postmodern societies may still reflect aspects of primitive exchange (such as ritual consumption), while also retaining characteristics of the disciplinary society theorized by Foucault during industrialization.

In the current era of financialization, where codes and models dominate, the prioritization of the fair value standard in accounting signals a grand narrative shaped by the market value. In the post-Fordist and post-industrial condition, consumption assumes the role once held by production, and the structural dominance of the sign value within the exchange value increasingly supersedes the use value.

As Baker (1996: 24) notes, the aim is no longer to produce meta-narratives about the laws of value. This reflects Derrida's approach, which refrains from offering alternative paradigms and instead deconstructs the internal contradictions of the text. Consistent with Lacan's notion that truth may be spoken but reality is never fully representable, this study considers the position of fair value as an epistemological construction within accounting.

In peripheral economies such as Turkey, the implementation of TFRS—adapted from IFRS—raises unique challenges. These standards, enforced by the Public Oversight Authority, emphasize the fair value as determined by the market, even in cases where market participation, volume, or diversity is low. Particularly problematic is the application of the fair value to non-financial instruments, where observable market data is scarce and subjective valuation becomes highly variable.

Though intended to inform investors using market-based data, these standards begin to reflect a system that creates its own reality rather than indicating it. The legitimacy of the fair value, especially questioned during financial crises, raises concerns about its role as a surveillance mechanism in line with Foucault's theories of micro power.

When TFRS 13 is deconstructed, it becomes evident that the assumption of objective superiority for observable data and the presumption of an always-active, efficient market result in constructing the market itself as a social reality. In this logic, production- and operation-focused enterprises are increasingly replaced by speculative, finance-driven entities, once again incorporating the symbolic into the system of objects.

However, this ontological reduction of value to a single market variable leads to epistemological complications at multiple levels:

- the incomparability of unique assets,
- the complexity of valuation models,
- the scarcity of reliable market data, and
- the divergence in legislative expectations.

While these challenges often reassign valuation authority to experts, this does not necessarily equate to objective valuation as envisioned in the standards.

The study further examines whether the signifier maintains a relationship with the signified, particularly regarding the use value of financial instruments or derivatives. A complete break from reality (a pure simulation) is not claimed; nor is there an absolute panoptic surveillance system. As with Sumerian clay tablet records, many accounting indicators still retain links to real objects. This liminal state between the seer and the seen, or the signifier and the signified, aligns closely with postmodern sensibilities.

The study's deliberate avoidance of empirical data collection and statistical methods, common in mainstream accounting, is a methodological choice, not a rejection of empirical insight.

Ultimately, in discussing right, wrong, and reality through the lens of value, the argument is made that the market value has been institutionalized as an objective measure through socially constructed frameworks. For this reason, the discourse surrounding value and reality should be approached through linguistic, semiotic, anthropological, and sociological methodologies.

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OKVIR ZA PRIMJENU ESG-A U IZVJEŠTAVANJU BANAKA

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Sažetak: ESG odnosno Environmental, Social and Governance kriteriji predstavljaju sve veći imperativ u poslovanju poduzeća općenito, a napose bankama kao financijskim institucijama zbog sve većeg utjecaja klimatskih promjena na poslovanje u svim sferama gospodarstva. Stoga se javlja potreba za razvojem regulatornog okvira kao osnove za održivost financijskog sektora. Tim se kriterijima banke podupire na primjenu ekološke, društvene i upravljačke prakse s ciljem ublažavanja rizika, ali i povećanja njihove reputacije na tržištu. Generalno govoreći financijske institucije imaju važnu ulogu u ostvarivanju ciljeva održivog razvoja, refleksija čega su neprekidne inovacije u poslovanju, prilagođavanje novim uvjetima i razvoj zelenih usluga. Neke banke koje posluju na teritoriju Republike Hrvatske već su postavile ESG ciljeve te i nastoje implementirati u svoje poslovanje. Budući je tema aktualna i prvi izvještaji se tek očekuju, dan je sustavan pregled najrecentnije literature na temu održivog izvještavanja u bankama. Što se tiče Republike Hrvatske postoji prostor za unapređenje implementacije ESG kriterija, a samo izvještavanje tek će uslijediti za prethodno razdoblje.

Ključne riječi: ESG, nefinancijsko izvještavanje, izvještavanje o održivosti, banke

JEL classification: G21, M14, Q01

UVOD

Protetklih godina kreatori europskih politika pojačali su svoje napore u stvaranju regulatornog okvira za poboljšanje održivosti financijskog sustava. Zakonodavni okvir se stoga obogaćuje kreatorima politika i regulatorima koji pažljivo slijede cilj održivijeg ekonomskog sustava u kojem financijske institucije mogu djelovati kao katalizatori (Bruno & Lagasio, 2021). Sukladno tome bankovni sektor suočava se sa sve većim nadzorom dionika u pogledu svojih utjecaja na okoliš i društvo s obzirom na njegovu ključnu ulogu u poticanju gospodarskog rasta. U tom smislu banke se potiču na usvajanje ekološke, društvene i upravljačke prakse kako bi ublažile rizike i zaštitile

svoj ugled. Stoga upravo ESG (engl. Environmental, Social and Governance) posljednjih godina privlači sve veću pozornost budući je održivi gospodarski razvoj postao važan čimbenik raznih, pa i bankovnih (financijskih) institucija. Prema ESG-u kriteriji zaštite okoliša odnose se na brigu poduzeća o okolišu kroz ublažavanje klimatskih promjena i prilagodbu istima, te prevenciju onečišćenja i zdrav ekosustav; društveni ili socijalni kriteriji ispituju načine na koje poduzeća upravljaju ljudskim resursima, osiguravanjem jednakih mogućnosti za sve, ali i na koji se način odnose prema lokalnoj zajednici dok se kriteriji upravljanja odnose na upravljačku strukturu poduzeća, etičku kulturu, poslovne odnose i upravljanje rizicima.

Europska unija je usvajanjem Direktive o nefinancijskom izvještavanju (2014/95/EU, 2014) uvidjela potrebu implementacije visoke i usporedive razmjene informacija kako bi se razumio razvoj, rezultat poslovanja, ali i utjecaj poslovanja poduzeća na okoliš, društvo, ljudska prava i druga pitanja. Stoga je donošenje jedinstvenog akta kojim se uređuje nefinancijsko izvještavanje na razini čitave Europske unije bio logičan slijed. Navedeno je potrebno kako bi se osigurale usporedive informacije nefinancijskog karaktera onih poduzeća koja posluju u jednoj ili više članica Europske unije. A kako bi se odredbe prethodno spomenute Direktive injektirale u nacionalno zakonodavstvo donesen je Zakon o izmjenama i dopunama Zakona o računovodstvu (NN 120/16) s primjenom od 2017. godine, pri čemu su prvi obveznici trebali objaviti nefinancijska izvješća za poslovnu godinu koja je započela na dan 1. siječnja 2017. godine ili kasnije. Napokon, CSRD Direktiva odnosno Direktiva o korporativnom izvještavanju o održivosti stupila je na snagu 1. siječnja 2024. godine i zamijenila direktivu iz 2014. godine, čime se Republika Hrvatska obvezala preuzeti je u nacionalno zakonodavstvo do srpnja 2024. godine. Novom Direktivom zahtijevaju se opsežnija i stroža pravila pri nefinancijskom izvještavanju odnosno sada nefinancijsko izvještavanje postaje izvještavanje o održivosti. Direktna posljedica toga su izmjene Zakona o računovodstvu (NN 85/24), te izmjena Zakona o reviziji (NN 85/24) i Zakona o tržištu kapitala (NN 85/24) pri čemu prvi donosi povećanje broja obveznika koji izvještavaju o održivosti i on sada iznosi oko 500 poduzeća (ranije je time bilo obuhvaćeno njih sedamdesetak), a proširuje se i sadržaj izvještaja, te su informacije za objavu preciznije određene. Sam izvještaj je digitaliziran, a prvi izvještaji sastavljat će se za poslovnu godinu koja je započela 1. siječnja 2024. ili na kasniji datum, odnosno obveznici nefinancijskog izvještavanja posljednje su nefinancijske izvještaje objavili 2024. godine za poslovnu godinu 2023. Novo izvještavanje o održivosti trebalo bi predstavljati temelje za bolju komunikaciju sa svim dionicima, što uključuje i financijski sektor koji ima ključnu ulogu u postupku tranzicije ka održivom gospodarstvu usmjeravajući prikupljeni kapital u održive ekonomske aktivnosti.

PREGLED LITERATURE

(Sharma, Vasishta, & Singla, 2025) istraživali su utjecaj svijesti o zelenom bankarstvu na usvajanje zelene financijske tehnologije što dodatno utječe na ESG ulaganje, percipiranu profitabilnost i održivo bankarstvo, te su utvrdili kako je usvajanje zelene tehnologije pozitivno povezano s povećanim ESG ulaganjem. U Poljskoj, primjerice, komercijalne banke već nekoliko godina izvještavaju o aktivnostima povezanim s utjecajem na okoliš, društvo i korporativno upravljanje. (Matuszak-Flejsman, Lukaszewski, & Banach, 2024) u svom radu daju prikaz pripreme poljskih banaka za

nova pravila izvještavanja, te su proveli istraživanje u četiri skupine poslovnih banaka pri čemu su uočili određene propuste u pripremi ovih banaka za nefinancijsko izvještavanje, pri čemu ističu usporedivost tih izvještaja kao jedan od ključnih izazova.

Istraživanje koje je proveo (Zournatzidou, 2024) opovrglo je njegovu ideju da bi izvršni direktori u upravnom odboru mogli značajno poboljšati ESG učinak financijskih institucija, te predlaže da se usvajanjem stroge politike neovisnosti odbora mogu ublažiti ekološke, društvene i upravljačke posljedice koje proizlaze iz kontrole internih rukovoditelja. (Sun, Mirza, Umar, & Ktaich, 2024) proveli su studiju o učincima ESG-a na bankovne rezultate tijekom povećanja kamatnih stopa, pri čemu su analizirali uzorak banaka iz dvadeset i sedam zemalja Europske unije, te zaključili da su ESG čimbenici i dalje ključni za uspješnost bankarstva budući da banke s manje ESG kontroverzi i višim ESG rezultatima pokazuju bolje performanse prilagođene riziku, odnosno banke s jačim ESG profilima imaju manje kreditnih infekcija i posljedično održavaju bolju kvalitetu imovine. (Gaia Soana, 2024) ističe da su ESG strategija, ESG odbor i menadžersko preuzimanje rizika značajni kanali putem kojih ESG poticaji utječu na ESG učinak i ESG kontroverze u bankarskom sektoru.

U Turskoj (Yavuz, i dr., 2024) ističu da strano vlasništvo i prisutnost stranih članova uprave pozitivno koreliraju s višim ESG objavama, dok je koncentracija vlasništva u negativnoj korelaciji s ESG učinkom, što upućuje na oprez pri usporedbi poduzeća u različitim sektorima isključivo na temelju ESG-a budući da čimbenici upravljanja različito utječu na ishode u financijskom i nefinancijskom kontekstu. Stoga naglašavaju ključnu ulogu vlasničke strukture i sastava odbora u poboljšanju ESG transparentnosti, čime nude vrijedne uvide i za regulatore i za investitore pridonoseći nijansiranom razumijevanju načina na koji strukture upravljanja oblikuju učinak ESG-a u financijskim i nefinancijskim poduzećima u Turskoj. (Menicucci & Paolucci, Board gender equality and ESG performance. Evidence from European banking sector., 2024) idu korak dalje pa su istražili odnos ravnopravnosti spolova u upravi i uspješnosti zaštite okoliša, društva i upravljanja u europskom bankarskom sektoru, pri čemu su analizirali uzorak sedamdeset i dvije banke Europske unije u razdoblju od 2015. do 2021. godine, te razvili ekonometrijski model primjenom neuravnoteženog panela s čvrsto fiksnim učincima i godišnjim kontrolama. Njihovi nalazi upućuju na značajan pozitivan odnos između broja žena u upravnim odborima i ESG učinaka europskih banaka samo do određenog praga direktorica (najmanje tri žene), te da postotak žena direktno ima pozitivan i strateški značajan utjecaj na društvenu dimenziju ESG okvira. Isti autori (Menicucci & Paolucci, ESG dimensions and bank performance: an empirical investigation in Italy, 2023) proveli su istraživanje u Italiji o utjecaju ESG-a na poslovanje banaka, te su njihovi nalazi pokazali da ESG politike negativno utječu na operativni i tržišni učinak u bankarskom sektoru, što sugerira da talijanske banke nisu u potpunosti prihvale snažne postupke održivosti.

U SAD-u primjerice (Bressan, 2024) ističe da je analiza kreditnih portfelja banaka pokazala da se stambeni krediti znatno smanjuju s ESG rezultatima banaka, odnosno da održive banke nerado posuđuju novac za projekte nekretnina izlažući ih potencijalno visokom ESG riziku. Nadalje, provedeno je ispitivanje utjecaja ESG-a na stabilnost banaka na različitim kontinentima, fokusirajući se na konvencionalne i islamske bankarske industrije (Sendi, Hasanul, Hassan, & Huq, 2024). Njihova empirijska analiza ukazuje na pozitivan utjecaj ESG aktivnosti na stabilnost ovih financij-

skih institucija, pri čemu ocjena ekološkog stupa pokazuje kao pozitivne i statistički značajne rezultate ističući prednosti ekološki odgovornih praksi. I u Ukrajini postoji opasnost od povlačenja dužničkog kapitala iz industrija koje su prepoznate kao “pr-ljave”, što znači da se uslijed ESG -a banke preorijentiraju na projekte koji uključuju uštedu energije i energetske učinkovitost, smanjenje emisije stakleničkih plinova u atmosferu, smanjenje potrošnje vode i drugih resursa (Bortnikov & Lyubich, 2022).

(Purcarea & Radulescu, 2024) istražili su u svojoj studiji načine na koji banke odlučuju implementirati održivost, te pokazati prednosti i izazove koje ta integracija donosi. Rezultati pokazuju da ispravno usvajanje principa dugoročne održivosti ima višestruku korist od povećanja operativne učinkovitosti, poboljšanja imidža banke do pozitivnog utjecaja na društvo i okoliš. Rezultati istraživanja kojeg su proveli (Liu & Xie, 2024) pokazuju da poboljšana ESG izvedba može ublažiti rizik likvidnosti u poslovnim bankama smanjenjem udjela nenaplativih plasmana i poboljšanjem ukupne financijske uspješnosti, da strukturiranjem i provedbom održivih poslovnih praksi ESG elementi mogu poboljšati razine upravljanja likvidnošću poslovnih banaka i smanjiti učestalost i učinke rizika likvidnosti. Slično, ESG aktivnosti pozitivno utječu na rizik neplaćanja (engl. default risk) (Korzeb, Karkowska, Matysek-Jedrych, & Niedziolka, 2024). I (Buallay, 2019) navodi kao rezultat provedene studije snažan utjecaj ESG-a na poslovanje banaka pri čemu ističe pozitivan učinak na ROA (engl. return on assets).

DEFINIRANJE ESG KRITERIJA I AKTIVNOSTI SREDIŠNJE BANKE

Alokaciju kapitala određuje financijski sektor odnosno banke kao financijske institucije mogu izravno usmjeriti kapital prema onim aktivnostima koje su u skladu s održivim razvojem, pa će tako implementiranjem ESG kriterija u svoje evaluacije izravno dati prednost onim aktivnostima koje uzimaju u obzir ekološke, društvene i upravljačke čimbenike. Europsko nadzorno tijelo za bankarstvo (eng. European Banking Authority – EBA) je 2018. godine donijelo Akcijski plan za financiranje održivog razvoja kojim se definiraju ciljevi povezivanja financija s posebnim potrebama europskog i svjetskog gospodarstva u društvenu korist (EK, 2018). Navedeni akcijski plan za ciljeve je imao preusmjeravanje tokova kapitala prema održivim ulaganjima u cilju ostvarivanja održivog rasta, upravljanje financijskim rizicima koji su rezultat klimatskih promjena, društvenih pitanja i iscrpljivanja resursa kao i podupiranje transparentnosti u gospodarskim i financijskim aktivnostima.

U prosincu 2022. EBA je objavila svoju mapu puta u kojoj su navedeni ciljevi i vremenski okvir za izvršavanje mandata i zadataka u području održivih financija i ekoloških, društvenih i upravljačkih rizika (ESG), te se ova mapa puta za održivo financiranje nadograđuje na njen prvi akcijski plan o održivom financiranju iz 2019. godine i zamjenjuje ga. Novim dokumentom objašnjava se redosljed i sveobuhvatan pristup EBA-e tijekom sljedeće tri godine za integraciju razmatranja ESG rizika u bankovni okvir i podršku naporima Europske unije da postigne prijelaz na održivije gospodarstvo, te se također osigurava kontinuitet radnji preuzetih u okviru prethodnog akcijskog plana, istovremeno provodeći potrebne prilagodbe nakon razvoja tržišta i regulative, uključujući nove mandate i nova područja fokusa.

U području transparentnosti i objavljivanja EBA će nastaviti svoj rad povezan s razvojem i provedbom ESG rizika institucija i širih objava o održivosti. Slično tome nastaviti će ulagati napore kako bi osigurala da se ESG čimbenici i rizici na odgovara-

jući način integriraju u okvir institucija za upravljanje rizikom i njihov nadzor. Nadalje, EBA će pridonijeti razvoju zelenih standarda i oznaka, te mjerama za rješavanje novih rizika u ovom području, kao što je greenwashing. Naposljetku, EBA će procjenjivati i nadzirati razvoj održivih financija i ESG profil rizika institucija.

Pred Europskom unijom su signifikantni izazovi kako bi postala prvi klimatski neutralan kontinent, te će donesena Direktiva o korporativnom izvještavanju o kojoj je uvodno bilo riječi omogućiti uvid u to kako će financijski sektor u budućnosti mijenjati svoju strategiju investiranja i koje će financijske proizvode razviti. S druge strane, javnost i investitori moći će procijeniti utjecaj poduzeća na okoliš i stanovništvo, ali i financijske rizike koji su posljedica klimatskih promjena kojima svjedočimo. Sve je češća pojava prirodnih i klimatskih katastrofa što je inicijalno veći trošak osiguravatelja, no i banke se tada suočavaju sa gubicima uslijed smanjenja profitabilnosti pouzeća koja su izložena takvim klimatskim promjenama ili pak njihovo poslovanje ovisi o prirodnim resursima. Sve to upućuje na potrebu da se razvije svijest o okolišnim pitanjima, ali i o različitim socijalnim čimbenicima koji također mogu negativno utjecati na financijske institucije (banke) budući da loši i neadekvatni uvjeti rada i nagrađivanja rada stvaraju loš imidž, te možebitne pravne konzekvence koje u konačnici rezultiraju financijskim gubicima.

2021. godine Hrvatska narodna banka donosi Klimatsku deklaraciju u kojoj se obvezala na daljnje uključivanje pitanja klimatskih promjena u svoj rad. S odlukom o pristupanju euro području u srpnju 2022. godine HNB je intenzivirao svoje klimatske aktivnosti produbljuvanjem članstva u odborima i skupinama u Eurosustavu koje provode opsežnu klimatsku agendu Europske središnje banke (ESB).

Klimatskom strategijom HNB utvrđuje sljedeće glavne ciljeve i prioritete za razdoblje 2024. – 2026. (HNB, 2023):

1. HNB će razvijati i redovito provoditi analize i procjene utjecaja klimatskih rizika na stabilnost cijena, gospodarska kretanja i stabilnost financijskog sustava s ciljem povećanja razumijevanja potencijalnih posljedica klimatskih promjena na gospodarstvo i financijski sektor, te će razvijati odgovarajuće strategije za upravljanje i prevenciju tih rizika. Iz navedenog proizlazi da će HNB prikupljati podatke o klimatskim promjenama, istraživati njihov utjecaj na hrvatsko gospodarstvo, te cjenovnu i financijsku stabilnost, objavljivati prikupljene rezultate, te izrađivati edukacijske materijale o utjecaju klimatskih promjena.

2. HNB će jačati svoje nadzorne aktivnosti u području klimatskih rizika, uključujući procjenu i praćenje klimatske izloženosti kreditnih institucija u skladu s aktivnostima SSM-a (engl. single supervisory mechanism), te redovno provođenje klimatskih testova otpornosti na stres. Cilj je osigurati da kreditne institucije razumiju klimatske rizike kojima su izložene i usklade svoje poslovanje s istima. Iz navedenog proizlazi da će HNB uključiti klimatske i okolišne rizike u sustav nadzora, te provoditi stres testove kreditnih institucija za klimatske rizike.

3. HNB će jačati suradnju s vanjskim dionicima i financijskim sektorom, te podržavati prelazak prema niskougličnom gospodarstvu u području financiranja prilagodbe i borbe protiv klimatskih promjena i zaštite okoliša. Banka će objavljivati informacije o utjecaju vlastite financijske imovine na klimu, te će također razmotriti i mogućnosti ulaganja u okolišno održive projekte, a unutar Eurosustava razmotriti korištenje instrumenata monetarne politike s ciljem poticanja održivog razvoja. Nave-

deno implicira da će HNB izraditi strategiju i ustrojiti sustav upravljanja klimatskim rizicima i nastaviti izvještavati o ESG ulaganju financijske imovine. Također će promovirati investiranje u aktivnosti povezane sa prilagodbom klimatskim promjenama i niskougljične tehnologije.

4. HNB poduzima korake za smanjenje vlastitoga ugljičnog otiska i povećanje energetske učinkovitosti svojih aktivnosti promicanjem primjene održive prakse u upravljanju imovinom i resursima, te će raditi na postizanju klimatskih ciljeva kroz smanjenje emisija stakleničkih plinova, povećanje energetske učinkovitosti i promoviranje održivih načina transporta. Stoga će HNB uspostaviti proces sustavnog praćenja vlastitog ugljičnog otiska i jačati postojeće uz poduzimanje dodatnih mjera za njegovo smanjenje.

5. S ciljem ostvarivanja spomenutih ciljeva i provođenje potrebnih aktivnosti HNB će pojačati napore u edukaciji zaposlenika o klimatskim promjenama. Nastavit će se i suradnja sa ESB-om i nadzornim tijelima s ciljem razmjene iskustava i znanja i odabira najboljih praksi uz donošenje akcijskih planova za određena područja.

Integracija ESG (ekoloških, društvenih i upravljačkih) kriterija u poslovanje banaka dovodi do promjene paradigme u njihovom djelovanju, te na taj način ovi kriteriji postaju ključni dijelovi korporativne strategije, upravljačkih procesa, procjene rizika i evaluacije uspješnosti banaka. U tom kontekstu taj proces integracije uključuje analizu utjecaja na strategiju, poslovne operacije i očekivane rezultate uključujući i postavljanje ciljeva za poboljšanje ESG utjecaja. Utjecaj održivosti na banke proteže se kroz cijeli lanac vrijednosti i na taj način utječe na strateške i operativne aspekte i stvara nove prilike. Kako bi adekvatno odgovorile na tržišne i regulatorne zahtjeve banke su obvezne prilagoditi svoje poslovne modele ESG standardima na svim razinama poslovanja. Svi rezultati u ovom segmentu redovito se objavljuju u godišnjim financijskim i nefinancijskim izvještajima čime je osigurana transparentnost prema investitorima ali i ostalim dionicima što implicira da održivost postaje temeljna komponenta u oblikovanju budućnosti banaka.

ESG IZVJEŠTAVANJE U BANKAMA U REPUBLICI HRVATSKOJ

Financijski sektor općenito, a unutar njega banke imaju ključnu ulogu u održivom financiranju uslijed odgovornosti za raspodjelu kapitala prema inicijativama i financijskim proizvodima čiji su ciljevi usklađeni s planovima Europske unije, ali i nacionalnim planovima koji se tiču održivosti. ESG kriterije važno je uvrstiti u sve organizacijske dijelove banke jer će na taj način svi involvirani biti u mogućnosti djelovati u skladu s njima. Kako bi banke mogle upravljati ESG utjecajima potrebno je razviti strategiju, te osim implementacije ESG kriterija u poslovne procese banke, potrebno je definirati i ciljeve koji se žele postići no isto tako identificirati i potencijalne rizike u tom procesu.

Kao što je navedeno u uvodnom dijelu rada CSRD Direktiva, odnosno Direktiva o korporativnom izvještavanju o održivosti stupila je na snagu 1. siječnja 2024. godine, te zahtijeva objavu obveznika izvještavanja o održivosti za poslovnu godinu koja je započela 1. siječnja 2024. ili na kasniji datum, što znači da će prvi takvi izvještaji biti dostupni u 2025. godini. Svi veliki poduzetnici, kao i matična društva velikih grupa koji su subjekti od javnog interesa koji kotiraju na burzi bilo koje države članice, kreditne institucije, društva za osiguranje ili društva za reosiguranje koji na datum

balance prelaze kriterij prosječnog broja od 500 radnika, tijekom prethodne poslovne godine postaju obveznici izvještavanja o održivosti za poslovnu godinu kako je ranije navedeno. Kako su banke kreditne institucije i one su obvezne izvještavati na zahtijevani način (NN, 2024).

(KPMG, 2021) Navodi da će održivost imati utjecaja na banke kroz cijeli lanac vrijednosti, u strateškom i operativnom smislu, te ističe da banke moraju u cilju što bolje prilagodbe tržišnim i regulatornim zahtjevima svoje cjelokupno poslovanje prilagoditi ESG zahtjevima na svim razinama, a koje se mogu definirati kroz deset točaka:

1. razmatranje održivosti u poslovnoj strategiji i organizacijskoj strukturi,
2. prilagodba portfelja proizvoda i klijenata banke,
3. identifikacija/klasifikacija održive imovine,
4. ponuda održivog financiranja klijentima banke,
5. refinanciranje održivim instrumentima,
6. razmatranje rizika ESG-a pri određivanju cijena i upravljanju cjenovnim rizikom,
7. razmatranje ESG rizika unutar kapitalnih zahtjeva,
8. uključivanje ESG kriterija u procese distribucije,
9. izvještavanje o vlastitim ESG rizicima i njihovu utjecaju na nadzorna tijela i druge dionike, te
10. upravljanje ESG podacima.

Što se tiče ispunjavanja kriterija izvještavanja o održivosti u financijskom sektoru Republike Hrvatske potreban je značajan napredak. Navedeno potkrepljuje činjenica da manje od 50% banaka ima ESG strategiju po navođenju Hrvatske gospodarske komore sukladno provedenom ESG rejtingu. Kod ostalih financijskih institucija, osim leasing društava, taj udio je i upola manji. Stoga je potrebno uložiti intenzivnije napore u implementaciju ESG kriterija u poslovanje, te učinkovitije upravljati ESG rizicima kako bi postigli konkurentniju poziciju na tržištu izbjegavajući pad prihoda i urušavanje imidža. Neke banke već su navele ESG ciljeve u svojim dokumentima i nastoje ih implementirati u svoje poslovanje. Najveća banka koja posluje u Republici Hrvatskoj (Zagrebačka banka) u svom godišnjem izvješću za 2023. godinu navodi da financijski ciljevi koje su ostvarili i premašili nisu bili na štetu njihovih ESG ciljeva koji su čvrsto ugrađeni u njihov poslovni model. Ističu i da je društvena dimenzija ESG-a i dalje prioritet za banku (grupu). No, tek u aktualnoj 2025. godini bit će dostupni prvi izvještaji temeljeni na novoj Direktivi za prethodno razdoblje.

ZAKLJUČAK

Integracija ESG kriterija u strategiju banaka i njihove investicijske politike prvenstveno znači razvoj novih zelenih proizvoda i usluga, te isticanje njihove ključne uloge u suvremenom financijskom sustavu. Društveno odgovorno poslovanje prisutno je u poduzećima, ali i bankama kao financijskim institucijama već dugi niz godina, no tek kroz regulativu uloga ESG postaje jedna od ključnih u poslovanju banaka budući da obuhvaćanjem ključnih čimbenika rizika, njihovom identifikacijom i ublažavanjem osiguravaju održivost poslovanja i uspjeh na dugi rok.

Stoga, ESG postaje sve važniji dio poslovanja banaka a poglavito obzirom na globalne klimatske ciljeve i pritisak regulatora. Financijske institucije općenito imaju

ključnu ulogu u postizanju ciljeva održivog razvoja međutim to opet zahtijeva kontinuiranu prilagodbu i inovacije u njihovu poslovanju. Regulatorni okvir posebno je značajan u oblikovanju uvjeta za održivo poslovanje banaka, a svaka banka mora aktivno sudjelovati u njegovu razvoju, te usvajanju regulatornog okvira na nacionalnoj razini što je plodno tlo za održive financije. Naravno, na primjenu regulative potrebno je poticati i transparentnost objavljivanja i izvještavanja banaka.

Iako se suočavaju s brojnim izazovima i preprekama banke će zasigurno profitirati usvajanjem održivosti iz društvene perspektive, perspektive korporativnog upravljanja i ekonomije. Za daljnje analize i istraživanja očekuju se prvi izvještaji u 2025. godini.

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FRAMEWORK FOR THE APPLICATION OF ESG IN BANKS' REPORTING

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Summary: ESG, i.e. Environmental, Social and Governance criteria represent an increasing imperative in business operations in general, and especially for banks as financial institutions due to the greater impact of climate change on operations in all spheres of the economy. According to ESG, environmental criteria refer to companies' care for the environment through climate change mitigation and adaptation, pollution prevention and a healthy ecosystem; social criteria examine the ways in which

companies manage human resources, ensuring equal opportunities for all, and how they relate to the local community, while governance criteria refer to the company's management structure, ethical culture, business relationships and risk management. Therefore, there is a need to develop a regulatory framework as a basis for the sustainability of the financial sector. These criteria support banks' application of ecological, social and management practices with the aim of mitigating risks, but also increasing their reputation on the market. Generally speaking, financial institutions play an important role in achieving sustainable development goals, which is reflected in continuous innovation in business, adaptation to new conditions and the development of green services. By adopting the Non-Financial Reporting Directive (2014/95/EU, 2014), the European Union recognized the need to implement a high and comparable exchange of information in order to understand the development, business results, but also the impact of companies' operations on the environment, society, human rights and other issues. Therefore, the adoption of a single act regulating non-financial reporting at the level of the entire European Union was a logical consequence. The above is necessary in order to ensure comparable non-financial information. The European Banking Authority has adopted a plan for financing sustainable development, the goals of which are to redirect capital flows towards sustainable investments, which sets the European Union the challenge of becoming the first climate-neutral continent. At the level of the Republic of Croatia, the Croatian National Bank has adopted a climate strategy, which sets goals and priorities for the period from 2024 to 2026. In addition to the goals, it is necessary to identify potential risks in the process of implementing ESG criteria. The paper provides an overview of recent literature on reporting on activities related to environmental, social and corporate governance impacts, while highlighting the advantages and challenges that the integration of sustainability brings to bank operations. Significant progress is needed in terms of meeting sustainability reporting criteria in the financial sector of the Republic of Croatia. This is supported by the fact that less than 50% of banks have an ESG strategy, according to the Croatian Chamber of Economy, in accordance with the conducted ESG rating. Since the topic is current and the first reports are still expected, a systematic review of the latest literature on the topic of sustainable reporting in banks is given. As far as the Republic of Croatia is concerned, there is room for improving the implementation of ESG criteria, and reporting itself will only follow in the coming period.

Key words: ESG, nonfinancial reporting, sustainable reporting, banks

JEL classification: G21, M14, Q01



STOHAISTIČKI ASPEKTI OGRANIČENJA EKONOMSKE EFIKASNOSTI USLIJED SOMATSKIH MANIFESTACIJA POTISNUTIH EMOCIJA ZAPOSLENIH

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Sažetak: Ovaj rad istražuje povezanost između potisnutih emocija i pojave bola u leđima kod zaposlenih u savremenom poslovnom okruženju, naročito kod marketara, menadžera i ostalih kancelarijskih radnika. Psihološki pritisci, stres, rad pod rokovima, kao i emocionalna supresija često vode ka raznim psihosomatskim tegobama. Leđa, kao centralni nosač tijela, često postaju simbolički i doslovno opterećena odgovornostima koje pojedinac nosi, dok istovremeno nema adekvatne mehanizme emocionalne ekspresije. Rad nudi teorijski pregled literature iz oblasti psihosomatske medicine, emocionalne inteligencije, kao i ranija empirijska istraživanja koja ukazuju na jasnu povezanost između emocionalne represije i bola u tijelu. Predložena anketa ima za cilj prikupiti podatke od ciljne grupe kako bi se dodatno potvrdila hipoteza. Dobijeni nalazi mogu biti korisni za dizajniranje psiholoških i korporativnih intervencija koje promoviraju emocionalnu pismenost i prevenciju psihosomatskih oboljenja. Statistička analiza omogućava da se, polazeći od empirijske građe, dođe do univerzalne zakonitosti. U ovom istraživanju korišćen je Hi kvadrat test, kako bi se dokazala zavisnost među promjenljivim.

Ključne riječi: potisnute emocije, bol u leđima, menadžment, marketing, statistička analiza

Jel klasifikacija: C1, I3, M1 i M3

UVOD

Savremeni uslovi rada nameću konstantan pritisak na zaposlene, posebno one koji obavljaju odgovorne i dinamične poslove poput menadžera i marketara. Rezultatski orijentisana kultura, multitasking, digitalna preopterećenost, nedostatak emocionalne podrške i kultura „profesionalnog“ distanciranja doprinose sve većem jazu između unutrašnjih emocionalnih stanja i načina njihovog izražavanja.

Kada emocije nisu prepoznate, priznate i na zdrav način obrađene, one često bivaju potisnute – i tako pronalaze svoj izlaz kroz tijelo. Bol u leđima, kao jedan od najčešćih simptoma među odraslom radnom populacijom, često se medicinski ne može u potpunosti objasniti, što ukazuje na potrebu holističkog pristupa ovom problemu.

Istraživanje koje predstavlja alat za dokazivanje hipoteze dizajnirano je na način da se pomoću anketnog upitnika prikupi empirijska građa iz koje se statističkom analizom prepozna zakonitost koja povezuje promjenljive veličine obuhvaćene istraživanjem i nakon toga posmatraju kao univerzalna zakonitost.

Struktura rada obuhvata pet osnovnih poglavlja. Nakon uvoda, drugo poglavlje prikazuje teorijski okvir sa pregledom relevantne literature i prethodnih istraživanja iz oblasti psihosomatskih reakcija i emocionalne regulacije. Treće poglavlje posvećeno je metodologiji istraživanja, uz opis uzorka, instrumenta i postupka prikupljanja podataka. Četvrto poglavlje donosi prikaz rezultata anketnog istraživanja, grafičku i tabelarnu obradu nalaza, te njihovu interpretaciju u svjetlu sličnih studija. U završnom, petom poglavlju, iznose se ključni zaključci, ograničenja i preporuke za buduća istraživanja i praksu.

TEORETSKI OKVIR

Psihosomatska medicina

Psihosomatska medicina polazi od ideje da psihološki faktori mogu uzrokovati ili doprinijeti fizičkim oboljenjima. Dr. John Sarno istakao je kako je veliki broj slučajeva bola u leđima uzrokovan emocionalnim faktorima, a ne strukturnim poremećajima kičme. On uvodi termin Tension Myositis Syndrome (TMS), koji opisuje hroničnu bol u mišićima uzrokovanu potisnutim emocijama poput bijesa, anksioznosti i tuge.

Mehanizmi emocionalne represije

Emocionalna represija predstavlja nesvjesno potiskivanje emocionalnog sadržaja koji se percipira kao neprihvatljiv. U radnoj sredini to se često manifestuje kroz potiskivanje ljutnje, straha, frustracije i tuge radi zadržavanja profesionalnog imidža. Dugoročno, ova praksa dovodi do akumulacije emocionalnog naboja koji se somatizuje.

Teorija stresa

Lazarus i Folkman definišu stres kao odnos između pojedinca i sredine koji se procjenjuje kao opterećujući ili premašujući resurse osobe. Ukoliko se emocije izazvane stresom ne obrade, stres prelazi u hronično stanje koje utiče na imuni i mišićno-koštani sistem.

Emocionalna inteligencija i somatski odgovori

Daniel Goleman naglašava da emocionalna inteligencija značajno utiče na fizič-

ko i mentalno zdravlje. Osobe koje nemaju razvijene vještine emocionalne regulacije često imaju somatske simptome kao rezultat emocionalne neravnoteže.

PRETHODNA ISTRAŽIVANJA

„Sarno (1998) navodi da kod 88% pacijenata s bolovima u leđima nije pronađen organski uzrok, što je utvrđeno kliničkom opservacijom pacijenata tokom više godina. Njegov rad predstavlja temelj za povezivanje emocija sa bolom u donjem dijelu leđa... (Sarno, 1998)

Pennebaker (2007) je kroz niz eksperimentalnih studija pokazao da iskreno pisanje o traumatskim ili emocionalno značajnim događajima dovodi do poboljšanja mentalnog i fizičkog zdravlja. Njegova istraživanja su uključivala ispitanike koji su četiri dana uzastopno pisali po 15 minuta o svojim dubokim osećanjima, nakon čega su pokazivali niže nivoe stresa i bolje zdravstvene pokazatelje. Ovaj mehanizam direktno podržava ideju da potisnute emocije, ako se ne izraze, mogu dovesti do psihosomatskih simptoma. (Pennebaker, 2007)

Studija Harvard Business Review (2020) ukazuje da emocionalna izolacija na poslu vodi do napetosti u leđima. (Harvard Business Review, 2020) Gabor Maté (2017), ljekar i autor, na osnovu kliničkog iskustva ukazuje da mnoge hronične bolesti, uključujući autoimuna oboljenja i sindrome bola, imaju emocionalne korene. On tvrdi da obrasci emocionalnog potiskivanja, posebno kod ljudi koji ne izražavaju ljutnju i imaju visoku potrebu za odobravanjem, doprinose razvoju bolesti. Njegovo zapažanje da ‘telo ne laže’ usmerava pažnju ka unutrašnjem konfliktu kao mogućem uzroku bola. (Mate, 2017)

Vladeta Jerotić (2010) naglašava ulogu nesvesnih duševnih konflikata u razvoju psihosomatskih oboljenja. Prema njemu, čovek koji ne uspe da integriše svoje emocionalne konflikte kroz duhovni rast ili psihološku obradu, često ih ‘prenosi’ na telo. Ovakav pogled otvara prostor za razumevanje bola u donjem dijelu leđa ne samo kao biomehaničkog problema, već i kao izraza neizraženih unutrašnjih tenzija. (Jerotić, 2010)

Louise Hay (2007) u svom pristupu samopomoći navodi da svaki fizički simptom ima dublju mentalnu i emocionalnu poruku. Donji dio leđa, prema njenoj interpretaciji, simbolizuje podršku – emocionalnu, finansijsku i duhovnu. Bol u tom području može, prema Hay, odražavati osećaj nesigurnosti ili nedostatka podrške u životu. Iako njen pristup nije zasnovan na naučnoj metodologiji, on ima popularnu vrednost i može doprineti širem razumevanju uloge emocija u telu. (Hay, 2007)

Gross i Levenson (1997) su u svojim istraživanjima demonstrirali da se emocije mogu eksperimentalno izazvati pomoću specifičnih filmova, pri čemu su istovremeno zabilježene izražene fiziološke reakcije ispitanika, uključujući promjene srčanog ritma i kožne provodljivosti. Pored toga, njihova istraživanja potvrđuju da emocionalna supresija izaziva povećanje simpatičke aktivnosti i mišićne napetosti. (Gross & Levenson, 1997)

U savremenom poslovnom okruženju, emocionalna regulacija ne predstavlja samo sredstvo za očuvanje međuljudskih odnosa, već i ključni faktor očuvanja psihofizičkog zdravlja. Aleksić i Blažević (2021) naglašavaju da „upravljanje emocijama postaje osnova dugoročnog uspeha lidera, ali i zdravlja zaposlenih“ (Aleksić & Blažević, Vještine uspijeha u marketingu i menadžmentu - psiha i uspijeh, 2021) Ova

tvrdnja ukazuje na dvosmjernu vezu između emocionalne pismenosti i profesionalne efikasnosti, gdje ignorisanje unutrašnjih stanja može dovesti do ozbiljnih posljedica, kako na ličnom tako i na organizacijskom nivou.

Nadalje, autori ističu da postoji „jasna korelacija između neizraženih emocija i fizičkog zastoja – to se najčešće manifestuje kroz bolove u vratu i donjem dijelu leđa“, što potvrđuje tezu o psihosomatskoj prirodi brojnih fizičkih tegoba. Tijelo, kako oni zaključuju, postaje nosilac poruke koju psiha potiskuje: „Tijelo je ogledalo psihe. Kada ne damo sebi pravo da osjetimo i izrazimo emociju, tijelo govori umjesto nas“ (Aleksić & Blažević, Vještine uspjeha u marketingu i menadžmentu - psiha i uspjeh, 2021). Ovaj pristup se poklapa sa savremenim psihološkim shvatanjima o somatizaciji i ukazuje na potrebu za sveobuhvatnim modelima mentalnog zdravlja u organizacijama.

Istraživanja uz korišćenje statističke metodologije omogućavaju da se izvrši organizacija, sažeto prikazivanje i izvlačenje zaključaka u skupovima koje karakterišu različitost i neodređenost, kao što je radna populacija. Efikasnost statističke metodologije na ovim područjima potvrđuje se istraživanjima kao što su primjena korelacione analize na problemima podizanja stepena motivisanosti za obrazovanje i radno usavršavanje (Landika, Sredojević, & Bajić, Modeliranje interkorelacionih faktora radne efikasnosti u funkciji stepena motivisanosti za obrazovanje i radno usavršavanje, 2017), modeliranje profila potrošača u specifičnim uslovima poslovanja korištenjem statističke metodologije (Landika, Aleksić, & Barjaktarević, Statističko modeliranje profila potrošača u funkciji adaptacije marketing strategije u uslovima pandemije COVID 19, 2021), modeliranje dugoročne razvojne tendencije u funkciji izrade politike investiranja (Landika & Bojić, Modeliranje poslovno - ekonomskih strategija kao platforme investicione politike u uslovima rizika, 2016), faktorska analiza u funkciji podizanja kapaciteta kadrovskih resursa (Aleksić, Landika, Kondić-Panić, & Peulić, 2022) i modela igara protiv prirode na problemima proračuna benefita od ulaganja u razvoj kadrova (Aleksić & Landika, Monetarno skazivanje efekata primjene duhovnih tehnika u cilju podizanja kvaliteta sistema marketinga i menadžmenata u kompanijama, 2022).

Područje primjene HI-kvadrat testa su značajne za istraživanje u različitim oblastima društvenih i humanističkih nauka, a njihova primjena značajno doprinosi istraživanju u okviru metodologije nastavnog procesa (Grubešić, 2019), uticaj stepena (ne) začepljenja KPR u odnosu na starost pacijenta sa VBSZ (Vasilić, 2024), zavisnost ocjene studenata zdravstvene njege od strane kliničkog osoblja u zavisnosti od mentorisanja prakse (Meden, 2017) te zavisnost između nivoa antitijela u serumu i rizika od prijenosa virusa Covid-19. (INC, 2021)

METODOLOGIJA STATISTIČKOG ISTRAŽIVANJA

Statistička analiza je naučno područje koje se bavi uočavanjem zakonitosti ponašanja odgovarajućih veličina u masovnim pojavama. Često područje primjene statističke analize odnosi se na područje humanističkih i društvenih nauka, a u pravilu se primjenjuju elementi inferencijalne statističke analize, koja se bavi analizom fenomena na dijelu masovnog skupa koji se naziva uzorak.

Rezultati analize zavise od adekvatnog izbora ispitanika u uzorak, kao i od obima obuhvata dijela populacije u uzorak. Potrebno je da uzorak obuhvata dovoljno velik dio populacije, ali u slučaju predloženog istraživačkog projekta uzorak mora obuhvatiti radno aktivnu populaciju ili penzionere, jer ostatak populacije nije relevantan sa

aspekta istraživačkog projekta. (Landika Mirjana, 2015)

Instrument istraživanja je anketni upitnik pod nazivom „potisnute emocije i bol u leđima na radnom mjestu“. Sadržaj anketnog upitnika prikazan je sledećom ilustracijom.

Tabela 1. Izgled anketnog upitnika

Potisnute emocije i bol u leđima na radnom mjestu	5. Da li smatrate da bi edukacije i radionice pomogle zaposlenima? (x5)
1. Da li često osjećate bol u leđima? (x1)	– Da
– Da	– Možda
– Ne	– Ne
– Povremeno	6. Kako najčešće izražavate stres ili negativne emocije? (x6)
2. Da li osjećate emocionalni stres na poslu? (x2)	– Razgovorom
– Uvijek	– Vježbanjem
– Često	– Potiskujem
– Rijetko	– Ne znam
– Nikada	7. Da li osjećate da imate podršku u svome radnom okruženju za izražavanje emocija? (x7)
3. Da li ste prijetili povezanost između emocionalnih stanja i fizičkog bola? (x3)	– Da
– Da	– Djelomično
– Ne	– Ne
– Nisam razmišljao/la o tome	8. Koje radne zadatke obavljate na svome poslu? (x8)
4. Koliko često ste pod pritiskom da ostanete „profesionalni“ i prikrivate emocije? (x4)	– Iz oblasti marketinga
– Svakodnevno	– Iz oblasti menadžmenta
– Ponekad	– Izvršne aktivnosti (ostale radne aktivnosti izuzev marketinga i menadžmenta)
– Nikad	

Izvor: autori

Anketni upitnik je formiran u aplikaciji Google forms i nalazi se na web lokaciji https://docs.google.com/forms/d/e/1FAIpQLSfewbm3Ln2_LXRTbdVm-vxF1aLcRG9wi8PfB1nVtHN_BCmVdFQ/viewform?usp=sharing

Ispitanici su anketu popunjavali u on line formatu i dobijeni rezultati provedene ankete analizirani su pomoću IBM SPSS – a 22¹.

Zadatak analize je da uoči i evidentira (ne)zavosnost među promjenljivim veličinama koje se odnose na pitanja formulisana u anketnom upitniku.

U istraživanju je učestvovalo ukupno **97 radno aktivnih ispitanika**, od kojih je **62% žena i 38% muškaraca**. Starosna struktura obuhvatala je ispitanike u rasponu od **[npr. 25 do 60 godina]**, sa najvećom zastupljenošću u grupi od **[35 do 45 godina]**.

Ispitanici su izabrani metodom **ciljanog uzorka (purposive sampling)**, s obzirom na cilj istraživanja — sagledavanje psihosomatskih simptoma i načina emocionalne regulacije unutar profesionalne radno aktivne populacije. Anketa je sprovedena anonimno, uz prethodni informisani pristanak ispitanika i uz garanciju povjerljivosti podataka.

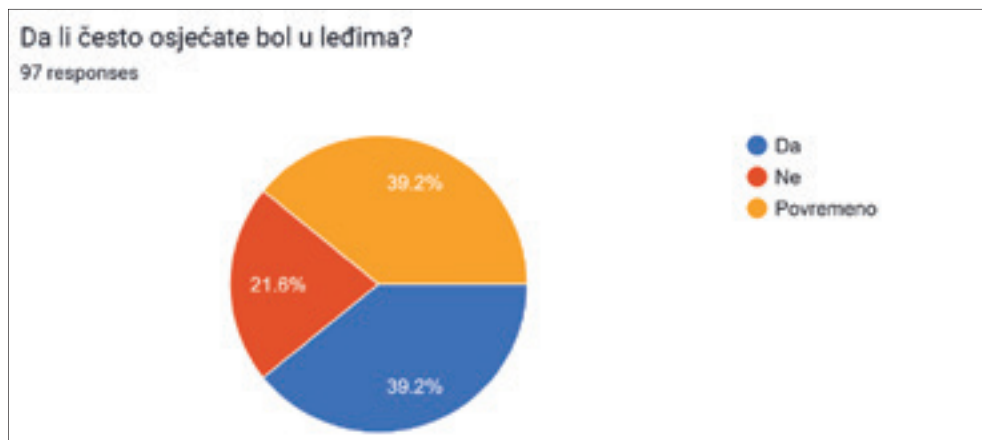
1 Program za statističku analizu

Vjerodostojne odgovore na istraživačka pitanja moguće je dobiti korišćenjem Hi kvadrat (χ^2) testa koji daje odgovore na navedena pitanja.

Obuhvat istraživanja lokacijski je fokusiran na područje Republike Srpske a proveden je putem društvenih mreža. Prikupljen je dovoljan broj relevantnih informacija za formiranje istraživačke platforme kako bi se otkrila zakonitost među promjenljivim veličinama unutra istraživačkog poligona.

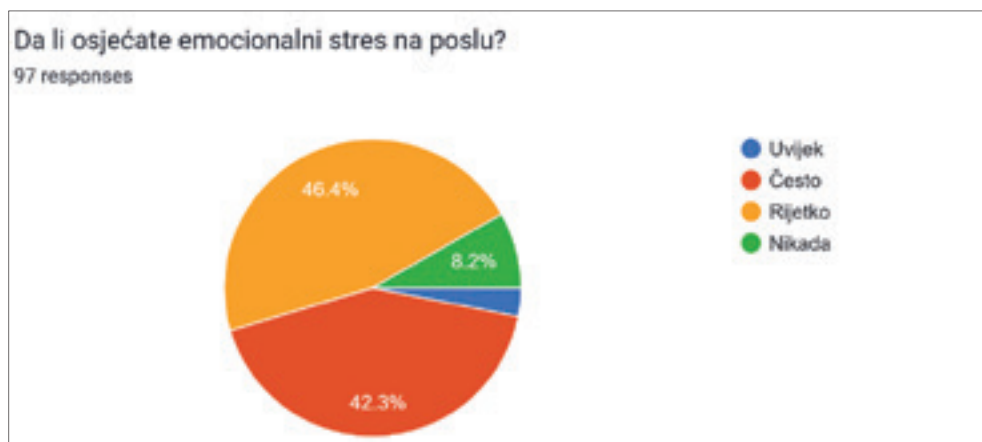
Struktura dobijenih odgovora može se grafički prikazati sledećim ilustracijama.

Ilustracija 2. Struktura ispitanika prema percepciji bola u leđima



Izvor: autori

Ilustracija 3. Percepcija ispitanika prema emocionalnom stresu na poslu



Izvor: autori

Ilustracija 4. Percepcija ispitanika prema vezi između emocionalnog stresa i fizičkog bola



Izvor: autori

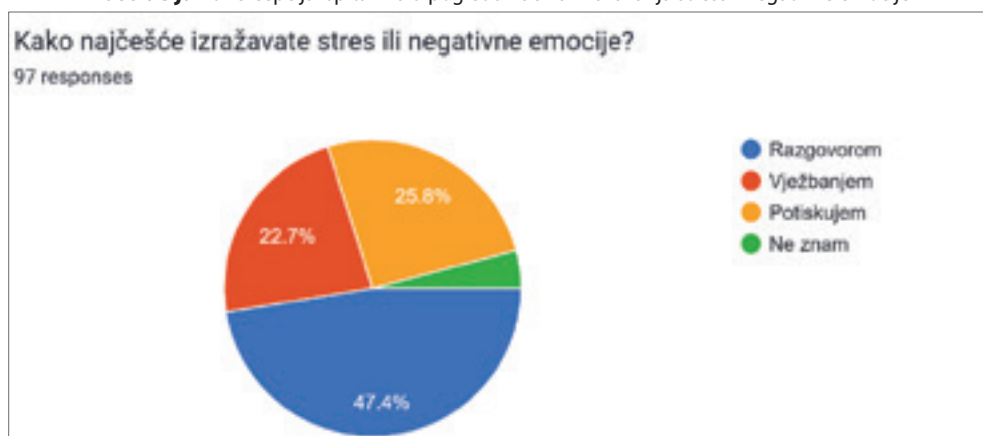
Ilustracija 5. Percepcija ispitanika o osjećaju pritiska u pogledu potrebe da ostanu „profesionalni“ i prikrivaju emocije



Izvor: autori

Ilustracija 6. Percepcija ispitanika u pogledu pomoći edukacija i radionica za pomoć zaposlenima

Izvor: autori

Ilustracija 7. Percepcija ispitanika u pogledu načina izražavanja stresa i negativne emocije

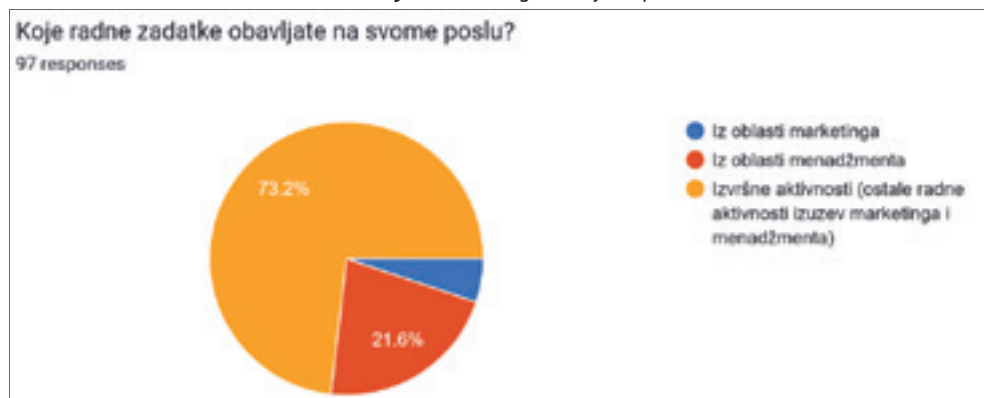
Izvor: autori

Ilustracija 8. Percepcija ispitanika u pogledu podrške za izražavanje emocija u radnom okruženju



Izvor: autori

Ilustracija 9. Oblik angažovanja na poslu



Izvor: autori

Iako su grafikoni jasno prikazali učestalost određenih simptoma, dodatno teorijsko tumačenje daje im dublji smisao. Na primjer, visoka zastupljenost anksioznosti kod mlađih ispitanika može se povezati sa teorijama o emocionalnoj nezrelosti i pritiscima modernog radnog okruženja (Maté, 2017). S druge strane, kod starijih ispitanika dominiraju somatske tegobe, što se može dovesti u vezu sa dugotrajnim potiskivanjem stresa. (Mate, 2017)

Rezultati statističke analize

Zadatak statističke analize jeste da donese ispravan, relevantan i objektivna zaključak u svijetu neodređenosti. Masovne pojave okarakterisane su mnoštvom podataka, kojima je neophodno organizovan, metodološki pristup kako bi se iz njih izvukle

validne informacije i uočile zakonitosti koje imaju univerzalan značaj, ali često i pokazatelj mjera koje je potrebno preduzimati u pravcu postizanja željenog rezultata u okviru područja istraživanja.

Tabela 2. Rezultati HI-kvadrat testa

HI - Kvadrat	(x1)	(x2)	(x3)	(x4)	(x5)	(x6)	(x7)	(x8)
(x1)	-	2,748>1	2,374>2	0,069<1	4,179>3	0,261<1	0,266<2	0,266<2
(x2)		-	3,967<2	21,297>4	0,732<2	5,641<6	5,521>2	4,409<6
(x3)			-	6,808>2	2,196<2	8,617>3	0,550<1	4,126>2
(x4)				-	1,656>1	12,008>6	14,797>2	3,303<4
(x5)					-	0,749<3	0,249<1	0,117<2
(x6)						-	12,007>3	4,042>4
(x7)							-	2,007>2
(x8)								-

Izvor: autori

U analizama je korišćen **hi-kvadrat test nezavisnosti**, kako bi se utvrdila statistički značajna povezanost između varijabli. Granica značajnosti postavljena je na standardnom nivou $p < 0.05$, što znači da se svi rezultati s vrijednošću p manjom od 0.05 smatraju **statistički značajnim**.

Simbol „<“ označava da je vjerovatnoća dobijanja rezultata pod pretpostavkom nulte hipoteze manja od 5%, dok „>“ sugerise da nije došlo do statistički značajne razlike. Time se zaključuje da postoji (ili ne postoji) povezanost između posmatranih varijabli, u skladu s pragom značajnosti.

H0 : promjenljive su nezavisne

H1 : promjenljive su zavisne

U osjenčenim poljima tabele su promjenljive koje su međusobno zavisne, a to su:

- Osjećaj bola u leđima (x1) i
 - Emocionalni stres na poslu
 - Percepcija povezanosti ove dvije kategorije
 - Doprinos radionica i edukacija
- Emocionalni stres na poslu (x2) i
 - Pritisak da se ostane „profesionalan“ i prikriju emocije
 - Osjećaj podrške u radnom okruženju za izražavanje emocija
- Percepcija osjećaja povezanosti između emocionalnog stanja i fizičkog bola (x3) i
 - Pritisak da se ostane „profesionalan“ i prikriju emocije
 - Način izražavanja stresa ili negativnih emocija
 - Vrsta radnih zadataka koji se obavljaju na poslu
- Potreba da se ostane „profesionalan“ uprkos emotivnom stanju (x4) i
 - Način izražavanja stresa ili negativnih emocija
 - Osjećaj podrške u radnom okruženju za izražavanje emocija
 - Vrsta radnih zadataka koji se obavljaju na poslu

- Način izražavanja stresa ili negativnih emocija (x6) i
 - Osjećaj podrške u radnom okruženju za izražavanje emocija
 - Vrsta radnih zadataka koji se obavljaju na poslu
- Osjećaj podrške u radnom okruženju za izražavanje emocija (x7) i
 - Vrsta radnih zadataka koji se obavljaju na poslu.

DISKUSIJA REZULTATA ISTRAŽIVANJA

Sve više dokaza upućuje na činjenicu da su psihološki faktori duboko povezani s fizičkim zdravljem. Marketari i menadžeri često nemaju prostor za emocionalnu ekspresiju, što vodi ka unutrašnjem pritisku. Jung je isticao da potisnute emocije ostaju aktivne i traže fizički ventil.

Ova tvrdnja se potvrđuje u teoriji i u praksi, kao i u izjavama samih radnika.

Rezultati analize ukazuju da u oko 80% ispitanika osjeća bol u leđima, a njih oko 50% osjeća emotivni stres na poslu i gotovo isti procenat ispitanika povezuje te dvije kategorije. Gotovo 90% ispitanika osjeća pritisak da zadrži „profesionalnost“ uprkos emotivnom stanju. Samostalne intervencije ispitanika kao pomoć u prevazilaženju stresa obuhvataju razgovor kod gotovo polovice ispitanika, vježbanje i potiskivanje kod gotovo četvrtine ispitanika, dok zanemarivo mali procenat (<10% ispitanika) odgovara sa „ne znam“. Ohrabrujuće saznanje je da gotovo 90% ispitanika smatra da mu nedostaju znanja za prevazilaženje stresa na radnom mjestu (ispitanici koji su odgovorili sa „Da“ i „Možda“), kao i da samo 20% ispitanika nema podršku za izražavanje emocija na radnom mjestu.

Nadalje rezultati istraživanja ukazuju na činjenicu da se menadžeri, marketari i izvršni radnici različito percipiraju i reaguju na osjećaj podrške u radnom okruženju za izražavanje emocija, stresa negativnih emocija, potrebe da uprkos emotivnom stanju ostanu „profesionalni“ i percepcije o fenomenu povezanosti fizičkog bola i emotivnog stanja. Ovaj fenomen može se objasniti činjenicom da su menadžeri i marketari tokom dnevnih rutina orijentisani na ljude a izvršni na radne zadatke.

Iako istraživanje daje važne uvide, prisutna su određena ograničenja — posebno u veličini i raznovrsnosti uzorka, kao i u odsustvu kvalitativne komponente. Preporučuje se sprovođenje budućih istraživanja s većim uzorcima, različitih profesija i radnih sredina, uz uključivanje intervjua i longitudinalnog praćenja, radi sveobuhvatnijeg uvida u mehanizme emocionalne regulacije i psihosomatskih reakcija.

ZAKLJUČAK

Psihosomatski simptomi, poput bola u leđima, često su posljedica emocionalne represije. Organizacije bi trebalo da razvijaju kulturu emocionalne pismenosti. Psihološka edukacija, radionice i podrška zaposlenima mogu doprinijeti zdravijem i produktivnijem radnom okruženju. Rezultati ovog istraživanja ukazuju na snažnu povezanost između potisnutih emocija i bola u leđima kod zaposlenih u oblastima menadžmenta, marketinga i srodnim profesijama. Visok procenat ispitanika koji prijavljuju bol u donjem dijelu leđa sugerise da ova pojava nije izolovan medicinski problem, već potencijalni izraz hroničnog emocionalnog stresa i unutrašnjih psiholoških tenzija.

Posebno je značajno otkriće da viši nivoi emocionalne inhibicije korespondiraju s većom učestalošću bola, što potvrđuje psihosomatsku dimenziju bola u leđima. Osobe koje rijetko izražavaju emocije, naročito one koje su društveno neprihvatljive

poput ljutnje ili tuge, podložnije su ne samo fizičkoj nelagodnosti već i širem spektru psihosomatskih simptoma.

Uočene razlike među profesijama dodatno naglašavaju ulogu radnog okruženja i njegovih zahtjeva u formiranju emocionalnih obrazaca i tjelesnih reakcija. Zaposleni u menadžmentu i marketingu, koji su često izloženi intenzivnom stresu, pokazali su veće stepene potiskivanja emocija, kao i izraženije fizičke tegobe.

Stepen objektivnosti dobivenih rezultata i izvedenih zaključaka proizilazi iz dosljednosti primjene naučne metodologije kojom se polazeći od empirijske građe došlo do univerzalnih postulata kojima se može dodijeliti i epitet univerzalnosti i koji se mogu primjenjivati u realnim poslovnim sistemima. Važnost sagledavanja činjenica i uvažavanje okolnosti omogućava na preventivno djelovanje koje harmonizuje poslovne procese i omogućava optimalan poslovni rezultat.

Ovi nalazi ukazuju na potrebu za integracijom mentalnog zdravlja i emocionalne pismenosti u profesionalna okruženja. Edukacija o važnosti emocionalne ekspresije, razvoj mehanizama suočavanja sa stresom i implementacija programa koji podstiču psihološku sigurnost mogu igrati ključnu ulogu u prevenciji hroničnog bola i unaprjeđenju kvaliteta života zaposlenih.

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STOCHASTIC ASPECTS OF LIMITATIONS IN ECONOMIC EFFICIENCY DUE TO SOMATIC MANIFESTATIONS OF SUPPRESSED EMOTIONS IN EMPLOYEES

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Summary: *This paper explores the connection between repressed emotions and the occurrence of back pain among employees in modern work environments, particularly among marketers, managers, and other office workers. Psychological pressure, stress, deadline-driven work, and emotional suppression often lead to various psychosomatic issues. The back, as the central support structure of the body, often becomes both symbolically and literally burdened by the responsibilities an individual carries, while simultaneously lacking adequate mechanisms for emotional expression. The paper offers a theoretical overview of the literature in the fields of psychosomatic medicine and emotional intelligence, along with previous empirical studies that point to a clear link between emotional repression and bodily pain. A proposed survey aims to collect data from the target group in order to further support the hypothesis. The findings may be useful for designing psychological and corporate interventions that promote emotional literacy and the prevention of psychosomatic disorders. Statistical analysis allows for the identification of universal patterns based on empirical data. In this research, the Chi-square test was used to demonstrate the dependency between variables. The results of the analysis indicate that around 80% of respondents experience back pain, while approximately 50% report emotional stress at work, with nearly the same percentage linking these two categories. Nearly 90% of participants feel pressure to maintain "professionalism" despite their emotional state. Furthermore, the research*

results indicate that managers, marketers, and executive employees differ in how they perceive and respond to the sense of support in the workplace for expressing emotions, stress, negative feelings, the need to remain “professional” despite emotional states, and perceptions of the connection between physical pain and emotional well-being. This phenomenon can be explained by the fact that managers and marketers are generally more people-oriented in their daily routines, while executive employees are more task-oriented. There is growing evidence that psychological factors are deeply connected to physical health. Our path is a path of health—both in personal and corporate life—no matter which side we are on. This paper highlights the need for the integration of mental health and emotional literacy into professional environments. Education on the importance of coping mechanisms for stress, along with the implementation of programs that promote psychological safety, can play a key role in the prevention of chronic pain and the improvement of employees’ quality of life.

Keywords: *repressed emotions, back pain, management, marketing, statistical analysis*

Jel classification: *C1, I3, M1, M3*



OVERVIEW OF THE DEVELOPMENT OF DISTRIBUTION CHANNELS IN THE HOTEL INDUSTRY: ANALYSIS OF A LUXURY HOTEL IN SPLIT

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Abstract: *Distribution channels in hotels are crucial as they enable an efficient connection between hotels and potential guests. The sale of accommodation capacity is the basis for optimizing revenue in the hotel industry. However, not all distribution channels contribute equally to maximizing revenue. Hotels can use different channels to better manage their occupancy rates by adjusting prices and offers to changing demand. Online distribution channels and greater integration of websites allow hotels to expand in the tourism market and attract guests from different parts of the world. Distribution channel management promotes significant proactive measures in the areas of sales and providing information to tourists. Distribution channels play a key role in a hotel's success as they contribute to higher occupancy rates, a greater number of bookings and better management of the hotel department. The main objective of this paper is to show the changes in distribution channel shares over the last seven years using a luxury hotel as an example. The paper uses secondary data collected internally due to the particular characteristics of the data. The secondary data of the luxury hotel allows to explore the market position of the hotel compared to its competitors and provides valuable insights into strategies that help to attract exclusive guest segments. In addition, secondary data from hotel operations, such as revenue, ADR and RevPAR, enable the hotel's success in key business areas to be assessed. Based on the luxury hotel's historical data this research provides analysis that helps in planning future business strategies for managing distribution channels as well as effectively adapting to market changes. Understanding the share of distribution channels ensures hotels to tailor their services to the needs of the different exhibiting tourism markets.*

Keywords: *distribution channels, luxury hotel, OTA, Split*

JEL classification: *L83, L25, M31, R32, Z3*

INDTRODUCTION

Distribution is one of the key elements that influence how tourism is organized and how competitive a destination is (Buhalis, 2001). The distribution channels of ho-

tels fulfill two important, separate but interrelated functions: they provide consumers with information that helps them make more efficient decisions, and they facilitate the purchase of a particular product or service (Middleton & Clarke, 2001). The most common distribution channels for hotels are direct, indirect and hybrid channels (a combination of both). Direct distribution channels are defined as bookings made through direct interaction between guests and the hotel via methods such as telephone, fax, email or the hotel's own website (Dorčić, 2020; Baines, Fill & Page, 2011). The sale of the company's goods and services through various intermediaries is called "indirect sales channel". Tour operators and travel agencies have traditionally been the main sources of indirect sales in the hospitality industry (Buhalis & Laws, 2001). Indirect channels include GDS (global distribution systems), OTAs (Online Travel Agencies), social networks, tour operators, DMOs (Destination Marketing Organizations) and others (Dadić, Slivar, & Floričić, 2022).

Pricing varies considerably depending on hotel category, room type, number of guests, length of stay and day of the week (Sánchez-Lozano, Pereira, & Chávez-Miranda, 2020). Price is considered one of the most important attributes for tourists, as higher-priced products are perceived as higher quality (Brucks, Zeithaml, & Naylor, 2000). Therefore, pricing is a fundamental and highly relevant element of revenue management (Guillet & Mohammed, 2015), while channel management is becoming increasingly important in the hotel context (Ivanov & Zhechev, 2012; Guillet & Mohammed, 2015). To optimize prices, hotels need a multitude of distribution channels. While digital channels reduce costs, traditional print products still play an important role in certain market segments (Enza & Parmová, 2020). Hotels need to use a portfolio of channels to reach the market (Middleton & Clarke, 2001). Distribution channel management requires sophisticated pricing and channel management systems, as it has been shown that effective management of distribution channels is required in today's complex system (Kimes, 2016). The structure of the intermediaries used by the hotel and the terms of the contracts with them have a significant impact on the average daily rate (ADR), revenue per available room (RevPAR) and overall hotel revenue management (Ivanov & Zhechev, 2012). Managing these variables across distribution channels is key to maximizing revenue (Lee, Deale, & Lee, 2022).

Hotels typically use multiple distribution channels simultaneously, which is a common practice to increase profitability (Giannoni, Brunstein, Guéniot & Jouve, 2021). Online distribution channels are important for hotel operations, but the balance between them and direct channels is crucial for long-term profitability (Sánchez-Lozano, Pereira, & Chávez-Miranda, 2020). Hotels often need to adjust prices across different channels to remain competitive, and OTAs significantly influence hotel pricing by conditioning visibility based on commission rates and pricing strategies (Kim & Cho, 2024). Due to the high commissions, OTAs are encouraging certain hotels to reduce their dependence on them and make more direct bookings (Ye, Yan, & Wu, 2019). OTA platforms impose additional costs on hotels due to high commissions (Chen & Chen, 2024) but are crucial for achieving market visibility (Santa, Rodríguez, & Tegethoff, 2025). Strategies should be dynamic, incorporate different channels that support business objectives, and adapt to developments in the tourism market (Choi et al., 2021).

The main objective of this paper is to use the example of a luxury hotel to show the changes in the share of distribution channels and to identify the most important

channels that have contributed to revenue optimization and hotel operations over the past seven years. The research questions are then derived from this: Which distribution channels account for the largest share of total bookings in the luxury hotel? How does the structure of the distribution channels affect the hotel revenue (ADR and RevPAR)?

THE DEVELOPMENT OF DISTRIBUTION CHANNELS

The strength of the Internet and the development of social media lies in the fact that online platforms allow the integration of multimedia elements such as photos, videos and virtual tours, which can improve the user experience and provide more comprehensive information about the services offered (Buhalis & Licata, 2002). Companies that have employees dedicated to managing digital channels achieve better results and see fewer barriers to their use (Styvén & Wallström, 2019). Digital channels have great potential for the growth of small tourism companies, but their implementation is limited by financial and organizational factors, while medium and large companies have better developed internal structures and larger budgets for digital strategies, which allows them to have a stronger presence on digital platforms. As a result, they are more active on digital channels and achieve competitive advantages and a greater market presence (Styvén & Wallström, 2019; Enza & Parmová, 2020). The importance of digital technologies (e.g. chatbots, apps, robotics) and safety protocols for the perception of destinations is emphasized, as well as the need to develop destination management strategies aligned with tourists' new expectations (Orden-Mejía, et al., 2022). Traditional systems such as physical travel agencies and GDSs have been replaced by complex digital platforms dominated by OTAs, metasearch platforms, social networks and AI personalization (Kim & Cho, 2024; O'Connor, 2024; Kontis & Skoultzos, 2022). OTA platforms such as Booking.com, Agoda and Traveloka dominate distribution, and hotel ratings and reviews significantly boost credibility and influence users' final decisions (Nguyen, 2024).

Tudorică (2023) shows how information and communication technologies have changed the tourism distribution channels and how the number of intermediaries in the distribution channels has multiplied (Table 1).

Table 1: Role and types of intermediaries in tourism distribution

A type of intermediary	Examples	Role in distribution
Traditional intermediaries	Tour operators, travel agencies	Organization of travel and sale of arrangements
GDS (Global Distribution Systems)	Amadeus, Sabre, Galileo	Centralized systems for distribution of flights, hotels, car rentals
Online travel agencies (OTAs)	Booking.com, Expedia, TripAdvisor	Digital distribution of accommodation and tourist services
Meta-search engines	Kayak, Trivago, Google Travel	Aggregation of data from OTA platforms and hotel websites
Marketing platforms	Google Ads, Facebook Ads, Instagram	Targeted advertising of tourist services
Blockchain intermediaries (new model)	Travala (crypto-based reservations)	Direct connection of users and hotels through a decentralized network

Source: own information according to Tudorică (2023)

Therefore, the Internet has enabled the emergence of new types of intermediaries such as OTAs, typical of Booking, Expedia and others that offer direct booking services through websites, and new eIntermediaries use advanced technological platforms to offer services to their customers (Buhalis & Licata, 2002). The growth of OTAs plays an important role in the hotel industry as they provide a convenient platform for comparing multiple hotels and prices, which encourages online bookings (Toh, Raven, & DeKay, 2011). For a hotel, the number of bookings made through OTAs can account for 60% of total revenue in Europe (Dieck, Fountoulaki & Jung, 2018). Bigne, Nicolau & Edu (2021) investigated whether there is a difference in prices for pre-booked rooms by type of distribution channel and found that this is the case and that prices vary by distribution channel. The GDSs offer the lowest prices 90 days in advance, hotel prices on OTAs and hotel websites level out 30 days before arrival, while call centers tend to maintain higher prices (Bigne, Nicolau, & Edu, 2021). It is important to note in the aforementioned study that pricing strategies vary depending on the type of hotel and the time to arrival. In city hotels, prices tend to be lower than in vacation hotels due to demand characteristics and seasonality, and there is a more significant price reduction as the arrival date approaches, while prices in vacation hotels change at a different pace. Smaller hotels tend to maintain higher prices due to higher fixed costs per room, so OTAs and hotel websites lower prices as the arrival date approaches, while larger hotels (over 200 rooms) use OTAs to fill their capacity and offer lower prices on these platforms (Bigne, Nicolau, & Edu, 2021).

LITERATURE OVERVIEW

In reviewing the existing research dealing with channel share, several significant studies have been conducted on channel share in hotels. The study by Schegg et al. (2013) shows the dominance of direct bookings, which account for 67% of total bookings, with most direct bookings being made via telephone and email. At the same time, the growth of online distribution systems such as Booking.com (52.3%) shows the highest growth rate and now accounts for 16.4% of bookings. The study also shows that mobile channels and social media are only weakly represented. In addition, the majority of hotels (44.9%) still manage channels manually, which increases operational costs and business complexity, while only 40.3% of hotels use software systems to manage channels ("channel managers"). The authors highlight a lack of professional staff and time resources that hinder the use of modern technologies.

Stangl, Inversini, & Schegg (2016) analyze the dependence of hotels in Austria, Germany and Switzerland on OTAs. The research results show that Austrian hotels rely more on direct online channels (68.89% of bookings) reducing their dependence on OTAs. Swiss hotels have a high OTA penetration but are more dependent on Booking.com (Booking.com generates more than 50% of online bookings). German hotels are the most dependent on OTAs (82.9% of bookings come from OTAs). The study highlights the importance of strategic management of distribution channels and indicates that hotels should diversify their distribution channels and invest in direct online bookings to reduce reliance on OTAs and increase profitability. Investments in technology, website optimization and loyalty programs are seen as key to increasing direct bookings. In the same year, Beritelli & Schegg (2016) show that the number of distribution channels is a key factor in increasing the total number of online bookings.

Thus, a multi-channel distribution strategy is particularly beneficial for small and medium-sized hotels, as well as uncategorized properties and those with one or two stars, as they often lack strong negotiating power or resources to optimize individual channels and gain significant benefits by being present on multiple platforms.

A study by Dadić, Slivar & Floričić (2022) on distribution channels shows that direct bookings (via own websites and reservation centers) account for an average of 30.83% of total bookings, while indirect OTA channels account for a significant share and the share of GDS channels is very low (around 1%). The paper also highlights the importance of a proactive distribution network that can adapt to changes in the business environment and is supported by data-driven technology. The future of distribution channels depends on emerging technologies such as AI, blockchain and personalized analytics, but it is unlikely that the number of intermediaries will decrease — instead, they will evolve and adapt to new market conditions (Tudorică, 2023). Future trends in tourism distribution will focus on sustainability, personalization and transparency, with increasing attention being paid to green initiatives and ethical tourism (Kim & Cho, 2024). When choosing a hotel, tourists are willing to pay more for hotels with a green label (Wei et al., 2024).

Kalipalire & Liu (2024) analyzed which channels guests prefer to express positive and negative feedback and which characteristics make a channel effective. The research results (Kalipalire & Liu, 2024) show that guests prefer telephone contact for negative feedback, while they most frequently use direct (face-to-face) communication for positive feedback. Utami & Darma (2024) highlight ease of use as the most important criterion when choosing a channel (e.g. Traveloka, Booking.com, calling the hotel directly). In addition, visual and emotional experiences (e.g. interaction with staff, room viewing) often motivate the use of offline channels, while speed and autonomy favor online bookings. Hossain et al. (2024) examine the effectiveness of digital marketing on customers and business performance in the hotel industry. It is shown that there is a strong positive correlation between the use of internet tools and guest satisfaction, emphasizing that the clarity of navigation, loading speed and interactivity of the website are crucial in creating a positive brand impression. Almeida & Ivanov (2024) examine the role of generative artificial intelligence, specifically ChatGPT and DALL-E, in designing a comprehensive marketing strategy for a luxury hotel, also analyzing distribution channels. However, AI recommendations, limited by data-based knowledge, are often generic and not specific enough for the complex needs of the luxury hotel market. AI may overlook legal constraints or long-term reputational implications of certain proposals, so human expertise remains essential for evaluating, adapting and implementing the proposed strategies (Almeida & Ivanov, 2024). Wang (2025) analyzes how relationships between members of the distribution channel evolve, sustain and change, particularly under conditions of strong OTA competition and the rise of direct distribution. Hotel properties are increasingly using direct online channels to increase their profit and independence, but at the same time face the challenge of channel conflict, especially when offering the same prices to OTAs and intermediaries. Empirical research shows that lodging establishments can have greater distribution power as intermediaries if they have rare resources such as location, reputation or a specific offer (Wang, 2025).

METHODOLOGY

Due to the special nature of the data in connection with the use of distribution channels, a request was sent to all luxury hotels, to which only one luxury hotel responded, whose name is not published for reasons of data protection. The internal secondary data of this luxury hotel serves as the basis for the empirical analysis and the formulation of conclusions based on actual figures. To analyze the distribution channels, the study used internal data from the luxury hotel as well as secondary data on the tourism market from the local tourist office. This study uses historical data from a selected luxury hotel in Split and analyzes the period from 2017 to 2023. The analysis includes key indicators such as revenue share, ADR, revenue per available room (RevPAR) and distribution channels. This data enables both a comparative and historical analysis of the luxury hotel against the market average and allows the hotel's strengths and weaknesses within the overall tourism market to be identified, segmented by distribution channel and guest segment. The segmentation of distribution channels was customized according to the structure and reporting of the selected hotel. By analyzing data provided by both the hotel and the tourist board, it was possible to identify trends that indicate changes in guest preferences in the city of Split. The study also provides a detailed overview of the current state of the tourism market in terms of accommodation capacity, arrivals and overnight stays in the Split area. For a more detailed analysis, the luxury hotel has signed allocation agreements with agencies such as Elite, Kompas, Jet Vacation, Classic Collection, Classic Vacations and Kompas Ljubljana. Bookings via online distribution channels are made through platforms such as Booking.com, Expedia, Hotelbeds and the hotel's own website. Corporate agreements that enable companies to send their employees have been concluded with employers such as Auto Hrvatska, Adria Dental, Inditex, Eurovilla, HTZ, Just kozmetika, Oktal Pharma, Orbico, Solidor, Strabag, Weitnauer and Schneider Electric. Guests who come via agencies that do not have contracts with the hotel include Katarina Line, Travelline, Perfecta Travel and Alfa Travel. The focus of the data analysis is on the year 2023, as this is the last year with fully available data. The segmentation of distribution channels is aligned with the parameters used internally by the hotel. The secondary data from the luxury hotel, which is not publicly available in the wider tourism market, provides a unique perspective and makes this study original and relevant to the academic community.

FINDINGS

In the following text you will find a presentation of the analyzed tourism market of the city of Split by accommodation capacity and an analysis of the selected luxury hotel in Split.

Table 2: Share of tourist arrivals and overnight stays according to accommodation capacity from 2017 to 2023 in the city of Split (%)

Accommodation	2017	2018	2019	2020	2021	2022	2023
HOTELS							
Arrivals	34,57	33,47	33,29	35,16	33,27	33,71	36,10
Overnight stays	21,14	21,17	21,53	18,68	21,59	22,68	24,75
CAMPS							
Arrivals	4,08	3,65	3,39	3,35	4,75	4,04	3,75
Overnight stays	5,69	5,14	4,25	3,65	5,38	5,03	4,86
HOUSEHOLD OBJECTS							
Arrivals	44,03	45,97	46,12	47,69	44,23	43,06	40,50
Overnight stays	58,06	59,19	59,23	64,98	57,45	56,00	53,21
OTHER HOSTED ACCOMMODATION FACILITIES							
Arrivals	17,10	16,72	17,00	13,31	17,46	18,92	19,46
Overnight stays	13,84	13,31	13,85	10,20	14,22	15,01	16,24
NON-COMMERCIAL ACCOMMODATION							
Arrivals	0,22	0,20	0,20	0,49	0,29	0,28	0,19
Overnight stays	1,28	1,20	1,14	2,49	1,37	1,28	0,94
TOTAL							
Arrivals	100	100	100	100	100	100	100
Overnight stays	100	100	100	100	100	100	100

Source: Tourist board of the city of Split

According to Table 2, the dynamics of the tourism market can be observed in the share of accommodation types in arrivals and overnight stays from 2017 to 2023, with fluctuations caused by global events such as the COVID-19 pandemic in 2020. Private accommodation establishments were always the most common type of accommodation in terms of overnight stays and also led the way in terms of arrivals. The lowest proportion of arrivals in private accommodation was recorded in 2023 at 40.50%, while overnight stays in this type of accommodation fell to 53.21% in the same year, indicating a slight decline in the popularity of this type of accommodation. Private accommodation peaked in 2020, when it reached its highest ever share of arrivals and overnight stays. This data can be interpreted as a result of epidemiological measures where travelers preferred accommodations with a higher degree of privacy and less contact with other guests.

In general, after private accommodation, hotels have a significant share of the total accommodation capacity in 2023 with 36.10% of arrivals and 24.75% of overnight stays. These figures underline the important role of hotel accommodation in the structure of available capacity, as hotels attract tourists who prefer a higher standard of service and additional amenities (Vlašić, 2023; Buehring & O'Mahony, 2019) although hotels are not the predominant form of accommodation. It is worth noting the data for 2020 in terms of hotel arrivals and overnight stays in Split. The ratio between arrivals and overnight stays gives an indication of the average length of stay of guests

(DZS, 2023). If the number of arrivals increases while the number of overnight stays decreases, this indicates that guests are staying shorter, i.e. the average number of overnight stays per guest is decreasing. This trend could indicate a higher turnover of tourists making shorter visits. Conversely, if the number of arrivals decreases and overnight stays increase, this indicates that those who come to visit tend to stay longer. Such trends are often observed in vacation destinations where guests prefer longer stays, such as seaside resorts and campsites (Magaš, Vodeb, & Zadel, 2018).

The share of campsites (4%) indicates their limited reach, but also their potential for future development, especially given the trends in sustainable tourism. Non-commercial accommodation is the least represented category in terms of both arrivals and overnight stays. These results ultimately point to an increasing demand for more flexible and private forms of accommodation, while also highlighting the resilience of traditional hotel capacity. The majority of overnight stays are generated in private accommodation (53,21%) while hotels account for 24.75% of total overnight stays and campsites account for 4.86% of the accommodation structure in 2023.

Table 3: Analysis of hotels according to categorization in 2023 in the city of Split and the Republic of Croatia

CATEGORIZATION	Number of objects	Accommodation unit number	Number of beds	Share (%) of hotels in Split	Share (%) of hotels in the Republic of Croatia
2 stars	1	175	387	1,72	5,07
3 stars	10	204	364	17,24	38,85
4 stars	21	1.156	2.320	36,21	48,60
5 stars	4	462	905	6,90	7,48
No categorization	22	578	1.165	37,93	/
In total	58	2.575	5.141	100,00	100,00

Source: Tourist Board of the city of Split

Table3 shows an analysis of hotels by categorization in the city of Split as well as the share of hotels in Split and the Republic of Croatia in 2023. Establishments without categorization only indicate that they are in the process of categorizing their accommodation units. Both the city of Split and Croatia have the highest share of 4-star hotels by hotel categorization. They are followed by 3-star hotels, which have a slightly higher share at national level. The proportion of 3-star hotels in the city of Split is significantly lower than the national average, which opens up the prospect that hotel development in Split is geared towards higher categories and a more luxurious clientele. The share of 5-star hotels in the city of Split follows exactly the trend of the development of 5-star hotels on a national level. In summary, the data shows that the city of Split is clearly focused on higher categorized accommodation options.

Table 4: Number of hotels according to 5* categorization in the city of Split from 2015 to 2023

Year	Hotel categorization 5*	Hotel name	Number of beds	Chain index increase
2015.	2	Park, Atrium	391	/
2016.	3	Park, Atrium, Cornaro	460	17,65
2017.	3	Park, Atrium, Cornaro	652	41,74
2018.	4	Park, Atrium, Cornaro, Radisson Blu	670	2,76
2019.	4	Park, Atrium, Cornaro, Radisson Blu	722	7,76
2020.	4	Park, Atrium, Cornaro, Radisson Blu	722	0,0
2021.	4	Park, Atrium, Cornaro, Radisson Blu	722	0,0
2022.	4	Park, Atrium, Cornaro, Radisson Blu	722	0,0
2023.	5	Park, Atrium, Cornaro, Radisson Blu, Ambassador	905	25,35

Source: Tourist board of the city of Split

In 2015 in terms of the number of hotels by 5-star category shows that the destination Split had only two five-star hotels, Park and Atrium. This modest situation indicates an early stage in the development of the luxury offer and the destination itself, which seemed limited both in terms of the number of facilities and capacity. In 2016 the number of hotels increased to three with the opening of Hotel Cornaro and capacity rose to 460 beds (+69). This was the first important step towards expanding the luxury offer. In 2017, the number of hotels remained the same, but bed capacity increased to 652 (+192) either due to the expansion of existing facilities or a conversion to increase capacity. In 2018, additional growth was recorded with the opening of the Radisson Blu Hotel, bringing the number of hotels to four and slightly increasing the number of hotels by 2.76%. In 2019, a further growth index of 7.76 was recorded with the expansion of the Radisson Blu Hotel. The period from 2019 to 2022 was characterized by stagnation. This stagnation clearly reflects the impact of the COVID-19 pandemic, which significantly restricted expansion and investment in the tourism sector. The year 2023 brings a long-awaited recovery and expansion with a growth index of 25.35 compared to the previous three years. With the opening of the Hotel Ambassador the number of hotels increased to five while bed capacity rose to 905.

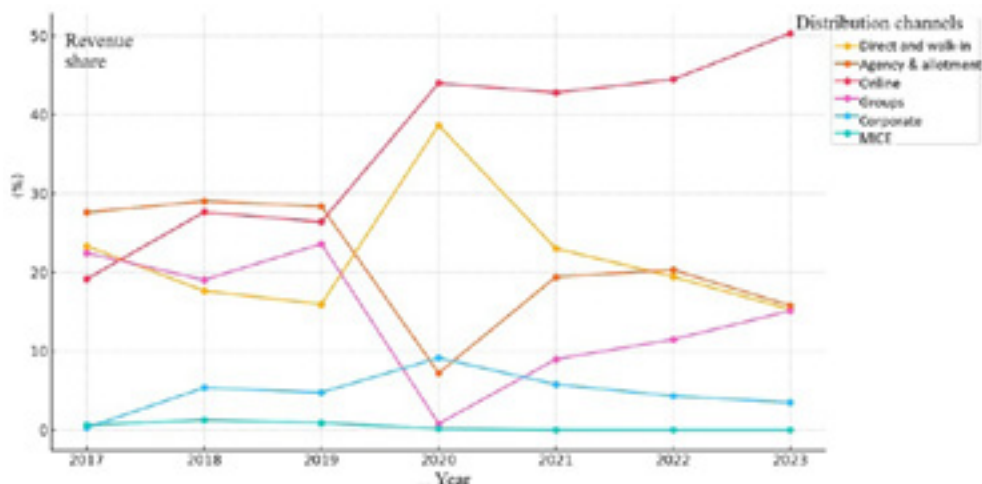
Table 5: Distribution channels of the selected 5* hotel from 2017 to 2023 according to the share of revenue

Distribution channel	Share indicator (%)	2017	2018	2019	2020	2021	2022	2023
Direct and "walk in"	Income	23,32	17,65	15,95	38,65	23,02	19,45	15,28
Agency and allotment	Income	27,60	29,03	28,37	7,23	19,42	20,30	15,79
Online	Income	19,15	27,64	26,39	43,98	42,78	44,46	50,31
Groups	Income	22,45	19,03	23,61	0,81	8,97	11,49	15,12
Corporate	Income	0,31	5,36	4,76	9,15	5,79	4,31	3,50
Mice	Income	0,63	1,27	0,92	0,18	0,01	0,00	0,00

Source: Internal data of the luxury hotel

Table 5 shows the share of revenue by distribution channel in a luxury hotel for the period from 2017 to 2023. During this period, the share of revenue generated through the online channel increased from 19.15% to 50.31%, making this channel the most important revenue generator in the modern tourism business. The growth of direct and “walk-in” sales in 2020 can be explained by the cancellation of group and agency arrangements due to epidemiological measures - guests have booked directly more often. Agencies and allocations have the biggest decline in 2020 due to restrictions on group travel, but their share is slowly recovering. The MICE channel contributes the least to distribution channel revenue in a luxury hotel. The structural change of distribution channels is clearly visible, with the dominance of online distribution and the decline of traditional channels.

Graf 1: Revenue share by distribution channel of the selected 5* hotel in Split from 2017 to 2023



Source: Internal data of the hotel

Figure 1 illustrates the revenue share of the different distribution channels in the period from 2017 to 2023 for the selected luxury hotel. The online distribution channel shows the strongest growth over the analyzed period, from 19.15% in 2017 to a dominant 50.31% in 2023. In 2020, direct and walk-in bookings together with online channels had the highest share of sales compared to other distribution channels. However, the revenue share of the direct and walk-in channel declined after 2020 and was significantly lower in 2023, reflecting a shift of guests back to other segments of this distribution channel. The agencies and allotments distribution channel remained a consistently important source of revenue, starting at 27.60% in 2017 and gradually decreasing to 15.79% in 2023.

The revenue share of group arrangements fluctuated significantly, from a stable 22.45% in 2017 to an almost negligible 0.81% in 2020, with a gradual recovery to 15.12% in 2023. Groups experienced the sharpest decline in arrivals and room nights during the pandemic, which directly impacted the revenue share, mainly due to travel and assembly restrictions. Corporate and MICE distribution channels have never fea-

tured prominently in the business strategy of the selected luxury hotels and therefore always had a lower share of total distribution and revenue.

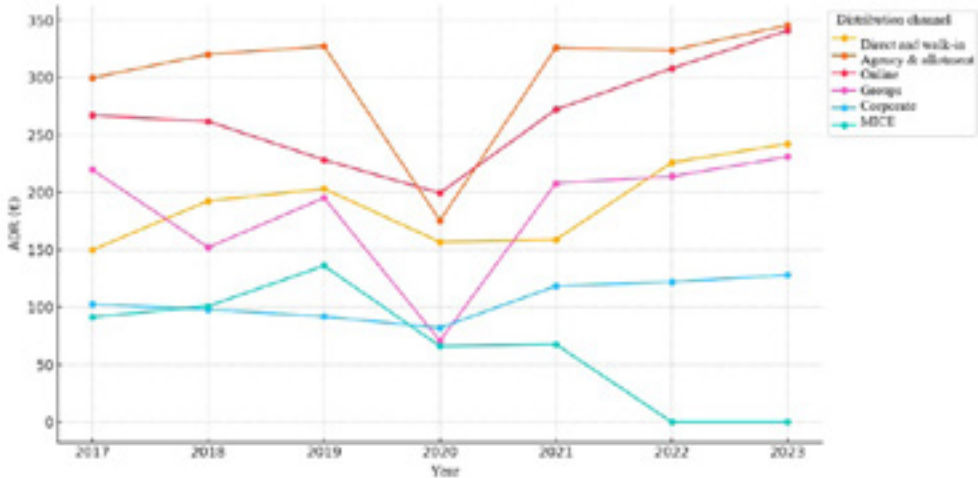
Table 6: Market segmentation according to the distribution channel of the selected 5* hotel in Split from 2017 to 2023

Distribution channel	Indicator	2017	2018	2019	2020	2021	2022	2023
Direct and "walk in"	ADR	149,77	192,57	203,20	156,86	158,88	225,99	242,35
	RevPar	33,09	23,86	21,56	16,10	26,94	29,24	27,39
Agency and allotment	ADR	299,75	320,28	327,29	175,51	326,13	323,84	345,54
	RevPar	39,17	39,24	38,35	3,01	22,73	30,52	28,31
Online	ADR	267,12	261,84	228,31	199,53	272,11	308,01	341,04
	RevPar	27,17	37,36	35,67	18,32	50,07	66,86	90,19
Groups	ADR	219,88	152,03	195,26	70,74	208,10	213,99	230,99
	RevPar	31,85	25,73	31,92	0,34	10,50	17,27	27,10
Corporate	ADR	102,57	98,03	91,97	82,14	118,35	122,17	128,05
	RevPar	0,44	7,25	6,44	3,81	6,78	6,48	6,28
Mice	ADR	91,50	100,91	136,15	66,02	67,69	0,00	0,00
	RevPar	0,90	1,72	1,24	0,08	0,01	0,00	0,00

Source: Internal data of the luxury hotel

By analyzing the Average Daily Rate (ADR) and Revenue Per Available Room (RevPAR) data in Table 6 by distribution channel from 2017 to 2023, it is possible to determine which channel achieves the highest pricing policy and which channel leads to the lowest performance per unit of capacity. Due to the luxury hotel's specialized offering and high value-added contractual agreements, the highest ADR is agency and allocation, while the distribution channel contributing the most to revenue per unit of capacity (RevPAR) in 2023 is the online channel. The online channel outperforms all others in absolute growth, indicating an increasing reliance on OTA channels and their ability to price dynamically. The agency channel maintains a high pricing policy due to pre-contractual packages and offers for specific market niches, giving it a high ADR. The direct/walk-in guest segment shows the recovery of direct demand and the increase in ADR, but also the hotel's adjustment towards price control without intermediaries. RevPAR combining high price (ADR) and high occupancy - an indicator of operational efficiency - is reflected in the online channels, while the recovery of the agency and allocation channel has not reached pre-pandemic levels. The hotel has not adapted its offer to the MICE segment or is not interested in this form of cooperation.

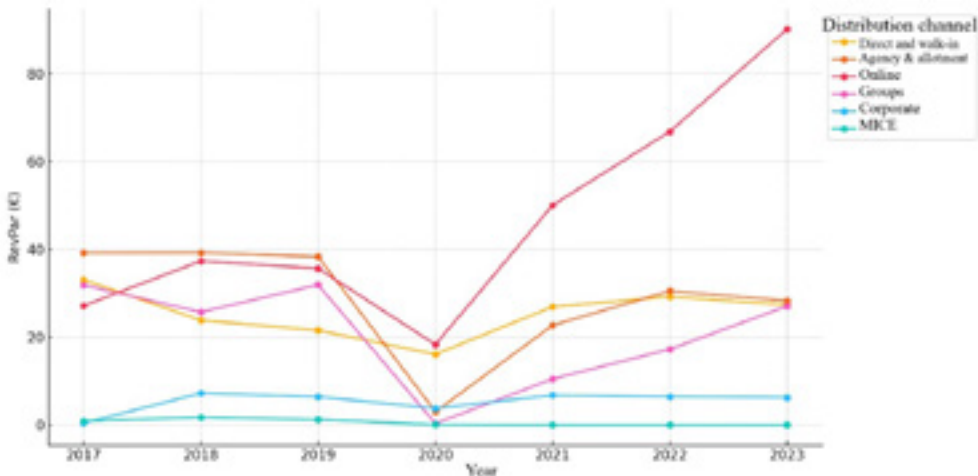
Graph 2: ADR according to the distribution channel of the selected 5* hotel in Split from 2017 to 2023



Source: Internal data of the hotel

Figure 2 shows the ADR trends by distribution channel. Agencies and allotments have the highest ADR. Despite a decline in the share of sales, this channel remains important for profitability. ADR for direct and unsolicited bookings remains stable and shows a faster recovery after 2020, indicating its resilience in times of crisis. The pandemic led to a decline in ADR across all channels, particularly for group bookings due to lower demand. Although the direct and group channels have partially adapted, their profitability needs to be further optimised. The Corporate and MICE segments continue to record a weak recovery. In summary, agencies and allotments have the highest ADR, while the online channel is experiencing stable growth and increasing importance.

Graph 3: RevPar according to the distribution channel of the selected 5* hotel in Split from 2017 to 2023



Source: Internal data of the hotel

Figure 3 shows the development of RevPAR for various distribution channels in luxury hotels from 2017 to 2023. RevPAR, which combines occupancy and ADR, is an important indicator of hotel revenue. The aim of the analysis is to understand the dynamics of changes and trends by distribution channel. The comparison with Table 5 and Fig. 1 illustrates the adaptability of the individual channels. Agencies and Allocations had a stable RevPAR before the pandemic, followed by a decline in 2020 and a gradual recovery. This segment is heavily impacted by travel restrictions and limited mobility. Although RevPAR is growing, the recovery is slower than that of online distribution, which is growing steadily and becoming the most profitable channel thanks to dynamic price management. Group distribution has been hit the hardest due to the decline in social and group travel, while the corporate and MICE travel segments need significant adjustments to regain importance.

CONCLUSION

This paper provides an insight into the evolution of distribution channels and their changing revenue shares over time. It shows how sensitive international markets are to global crises. The COVID-19 pandemic impacted all areas of tourism worldwide and underlined the importance of diversifying distribution channels to reduce dependence on international visitors. The tourism market is very dynamic and requires proactive action and the continuous introduction of innovations. Digital channels and travel agencies strategies are crucial for future revenue growth in hotel operations. Personalized services and strategies to extend guests' length of stay are crucial for increasing hotel revenues. The study shows that online and agency/brokerage distribution channels have the fastest growth and highest revenue values (ADR and RevPAR), making them the most important revenue-generating channels. Although The corporate segment is the most stable in operational terms, it generates the lowest revenue due to lower prices and contractually agreed commissions. Strategic management of distribution channels ensures better market positioning and increases the competitiveness of hotels. Dynamic distribution strategies require a combination of traditional and digital channels in order to take account of the development of the tourism market. A limitation of the study is the low response rate of luxury hotels in the city of Split and the results are geographically specific. This does not mean that certain distribution channels would work equally well in other tourism markets. Despite the limitation in terms of the number of companies surveyed, the quality of the internal data of the luxury hotels and the theoretical basis ensure a practical benefit. Looking at distribution channels through the lens of a specific organization provides insights into management practices that are often under-examined in studies of luxury hotels. This research contributes to the theoretical literature on the evolution and change of hotel distribution channels by incorporating contemporary concepts such as disintermediation, reintermediation, rate parity and online channel dynamics. The collected data can be used to build forecasting models for the tourism market in terms of pricing strategies and revenue optimization by guest segment, opening room for future replications, extensions and comparative analyzes in various spatial and temporal contexts. The proposed guidelines can help reduce the risks associated with the implementation of new systems and the optimization of existing distribution channels in the hotel industry.

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WELLBEING I ODRŽIVI RAZVOJ: SINERGIJA MENADŽMENTA I MARKETINGA U MODERNIM KOMPANIJAMA

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Sažetak: U savremenom poslovnom okruženju, wellbeing zaposlenih i održivi razvoj postaju ključni faktori uspjeha i konkurentnosti preduzeća. Ovaj rad istražuje sinergiju između holističkog menadžmenta i marketinških strategija u kontekstu promovisanja wellbeing-a kao integralnog dijela održivog poslovanja. Kroz teorijski pregled principa wellbeing-a, održivog razvoja i njihovog međusobnog uticaja, rad analizira načine na koje menadžment i marketing zajednički doprinose stvaranju pozitivne organizacione kulture, poboljšanju radnog okruženja i jačanju brenda. Poseban fokus stavljen je na ulogu lidera i efektivnu komunikaciju vrijednosti wellbeing-a, kao i na primjere uspjeha praksi iz savremenih kompanija koje integrišu ove principe. Zaključak naglašava da je integracija wellbeing-a i održivosti kroz sinergijski pristup menadžmenta i marketinga neophodna za dugoročni razvoj i društvenu odgovornost modernih organizacija. Wellbeing postaje jedan od najvažnijih faktora uspjeha savremenih kompanija. Dobrobit radnika, koja obuhvata njihovo fizičko, mentalno i emocionalno zdravlje, direktno utiče na produktivnost i kreativnost na poslu. Kompanije koje aktivno ulažu u programe i politike koje podržavaju wellbeing stvaraju pozitivno radno okruženje, smanjuju odsustvo zaposlenika, a istovremeno povećavaju lojalnost i zadovoljstvo radnika. Wellbeing je važan i za reputaciju firme – savremeni potrošači i partneri sve više cijene kompanije koje pokazuju društvenu odgovornost i brigu o svojim zaposlenicima. Ulaganje u wellbeing nije samo etički ispravno, već predstavlja i pametnu poslovnu strategiju koja doprinosi održivom rastu i konkurentskoj prednosti na tržištu. Cilj rada jeste pokazati da je primjena wellbeing alata neizostavan proces za uspjeh kompanije i zdravlje zaposlenih.

Ključne riječi: wellbeing, menadžment, marketing, kompanija, zaposleni

Jel kasifikacija: I3, M3, M1, M12

UVOD

U savremenom poslovnom okruženju, preduzeća se suočavaju sa brojnim izazovima koji zahtijevaju prilagodbu njihovih strategija i organizacionih kultura. Dva ključna trenda koja postaju nezaobilazni elementi uspješnog poslovanja su wellbeing zaposlenika i održivi razvoj. Wellbeing, odnosno dobrobit zaposlenika, obuhvata njihove fizičke, mentalne i emocionalne aspekte zdravlja, a dokazano je da direktno utiče na produktivnost, inovativnost i ukupno zadovoljstvo radnim mjestom. S druge strane, održivi razvoj podrazumijeva poslovne prakse koje poštuju ekološke, društvene i ekonomske principe s ciljem dugoročnog očuvanja resursa i društvene odgovornosti.

Integracija wellbeing-a i održivog razvoja u menadžment i marketinške strategije omogućava kompanijama da razviju holistički pristup koji povezuje unutrašnje procese i vanjski imidž brenda. Takav pristup ne samo da doprinosi stvaranju pozitivnog radnog okruženja i poboljšanju kvaliteta života zaposlenika, odnosno radnika, već i jača povjerenje potrošača i partnera kroz jasno iskazane vrijednosti i odgovornost prema društvu i okolišu.

TEORIJSKI OKVIR

Wellbeing u kompanijama podrazumijeva sveukupan osjećaj psihičkog, emocionalnog i fizičkog blagostanja zaposlenih u okviru radnog okruženja. To je više od odsustva stresa ili bolesti – to je stanje u kojem se zaposleni osjećaju sigurno, cijenjeno, motivisano i u balansu između poslovnih i ličnih aspekata života.

U savremenom poslovnom svijetu, gdje su ubrzani ritmovi rada, stalni pritisci i visoka očekivanja postali svakodnevica, pitanje wellbeing-a postaje jedno od ključnih za dugoročni opstanak i uspjeh organizacija. Kompanije koje se aktivno bave wellbeing-om svojih zaposlenih ne samo da pokazuju odgovornost i empatiju, već i grade zdravije timove, jaču organizacionu kulturu i bolje radne rezultate.

Wellbeing obuhvata različite dimenzije: mentalno zdravlje, međuljudske odnose, osjećaj svrhe i pripadnosti, fizičko zdravlje, radno okruženje, ali i organizacione politike koje omogućavaju ravnotežu između poslovnog i privatnog života. U tom smislu, wellbeing više nije samo pitanje individualnog zadovoljstva – on postaje strateški faktor koji oblikuje efikasnost, otpornost i inovativnost cijele organizacije.

Razvijanje kulture wellbeing-a ne znači samo povremene benefite ili simbolične mjere, već zahtijeva sistemski pristup, gdje lideri, menadžeri i svi članovi tima doprinose stvaranju radnog ambijenta u kojem ljudi mogu da rastu, razvijaju se i osjećaju dobro. Samo u takvom okruženju moguće je ostvariti puni potencijal kako pojedinaca, tako i preduzeća u cjelini.

Wellbeing u poslovnom kontekstu

Wellbeing zaposlenika podrazumijeva sveobuhvatno stanje fizičkog, mentalnog i emocionalnog zdravlja koje omogućava pojedincima da budu produktivni i zadovoljni u radnom okruženju. Prema modelu Svjetske zdravstvene organizacije (WHO), wellbeing je stanje potpunog fizičkog, mentalnog i socijalnog blagostanja, a ne samo odsustvo bolesti ili slabosti. U poslovnom kontekstu, wellbeing uključuje i aspekte kao što su balans između privatnog i poslovnog života, osjećaj psihološke sigurnosti, kao i zadovoljstvo poslom. (Danna, 1999)

Održivi razvoj i korporativna društvena odgovornost

Održivi razvoj je koncept koji podrazumijeva zadovoljenje potreba sadašnjih generacija bez ugrožavanja mogućnosti budućih generacija da zadovolje svoje potrebe (Brundtland izvještaj, 1987). U okviru poslovanja, održivi razvoj se manifestira kroz prakse koje minimiziraju negativan uticaj na okoliš, unapređuju socijalnu odgovornost i osiguravaju ekonomski rast. Korporativna društvena odgovornost (CSR) je dio održivog poslovanja koji se odnosi na etičko ponašanje kompanija prema zaposlenima, zajednici i okolini. (Carroll, 1999)

Sinergija menadžmenta i marketinga u promociji wellbeing-a i održivosti

Holistički menadžment podrazumijeva integraciju različitih aspekata poslovanja, uključujući brigu o zaposlenicima i održivosti, u jedinstvenu strategiju koja vodi ka dugoročnom uspjehu (Senge, 1990). Marketing, kao komunikacioni alat, igra ključnu ulogu u promovisanju vrijednosti wellbeing-a i održivog razvoja, kako interno unutar organizacije, tako i eksterno prema kupcima i drugim zainteresovanim stranama. (Kotler, 2005)

Prethodna istraživanja pokazuju da kompanije koje uspješno integrišu wellbeing programe i održive prakse imaju veću zaposleničku angažovanost, nižu stopu bolovanja i bolju reputaciju na tržištu (Grawitch et al., 2006; Eccles et al., 2014). Također, marketing zasnovan na principima održivosti i wellbeing-a može povećati povjerenje potrošača i lojalnost prema brenda. (Peattie, 2005)

Liderstva i organizacione kulture

Efektivno liderstvo koje promoviše wellbeing i održivost ključno je za implementaciju ovih principa u organizaciji. (Avolio, 2004). Lideri sa emocionalnom inteligencijom i transformacionim stilom vođenja mogu stvoriti pozitivnu kulturu koja podržava zdravlje zaposlenika i odgovorno poslovanje (Goleman, 1998). Organizacione kulture koje cijene transparentnost, inkluzivnost i kontinuirano učenje pokazuju bolje rezultate u implementaciji wellbeing i održivih programa. (Schein, 2010)

PRETHODNA ISTRAŽIVANJA

Grawitch i saradnici (Grawitch, 2006) ukazuju na to da wellbeing zaposlenika ima direktan uticaj na produktivnost, smanjenje stresa i odsustvo sa posla. Njihova istraživanja pokazuju da kompanije koje implementiraju programe za mentalno i fizičko zdravlje zaposlenih bilježe poboljšanja u radnoj atmosferi i ukupnoj efikasnosti.

Spector (Spector, 1997) naglašava važnost emocionalnog blagostanja na radnom mjestu i povezuje ga sa zadovoljstvom poslom i smanjenjem fluktuacije zaposlenih. Takođe, psihološka sigurnost, kao dio wellbeing-a, prema istraživanju Edmondsona (Edmondson, 1999), omogućava otvorenu komunikaciju i inovativnost unutar timova.

Eccles, Ioannou i Serafeim (Eccles, 2014) istražuju povezanost između održivog poslovanja i finansijskih performansi kompanija, te zaključuju da kompanije koje se aktivno bave CSR-om i održivošću postižu bolje rezultate na duže staze.

Porter i Kramer (Porter, 2011) kroz koncept "Creating Shared Value" ističu da je moguće istovremeno kreirati ekonomski profit i društvenu vrednost kroz održive poslovne strategije koje uključuju brigu o zaposlenima i zajednici.

Peattie i Crane (Peattie, 2005) razmatraju uticaj zelenog i socijalnog marketinga na percepciju potrošača, posebno ističući da kampanje koje promovišu wellbeing i društvenu odgovornost povećavaju povjerenje i lojalnost kupaca.

Kotler i Lee (Kotler, 2005) naglašavaju ulogu marketinga u komuniciranju vrijednosti održivosti i wellbeing-a, kao i u oblikovanju brendova koji odgovorno pristupaju društvenim i ekološkim pitanjima.

Senge (P., 1990) u svojoj teoriji o učenju organizacija i holističkom menadžmentu, ističe značaj integracije različitih funkcija unutar preduzeća, uključujući wellbeing kao ključni faktor uspjeha.

Dalja istraživanja ukazuju da sinergijski pristup između menadžmenta i marketinga omogućava bolju internu motivaciju zaposlenih i snažniji odnos sa tržištem (Eccles, 2014)

METODOLOGIJA ISTRAŽIVANJA

Za ovaj rad su korištena istraživanja sekundarnog tipa kako slijedi:

1. Istraživanje Eccles, Ioannou i Serafeim (2014)

Ova studija je koristila sekundarnu analizu velikog broja korporativnih izvještaja o održivosti i finansijskih podataka kako bi istražila povezanost između primjene održivih praksi i poslovnih performansi. Autori su koristili kvantitativnu analizu podataka na uzorku od preko 180 kompanija tokom 18 godina, te su statistički dokazali da kompanije sa snažnijim fokusom na održivost pokazuju značajno bolje finansijske rezultate i niži rizik od lošeg poslovanja ($p < 0.05$). Ova studija podržava tezu da održivi razvoj ima direktan pozitivan utjecaj na uspjeh preduzeća.

2. Meta-analiza Grawitch i saradnika (2006)

Grawitch i tim su sprovedi meta-analizu 30 istraživanja koja su se bavila wellbeing-om zaposlenika i njegovim uticajem na organizacijske rezultate. Analiza je pokazala da postoji značajna pozitivna korelacija ($r = 0.45$, $p < 0.01$) između programa za unapređenje wellbeing-a i povećanja produktivnosti, kao i smanjenja stresa i bolovanja zaposlenih. Ova meta-analiza pruža snažan dokaz o efikasnosti wellbeing programa u različitim industrijama.

3. Studija Porter i Kramer (2011) – Creating Shared Value

U svom radu, Porter i Kramer koriste sekundarne izvore i primjere kompanija koje su integrisale društvenu odgovornost i održivost u svoje osnovne poslovne strategije. Kroz analizu dostupnih poslovnih izvještaja i studija slučaja, autori argumentuju da je stvaranje zajedničke vrijednosti (shared value) statistički povezano sa povećanim prihodima i tržišnim udjelom kod ovih kompanija. Iako nisu prikazali specifične numeričke podatke, njihov koncept je široko podržan kroz kvantitativne studije drugih autora.

4. Istraživanje Peattie i Crane (2005) – Green Marketing

Ovo istraživanje koristi postojeće podatke o potrošačkim navikama i analizama tržišta kako bi pokazalo da kampanje koje promovišu održivost i wellbeing značajno povećavaju povjerenje i lojalnost kupaca. Statističke analize pokazuju da potrošači u prosjeku za 30% češće biraju brendove sa izraženim društvenim i ekološkim vrijednostima ($p < 0.05$), što potvrđuje važnost održivog marketinga.

DISKUSIJA REZULTATA ISTRAŽIVANJA

Istraživanja ukazuju na snažnu povezanost između prisustva wellbeing praksi u organizacijama i kvaliteta menadžerskih i marketinških procesa. U preduzećima koja sistematski ulažu u dobrobit zaposlenih, vidljiv je pozitivan uticaj na motivaciju, produktivnost, kreativnost i opštu klimu unutar radnog kolektiva. Posebno je izražen efekat u timovima koji su svakodnevno izloženi visokom nivou interpersonalne komunikacije i emocionalnog rada, kao što su marketinški i menadžerski timovi.

Zaposleni koji se osjećaju psihološki sigurno, imaju mogućnost izražavanja emocija bez straha od osude i rade u podržavajućem okruženju, pokazuju viši nivo radnog angažmana, manju stopu izostanaka i bolju otpornost na stres. Praksa ukazuje na to da kada wellbeing postane sastavni dio organizacione kulture, dolazi do povećane lojalnosti zaposlenih i veće usmjerenosti ka zajedničkim ciljevima.

Takođe je uočeno da postoji razlika u načinu na koji različite profesionalne grupe unutar istog preduzeća percipiraju i reaguju na pristupe vezane za wellbeing. Menadžeri i marketari pokazuju veću potrebu za emocionalnom podrškom i balansiranjem između profesionalnih zahtjeva i ličnog blagostanja, dok se izvršni radnici više fokusiraju na operativne zadatke, što ukazuje na potrebu za prilagođavanjem wellbeing pristupa prema tipu radnog mjesta.

Značajan je i podatak da većina ispitanika osjeća potrebu da zadrži profesionalnost uprkos unutrašnjem stresu, što može ukazivati na nedostatak prostora za otvorenu emocionalnu komunikaciju na radnom mjestu. Ovakav emocionalni pritisak, ukoliko je konstantan, može dovesti do pojave psihosomatskih simptoma, kao što su bolovi u leđima, što potvrđuje potrebu za integrisanjem mentalnog zdravlja u strategije održivog razvoja preduzeća.

Diskutovani nalazi sugerišu da wellbeing ne treba tretirati kao dodatak, već kao ključni element organizacione strategije i kulture. Kroz povezivanje wellbeing-a sa održivim razvojem, organizacije ne samo da štite zdravlje svojih zaposlenih, već grade i dugoročno održive poslovne modele koji doprinose i ekonomskom i društvenom razvoju.

ZAKLJUČAK

Wellbeing zaposlenih danas predstavlja ključnu komponentu uspješnog, održivog i humanog poslovanja. Kompanije koje prepoznaju vrijednost ulaganja u psihičko, emocionalno i fizičko zdravlje svojih radnika ne ostvaruju samo društvenu odgovornost, već i konkretne koristi kroz povećanu produktivnost, smanjenu fluktuaciju i snažniji timski duh.

Savremeno radno okruženje zahtijeva više od tehničke stručnosti i operativne efikasnosti – zahtijeva empatiju, razumijevanje i stvaranje kulture u kojoj je čovjek u centru. Wellbeing ne smije biti tretiran kao dodatna pogodnost, već kao strateški prioritet. Samo kroz holistički pristup – koji objedinjuje menadžment, marketing, međuljudske odnose i organizacionu kulturu – moguće je izgraditi preduzeće koje je ne samo profitabilno, već i zdravo, stabilno i otporno na izazove savremenog poslovnog svijeta.

Zaključno, wellbeing nije samo individualna potreba – to je kolektivna snaga. Kompanije koje to razumiju grade temelje za dugoročan uspjeh i stvaraju radna mjesta u kojima ljudi žele da ostanu, rastu i doprinesu.

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WELL-BEING AND SUSTAINABLE DEVELOPMENT: THE SYNERGY OF MANAGEMENT AND MARKETING IN MODERN COMPANIES

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Summary: *In the modern business environment, employee wellbeing and sustainable development are becoming key factors for the success and competitiveness of companies. This paper explores the synergy between holistic management and marketing strategies in the context of promoting wellbeing as an integral part of sustainable business practices. Through a theoretical overview of wellbeing principles, sustainable development, and their mutual influence, the paper analyzes how management and marketing jointly contribute to creating a positive organizational culture, improving the work environment, and strengthening the brand. Special focus is placed on the role of leadership and effective communication of wellbeing values, as well as on successful practices from contemporary companies that integrate these principles. The conclusion emphasizes that the integration of wellbeing and sustainability through a*

synergistic approach between management and marketing is essential for the long-term development and social responsibility of modern organizations.

Wellbeing is becoming one of the most important success factors for modern companies. Employee wellbeing, which includes their physical, mental, and emotional health, directly impacts productivity and creativity at work. Companies that actively invest in programs and policies that support wellbeing create a positive work environment, reduce employee absenteeism, and at the same time increase loyalty and job satisfaction. Wellbeing is also crucial for a company's reputation—modern consumers and business partners increasingly value companies that demonstrate social responsibility and care for their employees. Investing in wellbeing is not only ethically sound but also a smart business strategy that contributes to sustainable growth and a competitive market advantage. The aim of this paper is to demonstrate that applying wellbeing tools is an essential process for both company success and employee health.

Research shows a strong correlation between the presence of wellbeing practices in organizations and the quality of managerial and marketing processes. In companies that systematically invest in employee wellbeing, there is a noticeable positive impact on motivation, productivity, creativity, and the overall workplace atmosphere. This effect is especially prominent in teams exposed to high levels of interpersonal communication and emotional labor on a daily basis, such as marketing and management teams. Employees who feel psychologically safe, have the freedom to express emotions without fear of judgment, and work in a supportive environment demonstrate higher levels of work engagement, lower absenteeism, and greater resilience to stress. Practice shows that when wellbeing becomes an integral part of the organizational culture, there is an increase in employee loyalty and a stronger focus on shared goals.

In conclusion, wellbeing is not just an individual need – it is a collective strength. Companies that understand this build the foundation for long-term success and create workplaces where people want to stay, grow, and contribute.

Keywords: wellbeing, management, marketing, company, employees

JEL Classification: I3, M3, M1, M12

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STRUKTURA I OBLIKOVANJE RADA

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Obvezno je navesti naslov rada, ime autora, akademsku titulu, naziv ustanove i adresu u kojoj je autor zaposlen, radno mjesto, te kontakt na jezicima naroda u BiH i engleskome jeziku (ako je rad pisan na jezicima naroda u BiH).

PRVA STRANICA RADA

Obvezno je navesti naslov rada, sažetak, ključne riječi i JEL klasifikaciju.

Sažetak

- a. Ako je rad pisan na jezicima naroda u BiH sažetak sadrži od 150 do 300 riječi. Na kraju rada, iza popisa literature, piše se sažetak u proširenom obliku na engleskom jeziku (summary), čija dužina treba da bude od 400-500 riječi. Sažetak se piše u trećem licu, u jednom odlomku i obvezno sadržava: (1) cilj istraživanja, (2) metode istraživanja, (3) osnovni rezultat istraživanja, te (4) zaključak istraživanja.
- b. Ako je rad pisan na engleskom jeziku nije potrebno pisati summary na kraju rada, dok su ostala pravila za pisanje sažetka identična kao pod a).

Ključne riječi

Ključne riječi pišu se na jezicima naroda u BiH i engleskome jeziku (ako je rad pisan na jezicima naroda u BiH), te moraju sadržavati suštinu rada. Navodi se do pet ključnih riječi.

JEL klasifikacija

JEL klasifikacija navodi se ispod ključnih riječi i na jezicima naroda u BiH i na engleskome jeziku (ako je rad pisan na jezicima naroda u BiH) u skladu s klasifikacijom Journal of Economic Literature (dostupna na <https://www.aeaweb.org/econlit/jelCodes.php?view=jel>).

PREPORUČENA STRUKTURA RADA¹

1. Uvod

Sadržava definisanje problema, predmeta i ciljeva istraživanja, te motiv za provođenje istraživanja. U uvodu se navodi i hipoteza rada, ili više njih, o kojima se autor očituje u zadnjem poglavlju rada – zaključku. Uvod završava opisom strukture rada.

2. Pregled literature

Pregled literature sadržava pregled relevantne literature iz područja rada s ključnim dosadašnjim spoznajama, odnosno relevantnim rezultatima provedenih istraživanja. Izuzetno, autor može pregled literature uključiti u uvod.

3. Metodologija

Metodologiju je važno prikazati jasno i precizno, utvrditi metodološki doprinos autora ako je prisutan, te njenim prikazom omogućiti testiranje i drugim autorima.

4. Empirijski podaci

Empirijski podaci predstavljaju dokumentacionu podlogu provođenja istraživanja u radu.

5. Rezultati i rasprava

Rezultati i rasprava dio su rada u kojem se objašnjavaju rezultati provedenog istraživanja, uspoređuju sa sličnim istraživanjima, analiziraju ograničenja navedenih rezultata u njihovu tumačenju, značenje rezultata i njihove implikacije.

6. Zaključak

Zaključak je posljednje poglavlje rada. On se ne smije poistovjetiti sa sažetkom rada. Potrebno je da sadrži očitovanje o polaznoj hipotezi, ocjenu rezultata istraživanja, doprinosa provedenog istraživanja, osvrt na ograničenja i probleme u provođenju istraživanja, smjernice za buduća istraživanja, preporuke proizašle iz rezultata

¹ U zavisnosti od specifičnosti teme, a u dogovoru s Uredničkim odborom, rad se može i drugačije koncipirati.

istraživanja i drugo. Kao i sažetak, zaključak se piše u jednom odlomku.

LITERATURA

Popis literature treba biti na kraju rada, a može obuhvatiti samo djela na koja se autor poziva u tekstu. Slaže se po abecednom redu prezimena autora navedenih djela bez razvrstavanja po vrstama, a podaci o djelu moraju biti potpuni, u skladu s bibliografskim standardima. Ako je više radova istog autora objavljeno iste godine, uz godinu se koriste oznake „a,b,c“.

Korištena literatura treba da ima najmanje 15 izvora za pregledne naučne radove, dok za sve ostale radove treba da ima najmanje 10 izvora. Bibliografija treba biti novijeg datuma.

Preporučuje se da se autori pozivaju na izvore radova koji su u prethodnom periodu bili objavljeni u časopisu „EMC Review“ (<http://www.emc-review.com>), kao i onim koji su referirani od Institute of Science Informationa.

Pri pisanju rada za oblikovanje referenci u tekstu i u popisu literature koristiti **APA** stil (<http://www.apastyle.org>).

Primjeri citiranja:

Knjige: prezime, inicijali imena. (godina) Naslov. Mjesto izdavanja: ime izdavača. (Ako su dva ili tri autora, redom navesti njihova prezimena i inicijale odvojene zarezom.)

Christensen, C. M. (2012). The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Boston, M. A.: Harvard Business School Press.

Mieg, H. A., Töpfer, K. (ur.) (2013). Institutional and Social Innovation for Sustainable Urban Development. Oxon i New York: Routledge.

Poglavlja u knjigama/radovi u zbornicima radova: prezime, inicijali imena. (godina) Naslov poglavlja/odjeljka. U: Naslov knjige, prezime, inicijali imena autora/urednika. Mjesto izdavanja: izdavač: stranice. (Ako su dva ili tri autora, redom navesti njihova prezimena i inicijale odvojene zarezom.)

Braun, G. O., Scott, J. W. (2013). Smart Growth: sustainability innovations. In: Institutional and Social Innovation for Sustainable Urban Development, Mieg, H. A., Töpfer, K. (ur.). Oxon i New York: Routledge: 44-57.

Peter, C. (2013). Privatization, urban fragmentation, and sustainable development. In: Institutional and Social Innovation for Sustainable Urban Development, Mieg, H. A., Töpfer, K. (ur.). Oxon i New York: Routledge: 130-146.

Doktorske disertacije: navodi se prezime, inicijali autora. (godina) Naslov rada, vrsta rada te institucija gdje je rad obranjen.

Hall, R. P. (2006). Understanding and Applying the Concept of Sustainable Development to Transportation Planning and Decision-Making in the U.S., doktorska disertacija Massachusetts Institute of Technology,

Članci u časopisima: prezime, inicijali. (godina) Naslov članka. Naziv časopisa, volumen (broj): stranice. (Ako su dva ili tri autora, redom navesti njihova prezimena i inicijale odvojene zarezom.)

Giddings, B., Hopwood, B., O'Brien, G. (2002). Environment, economy and society: fitting them together into sustainable development. Sustainable Development, 10(4): 187-196.

Granger, C. W. J. (1969). Investigating Causal Relations by Econometric Models and Cross-spectral Methods. Econometrica, 37(3): 424-438.

Serije članaka/sluzbene publikacije:

Heal, G. (2011). Sustainability and its measurement. NBER Working Paper 17008, National Bureau of Economic Research, Cambridge, MA. Dostupno na: <http://www.nber.org/papers/w17008.pdf>.

Radovi prezentovani na konferencijama:

Moylan, K. (2009). The Future of EU Cohesion Policy and its implications for Irish Regional Policy. Rad prezentovan na Regional Science Association International Conference, Irska, 3.9.2009. Dostupno na: http://cua.ie/gorm/publications/The_Future_of_EU_Cohesion_Policy_and_its_Implications_for_Irish_Regional_Policy_Sept%202009.pdf [13.1.2015.].

Internetski izvori: prezime, inicijali autora/urednika. (godina) Naslov. Institucija/izdavač/časopis/... Internet adresa, datum pristupa: nja u uglatoj zagradi. (Ako su dva ili tri autora, redom navesti njihova prezimena i inicijale odvojene zarezom.)

McMaster, I., Bachtler, J. (2005). Implementing Structural Funds in the New Member States: Ten Policy Challenges. European Policies Research Centre. Dostupno na: http://www.eprc.strath.ac.uk/eprc/Documents/pdf_files/12A07_McMaster-Bachtler_paper.pdf [24.11.2014.].

TEHNIČKA UPUTSTVA

Rad treba biti napisan u Microsoft Office Word programu (MS Office Word 95 i više).

- Format stranice je A4 s jednostrukim proredom (1), uključujući fusnote i reference. Margine su 2,5 cm.
- Treba koristiti tip slova (font) Times New Roman i veličinu slova (fonta) 12.
- Tekst treba biti obostrano poravnan, a paragrafi se odvajaju s jednim redom razmaka.
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- Naslovi poglavlja, od uvoda do zaključka, trebaju biti podebljani. Naslovi i podnaslovi ne trebaju se numerisati.
- Podnaslovi mogu ići do trećeg nivoa.
- Slike, tabele, formule i grafikoni koji su sastavni dio rada moraju biti jasno urađeni, te imati naslov, izvor i broj. Numerišu se u kontinuitetu arapskim brojevima. Naslovi se pišu iznad slike, tabele, formule ili grafikona veličinom slova 11, podebljani. Izvori se pišu ispod slike, tabele ili grafikona veličinom slova 10.
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- U skladu s APA standardom, na korištenu literaturu kroz tekst referiše se stavljanjem u zagrade, a piše se prezime autora i godina izdanja, naprimjer: (Rodrik, 2008.), a u slučaju citata navodi se još i broj stranice (Rodrik, 2008:78). Svaka bilješka navodi se kao i prvi put. Ako je riječ o dvoje autora, oba prezimena navode se u zagradaama, a ako ih je više, navodi se samo prvi autor: (Rodrik i saradnici, 2008.). Svaka referenca mora se navesti u popisu literature.
- Za citiranje, reference i popis literature obavezno korištenje MS Office Word alata u opcijama izbornika „References” – Style: izabrati izbornik „APA”. Rukopisi koji ne budu imali aktiviranu ovu opciju prilikom označavanja citata, referenci i literature biće vraćeni autorima na korekciju.
- Ne označavati posebno neke riječi u radu, dijelove rada i slično podebljanjem, kosim slovima ili nekim drugim oblikovanjem.

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Preliminary report***
Review****
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**paper which contains the results of an original scientific research unpublished to date;

*** paper which contains the new results of a scientific research useful to be published promptly;

**** paper which contains an original concise and critical overview of an area and provides a contribution given the papers published to date;

***** paper which contains useful contributions from and for the profession but does not necessarily represent an original research.

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Časopis za ekonomiju i tržišne komunikacije

Economy and Market Communication Review



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Tema rada se uklapa u djelokrug časopisa		
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Prošireni rezime na engleskom jeziku (summary) je koncipiran u skladu s Uputstvom za autore (za radove na jezicima naroda u BiH)		
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Autor se oslanja na relevantna dosadašnja opšta istraživanja iz područja rada		
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(Izvršno-----Loše)

5 4 3 2 1

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Prihvaća se nakon prihvatanja izmjena navedenih u komentarima*
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* Rad se vraća recenzentu na uvid

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