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INTERDISCIPLINARY DESCRIPTION OF COMPLEX SYSTEMS

INDECS, volume 22, issue 4, pages 364-509, year 2024

Published 31st August 2024 in Zagreb, Croatia

Released online 31st August 2024

Office

Croatian Interdisciplinary Society

c/o Faculty of Mechanical Engineering & Naval Architecture

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Published bi-monthly by *Croatian Interdisciplinary Society* (<http://idd.hr>) as online (ISSN 1334-4676) and printed (ISSN 1334-4684) edition. Online edition, <http://indec.eu>, contains freely available full texts of published articles. Printed by Redak d.o.o. (HR) in 30 pieces.

Journal INDECS is financially supported by Croatian Ministry of Science and Education.

Content of the journal INDECS is included in the DOAJ, EBSCO, EconLit, ERIH PLUS, Ulrich's and Web of Science Core Collection.

INDECS publishes original, peer-reviewed, scientific contributions prepared as reviews, regular articles and conference papers, brief and preliminary reports and comments to published articles. Manuscripts are automatically processed with the system Comet, see details here: <http://journal.sdewes.org/indec>.

The accessibility of all URLs in the texts was checked one week before the publishing date.

EXPLORING MODERN CHALLENGES: DIVERSE INSIGHTS INTO MANAGEMENT, COMMUNICATION, AND TECHNOLOGY. EDITORIAL*

This year's special issue of INDECS presents a rich and diverse collection of research articles that investigate contemporary challenges and innovations across various fields, including management practices, integrated marketing communication, technological advancements, and social dynamics within different industries. These articles contribute significantly to our understanding of how these elements shape and influence modern business and societal practices, offering both theoretical insights and practical applications.

On September 14-16, 2023, the 9th Enterprise Research Innovation Conference (ENTRENOVA) was held both virtually and in Dubrovnik, Croatia, providing a dynamic platform for the latest research, trends, and discussions in these areas. Organised by IRENET (Society for Advancing Innovation and Research in Economy) in collaboration with several academic institutions, the conference attracted over 159 researchers from 24 countries, who presented 68 abstracts and 40 papers. This special issue of INDECS features extended versions of selected conference papers alongside other contributions that align with the conference's themes.

The first article, "Attitudes of Landspítali's Managers toward Lean Management", authored by Kristjana Guðjónsdóttir, Eðvald Möller, Eydís Ý. Rosenkjær and Vigdís Hallgrímsdóttir investigates the implementation of lean management practices at the National University Hospital of Iceland. The study provides a comprehensive evaluation of the current state of lean management, assessing its effectiveness and examining the factors influencing managerial attitudes. Through a mixed-methods approach combining quantitative and qualitative analyses, the research highlights the critical importance of communication, ongoing training, and leadership commitment in fostering a culture of continuous improvement. The findings underscore the need for enhanced education and the establishment of dedicated training initiatives to ensure the successful adoption of lean practices in healthcare environments.

The second article, "The Myth of Influences: Does Generation Z Really Trust Them?", authored by Ruža Iva Jurišić, Krešimir Dabo, and Matilda Kolić Stanić, explores the relationship between Generation Z and social media influencers, focuses on how younger audiences perceive these digital opinion leaders. Through a combination of qualitative content analysis and quantitative survey research, the study investigates whether influencers effectively shape the attitudes and behaviours of Generation Z. The findings reveal a significant level of scepticism among Generation Z regarding the authenticity of influencer content, suggesting that while influencers play a visible role in digital communication, their ability to influence this demographic may be more limited than previously assumed. The research offers valuable insights into the dynamics of digital trust and the challenges of influencer marketing in a rapidly evolving social media landscape.

The third article, "Integrated Marketing Communication in Croatian Companies" by Mario Fraculj, Sara Brkanić, and Diana Plantić Tadić, offers an in-depth exploration of the adoption and effectiveness of Integrated Marketing Communication (IMC) strategies among Croatian

companies. The study highlights a growing trend toward IMC, emphasising the critical importance of message consistency, personalisation, and innovation in marketing efforts. Through a combination of qualitative and quantitative research methodologies, the authors identify significant challenges, such as inter-departmental coordination and the optimisation of IMC strategies, that need to be addressed to realise the full potential of IMC. Despite these challenges, the study reveals that Croatian companies recognise the strategic value of IMC as a tool for enhancing market visibility and competitive advantage.

The fourth article, “Manager Communication Style and Work Engagement of Employees in Healthcare Services” by Marko Antić, Ana Globočnik Žunac, and Ivana Martinčević, examines the impact of different managerial communication styles on the work engagement of nurses in the public healthcare system of Croatia. The study investigates how assertive, passive, and aggressive communication styles from nurse managers influence the engagement levels of their nursing staff. Based on data collected through an online survey, the findings reveal that assertive communication is positively associated with higher work engagement, while passive and aggressive styles negatively affect engagement. The authors emphasise the importance of assertive communication in fostering a supportive work environment, which is crucial for improving the overall quality of healthcare services. The study suggests that enhancing nurse managers’ communication skills, particularly in assertiveness, could lead to better employee engagement and patient care outcomes.

The fifth article, “Concessions without the Obligation to Pay a Concession Fee: The Croatian Case” by Goran Vojković and Božana Matoš, explores the legal and practical implications of awarding concessions without a concession fee in Croatia. This article delves into the intricacies of the Croatian Concessions Act of 2017, which allows for such exceptions under specific conditions, particularly in non-commercial activities where public interest is a priority. The authors analyse the conditions under which these concessions can be justified, with a focus on smaller Croatian ports where commercial viability may not be achievable. Through detailed legal analysis and case studies, the authors highlight the sensitive nature of these exceptions, advocating for rigorous justification to prevent potential misuse and to support sustainable regional development.

The sixth article, “In Board We Trust: The Role of Supervisory Board in Public Companies in Bosnia and Herzegovina” by Radoslav Barišić, Dženan Kulović, and Slaven Jurešić, provides an in-depth examination of the supervisory boards within public companies in Bosnia and Herzegovina. The study explores the crucial role these boards play in corporate governance, particularly in the context of a country undergoing a complex socio-economic transition. By analysing the composition, roles, and effectiveness of supervisory boards, the authors assess their impact on strategic management and financial performance. The research emphasises the need for strong governance structures to navigate the challenges of economic transformation, making this study particularly relevant for policymakers and practitioners in similar contexts.

The seventh article, “Consumer Engagement with Sports Clubs on Social Media: Impact of Demographic Factors and Loyalty” by Željka Marčinko Trkulja, Dinko Primorac, and Ivana Martinčević, investigates how different socio-demographic variables and loyalty levels influence consumer engagement with sports clubs on social media platforms. The study focuses on various factors, such as gender, age, education, and employment status, and their impact on motivations, engagement, and outcomes related to following sports clubs online. The research

reveals significant differences in how these demographic groups engage with sports clubs, highlighting that younger fans are more motivated by personal identity and rewards, while older fans value empowerment more. Additionally, the study shows that students are more motivated by personal identity and information. In contrast, employees tend to express greater satisfaction with the social networks of the sports clubs they follow.

The eighth article, “Data Envelopment Analysis for Assessing Efficiency in Public Utilities with a Focus on Water and Sewerage Services” by Amra Gadžo, Benina Veledar, and Alma Osmanović Đaković, applies the Data Envelopment Analysis (DEA) method to evaluate the operational efficiency of public water utility enterprises in the Federation of Bosnia and Herzegovina. The study uses asset value, number of employees, and total expenses as input indicators, while total revenue serves as the output indicator. The study highlights inefficiencies in resource usage, particularly in assets and labour, for some utilities. The authors conclude that DEA is an effective tool for identifying areas where public utilities can optimise resource allocation and improve overall efficiency, offering significant insights for policymakers and utility managers aiming to enhance service delivery in the public sector.

In summary, this editorial emphasises the broad scope of this special issue, which addresses vital topics ranging from management and marketing to technology and cultural diversity. The research presented offers valuable insights for academics and practitioners alike, providing practical guidance for navigating the complexities of today’s globalised and rapidly changing environment. We hope these contributions will inspire further research and stimulate ongoing discussions within the academic community and beyond.

Zagreb, 20th August 2024

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ATTITUDES OF LANDSPITALI'S MANAGERS TOWARD LEAN MANAGEMENT

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DOI: 10.7906/indecs.22.4.1
Regular article

Received: 10 June 2024.
Accepted: 17 August 2024.

ABSTRACT

This research aimed to evaluate the implementation of lean management at Landspítali, the National University Hospital of Iceland, by examining the current state of the methodology, the effectiveness of the methodology, and the factors influencing managerial attitudes and outcomes in the hospital. The study provides actionable insights to optimise lean management practices in healthcare and offers guidance for future improvements. Using a mixed-methods approach, the research combined quantitative and qualitative analyses. The quantitative component involved a questionnaire with 18 questions distributed to 115 managers at Landspítali. The findings revealed that while most managers were familiar with the lean management methodology, many needed more confidence in its effectiveness, mainly due to insufficient information about its benefits. These results underscore the need for enhanced communication and education to build confidence and motivation among managers, thereby supporting more effective implementation at Landspítali and similar institutions. Additionally, the study identified a critical need for further training and development among staff – for example, through the establishment of a dedicated training academy focused on lean management methods. This initiative will address the gaps highlighted in the research, ensuring more effective implementation and sustained success.

KEY WORDS

lean management, project manager, management, leader, leadership

CLASSIFICATION

JEL: M1, M2, M11, O3

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INTRODUCTION

In today's rapidly changing healthcare environment, hospitals are facing increasing pressure to improve patient care, enhance operational efficiency, and reduce costs. Lean management, originally developed in the manufacturing industry, primarily by Toyota, has emerged as an effective model for addressing these challenges. Lean management focuses on reducing waste, optimising processes, and fostering a culture of continuous improvement. Over the past two decades, the application of lean management in healthcare has expanded globally, with hospitals implementing lean principles to streamline operations, improve patient outcomes, and eliminate unnecessary costs [1-5]. However, while lean management holds great promise for healthcare, its implementation in hospitals presents unique challenges. The complex, highly regulated nature of healthcare, combined with the need for personalised patient care, makes the direct application of lean principles more difficult than in industrial settings [4]. Additionally, hospitals must address staff resistance to change, insufficient training, and the need for sustained leadership commitment to ensure the successful integration of lean practices [6-8].

Despite extensive research on the application of lean management in healthcare, significant gaps remain in understanding its long-term effectiveness and the factors influencing its success in hospital settings [2, 3]. Much of the existing literature focuses on the immediate outcomes of lean interventions, such as cost reductions and improved patient flow [4, 5]. However, less attention has been given to how managerial attitudes and perceptions influence the sustainability and efficacy of these interventions over time [9]. Additionally, studies have often overlooked the unique challenges faced by hospitals in smaller or more specialised healthcare systems, such as those in Iceland [8, 10]. Given these gaps, it is essential to explore how lean management is perceived and implemented in various hospital environments and how these perceptions impact the overall success of lean initiatives [11]. Understanding these dynamics can provide valuable insights for healthcare leaders seeking to optimise lean management strategies in their organisations [1].

This study aims to evaluate the implementation of lean management at Landspítali, the National University Hospital of Iceland, by assessing the current state of the methodology, the effectiveness of the methodology, and the factors influencing managerial attitudes and outcomes in the hospital. By focusing on managers' perspectives, this research seeks to uncover the underlying drivers behind the successes and challenges of lean management at Landspítali, providing actionable insights to optimise lean practices in healthcare settings. The contributions of this study are twofold. First, it enhances the academic literature by exploring the underexamined area of managerial attitudes and their impact on the effectiveness of lean management in hospitals. Second, it offers practical recommendations for healthcare institutions aiming to implement or improve lean management strategies, ensuring that these initiatives are tailored to the specific needs of the healthcare environment.

Landspítali began its lean management journey in 2011, with the consulting firm McKinsey & Company providing guidance and advice during the implementation. One year later, training for the Landspítali staff in lean management methodology commenced. In 2015, a study by Möller and Rosenkjær [12] explored the attitudes of Landspítali managers toward lean management, revealing a lack of employee training and education. Subsequently, the Lean Academy was formally established in 2016 to address this need and provide training in lean management for all hospital employees.

The objective of this study is to examine whether managers at Landspítali are familiar with the lean methodology, have received adequate education and training in the methodology, and believe that lean management delivers results in their current work. The study also seeks to

evaluate the impact and success of the Lean Academy, examining whether it has benefitted managers and increased their skills and understanding of lean practices.

The study seeks to answer the following three research questions.

RQ₁: Have the attitudes of Landspítali's managers toward lean management changed with increased implementation?

RQ₂: What are the experiences of Landspítali's management with lean management?

RQ₃: Do Landspítali's managers feel they received adequate training and support to apply lean management in their work?

The research article is structured as follows: The next section explores the fundamental ideas of lean management, its origins, and the best practices for introducing lean management into business settings. The third section details the research methodology, including how lean management was introduced to managers at Landspítali. The fourth section presents the results from the data analysis, while the fifth section discusses these findings in depth. Finally, the sixth section offers concluding remarks, summarising key discoveries, limitations, and recommendations for future research.

PRINCIPLES OF LEAN MANAGEMENT

Lean management is not a theory but a methodology with a theoretical foundation that can be applied in various contexts [13]. Although much has been written about the evolution, characteristics, and implementation of lean management in Western countries, scholars have still not reached a consensus on its definition. The most commonly cited definition describes lean management as a holistic system (i.e., an integrated sociotechnical system) whose main objective is continuous flow and waste elimination [4, 14].

Lean management is a methodological tool and management approach [5]. Lean management takes a different approach to understanding work performance by entailing a diverse and multifaceted journey toward improving operations rather than merely focusing on processes. Lean management can be applied in any operation, and by introducing the methodology, managers can drive a new and targeted way of working [15].

ORIGINS OF LEAN MANAGEMENT

Lean management is not a recent development; its origins can be traced back to the 19th and early 20th centuries [2, 16]. In the late 1890s, Frederick W. Taylor conducted time studies analysing the work and movements of his employees. Based on this research, he standardised work procedures, which became one of the main tools in the lean management philosophy. Taylor labelled his idea "scientific management" with the primary objective of improving efficiency, particularly in the field of productivity [16].

Frank Gilbreth later contributed to the history of lean management through his motion and process mapping research. Subsequently, Gilbreth, his wife Lillian, Taylor, and others developed the concept of "eliminating waste", a fundamental principle of lean management [16]. Taylor's scientific management also significantly impacted Henry Ford, the founder of Ford Motor Company. In 1910, Ford Motors took a major step in developing lean management by introducing assembly lines in its automobile production, thus standardising work at each workstation [16].

While Ford's mass production system flourished during the growth period in the United States, Toyota sought to design a different production system. After visits by leading Toyota

executives to Ford Motors' factories, Taiichi Ohno, Shigeo Shingo, and Eiji Toyoda began developing a production system based on Ford's approach. Toyota's new production system made continuous improvements and achieved maximum efficiency with minimal capital, with its underlying philosophy prioritising the continuous flow of processes and elimination of all waste. This process included eliminating any activity that did not add value to the product and addressing issues such as overproduction, inventory, transportation, waiting time, space, defects, and supply time [16, 17].

Introducing Lean into Business Practices

In *The Lean Management System Handbook*, Charron et al. [18] outline the steps for introducing lean management methodology into business practices. The process begins by assembling an implementation team with representatives from various parts of the organisation, including management and frontline staff. The authors emphasise the importance of commitment and leadership for a successful implementation.

Nonetheless, Lima et al. [6] found that despite the effectiveness of lean management methodology in improving healthcare processes, its implementation was challenging due to issues such as employee resistance, a lack of leadership, difficulty in measuring results, and the complexity of the healthcare industry with multiple stakeholders, complex processes, and a robust regulatory environment. Lima et al. also states that a successful implementation requires strong leadership, employee participation, and a focus on continuous improvement.

Eight Types of Waste

Waste elimination is crucial for streamlining the healthcare system to improve patient care, reduce costs, and enhance employee well-being. Lean management aims to eradicate inefficiencies from the value chain; inefficiencies are defined as any activity that takes time, space, or resources for which the customer is reluctant to pay. Indeed, it is necessary first to identify waste in order to eliminate it [5, 19, 20]. In *The Toyota Way*, Liker [2] specifies seven types of waste: defects, overproduction, transportation, waiting, unnecessary inventory, motion, and overprocessing. Scholars have identified an eighth type: untapped knowledge or talent [20, 21].

LEAN MANAGEMENT TOOLS

Applying lean management methodology requires a comprehensive toolkit. This section outlines the methodology's main tools and those used by Landspitali, although the list is not exhaustive.

A3 Method

The A3 method is a problem-solving and improvement approach commonly used in lean management, named after the A3-sized paper typically used to document the process. The method aims to find solutions to problems using the A3 template, where the problem is defined, root causes are identified, countermeasures are developed, and an action plan is implemented. The A3 method involves developing a hypothesis, testing it, and drawing conclusions [19]. Organisations can use this method to approach problem-solving organizationally and systematically, ensuring that solutions are impactful, sustainable, and aligned with desired future states [19].

The 6Ss

Japanese experts developed the 6Ss methodology to establish and maintain quality systems in organisations. The methodology aims to create and maintain a well-organised, clean, and

efficient workplace while serving as the foundation for continuous improvement. The methodology originally consisted of five Ss: sort (jpn. seiri), set in order (jpn. seiton), shine (jpn. seiso), standardise (jpn. seiketsu), and sustain (jpn. shitsuke); however, a sixth S was later added to emphasise safety [2, 10, 14, 20, 22]. The benefits of the 6Ss include contributing to quality, reducing defects, minimising waste, and promoting a clear workflow where everyone knows exactly where things are located.

The Plan-Do-Check-Act Cycle

The Kaizen methodology follows the Plan-Do-Check-Act (PDCA) cycle, a repeated process referring to ongoing or continuous improvement involving each employee – managers and workers alike [23]. Lean management provides tools to address this process, which involves making a plan, executing it, checking the results, and making systematic corrections. The PDCA cycle is employed to enhance products and services continually. Plans begin by brainstorming the best ideas for improving efficiency, which are then actualised to ascertain if they work in practice. The results of the changes are then examined to understand the impact. If the results indicate that the process works better after the changes, targeted adjustments are made, and work standards are reviewed to ensure standardised procedures [20, 24].

Value Stream Mapping

Value streams are defined as all value-added and non-value-added activities required to produce a product from raw materials until its delivery to the customer. Value streams consist of product, service, and information flows created based on customer demand from delivery orders [5, 20]. Moreover, value stream mapping is a lean management tool used to illuminate and analyse the material and information flow in a series of work processes. Mapping provides a visual overview of all processes needed to deliver value to the customer, helping to map and analyse the value stream process from the customer's perspective and identify areas and actions needing improvement [2, 5, 20, 25].

Poka-Yoke

'Poka-yoke' is a Japanese term that means mistake-proofing. This approach emphasises preventing mistakes before they occur, thereby avoiding human errors. 'Poka-yoke' can range from simple measures such as checklists and warning labels to more tangible interventions that prevent the execution of incorrect actions. 'Poka-yoke' methods are simple and easy to implement, such as using colour coding to help employees identify items and designing equipment with tactile features to prevent errors [21].

Toyota Quality House

The Toyota Quality House is a metaphor symbolising lean management's foundation, pillars, and roof. This metaphor conveys that every house must be built on a solid foundation since it is never stronger than its weakest link. The foundation is built on the core principles of the organisational structure and consists of three primary elements: standardised work, visual management, and culture. The corresponding definitions for Landspítali are as follows: flow, respect for people, and quality, Figure 1. These pillars comprise the fundamental principles of lean management, such as continuous improvement, waste elimination, flow, and pull [2, 18, 26].

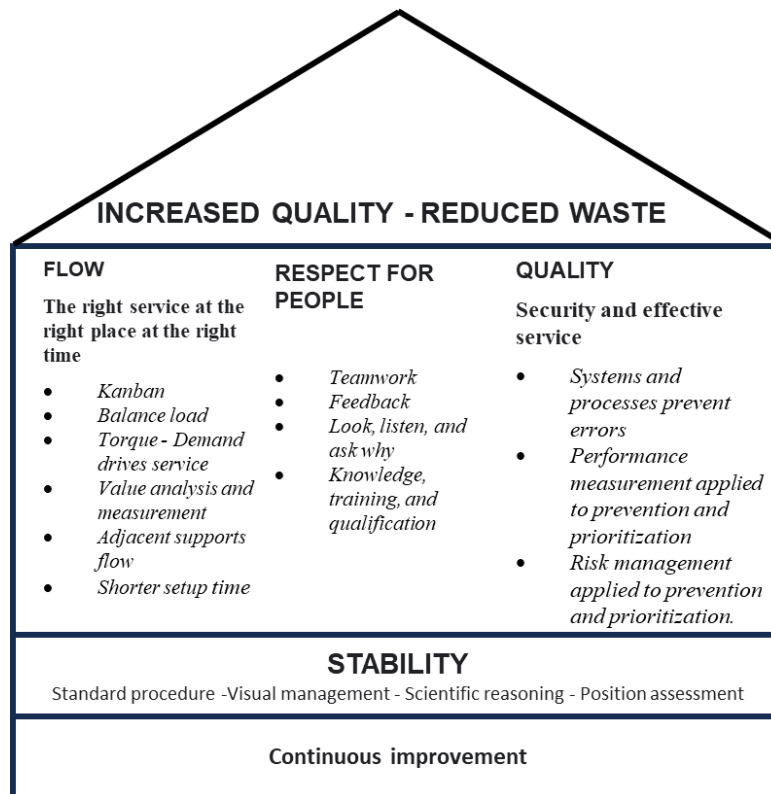


Figure 1. Toyota Quality House at Landspitali.

METHODOLOGY

RESEARCH APPROACH

This study employed a mixed-methods approach to evaluate the implementation of lean management at Landspitali. By combining quantitative and qualitative research methods, the study aims to comprehensively explore managerial attitudes, experiences, and the effectiveness of lean management practices. The research design incorporated both quantitative surveys and qualitative interviews to ensure a well-rounded understanding of lean management's impact at Landspitali. The mixed-methods approach was selected to allow for triangulation of data, thereby enhancing the reliability and depth of the findings.

A structured questionnaire was developed to assess managers' familiarity with lean management, the training they received, their involvement in lean projects, and their perceptions of lean management outcomes. The survey consisted of 18 questions, including a mix of Likert scale items, multiple-choice questions, and open-ended questions to capture additional qualitative insights. The survey was distributed to 115 managers across various departments at Landspitali, including clinical, research, and support services. Managers were selected based on their involvement in or responsibility for lean management initiatives. The final sample included 63 respondents, resulting in a response rate of 55%. To increase participation, follow-up reminders were sent, and anonymity was ensured to encourage candid responses.

Quantitative data were analysed using statistical software. Descriptive statistics were employed to summarise the data, while inferential statistics, such as *t*-tests and chi-square tests, were used to explore relationships between variables and identify significant trends and correlations [27]. This analysis provided insights into the distribution of attitudes, experiences, and outcomes across different groups of managers [28].

The quantitative research methodology involved the use of statistics to examine the distribution of responses, the objectives chosen for the research method, and other critical contextual factors. Additionally, statistical methods were applied to test hypotheses, assess their validity, and compare differences and relationships between the factors under investigation, thereby determining their impact on the results. Quantitative research is focused on measuring specific phenomena and describing subjects such as people's opinions and attitudes, relying on statistical processing of data that are measurable, countable, and interpretable based on the sample. The results are typically explained using graphs and tables, with statistical analysis providing the basis for interpretation [29, 30].

In comparison, qualitative research seeks to reveal underlying significances, patterns, and insights instead of only concentrating on numerical measures or statistical analysis. Researchers frequently utilise thematic analysis, content analysis, or grounded theory methodologies to evaluate the data and produce findings. Qualitative research offers a more profound comprehension of human experiences, views, and social situations, enabling researchers to delve extensively into intricate matters and capture the subtleties of human behaviour and interaction [31].

To complement the quantitative data, semi-structured interviews were conducted with a purposive sample of 10 managers who had significant involvement in lean management projects. These interviews focused on exploring managers' experiences with lean management, the support they received, and the challenges they encountered during implementation. The qualitative data were analysed using thematic analysis, which involved coding the interview transcripts to identify recurring themes and patterns related to managerial attitudes and experiences. The analysis was conducted iteratively, with preliminary findings reviewed and refined based on participant feedback.

The ethics committee at the University of Iceland approved the study. All participants were informed of the study's purpose, the voluntary nature of their participation, and the measures taken to ensure confidentiality. Informed consent was obtained from all participants prior to data collection.

While the study attempted to provide comprehensive coverage, it is acknowledged that the emphasis on managerial perspectives may not fully capture the experiences of frontline employees and other stakeholders. Efforts were made to minimise researcher bias by using validated survey instruments and incorporating multiple data sources. However, the inherent subjectivity in qualitative analysis remains a limitation, which was mitigated by employing multiple coders to ensure inter-rater reliability.

LANDSPITALI

Landspítali is Iceland's national and university hospital, providing diverse general and specialised healthcare services. It also serves as a centre for education, training, and research in the field of health sciences, actively contributing to innovation through knowledge-based initiatives [32].

Landspítali had worked on quality improvements for many years but needed help to sustain its achievements. Hospital leaders aimed to adopt methods to support progress in quality and facilitate the long-term maintenance of advancements. After various options were explored, the decision was made to implement the lean management methodology [10]. The hospital introduced lean management in 2011 with assistance from McKinsey & Company and the Karolinska University Hospital in Sweden [10, 33]. McKinsey introduced the hospital to value analysis, waste reduction, and project prioritisation. This training served as the foundation for establishing an in-house lean school. In the initial stages of implementation, significant

emphasis was placed on the education and training of staff, with the goal that all Landspitali managers would apply lean methodology in their work [12].

RESEARCH PARTICIPANTS

Research participants were required to hold managerial positions at Landspitali; they included executive directors, department heads, nursing department heads, and chief physicians. Managers are appointed for up to 5 years, and their positions demand extensive and specialised knowledge of management, hospital operations, and leadership skills [34]. Therefore, their insights provide a comprehensive and authoritative perspective on the implementation and effectiveness of Lean management practices within the hospital, making their input crucial for evaluating the success and challenges of such initiatives.

The research population comprised managers in clinical research and support services, women's and children's services, geriatric and rehabilitation services, surgical and operating room services, pharmaceutical and emergency services, cardiac and vascular services, oncology services, nursing, and medicine. In the qualitative and quantitative parts of the research, voluntary sampling allowed participants to volunteer for inclusion in the sample [30]. All managers from the areas mentioned earlier were invited to participate in both parts of the research. As a result, 63 volunteers participated in the quantitative part, and saturation was achieved when 10 managers participated in the qualitative part of the research. The quantitative part of the research consisted of a questionnaire with 18 questions sent to 115 Landspitali managers; 63 managers responded, resulting in a response rate of 55%. All responses were analysed, with no responses deemed invalid.

Three themes were used to analyse the interview data in the qualitative research. The first theme explored managers' attitudes, examining their perceptions and feelings toward Lean management. The second theme focused on experience, investigating how Lean management supported managers in their work. The third theme was education and support. It looked into how managers perceived the training they received on Lean management and the support they experienced while applying and using it post-training.

RESULTS

One of Landspitali's cornerstones is continuous improvement. The hospital implemented lean management in 2011 in collaboration with consultants from McKinsey & Company. One year later, training in lean management began, following the knowledge gained from this collaboration. The Lean Academy at Landspitali was formally established in 2016, offering employees education in the lean management methodology.

Three distinct themes were introduced to derive significant conclusions. The findings were subsequently examined following these themes. Each theme was analysed individually, and conclusions were derived from the findings. The three themes were managers' attitudes, experience, and education and training.

Table 1 shows the results of the 62 managers who responded to the study questionnaire. In total, 98.4% were aware of what the lean management methodology entailed, indicating that the managers generally understood the methodology. The results showed that 43 managers (70.5%) perceived visible success from implementing lean management, while 95% believed there was a high or relatively high need for changes within their workplace. Moreover, 22 of 62 (35.5%) managers were more satisfied with their work after implementing lean management.

Table 1. Results of Key Questions in the Research.

Question	Answer, %	
	Yes	No
Did you know that lean management increases patient safety, improves the quality of services, develops work processes, and reduces waste?	98,4	1,6
Have you received training in lean management?	80,6	19,4
Do you have training in lean management?	51,6	48,4
Have you participated in an improvement project where the lean methodology was applied?	67,7	32,3
Do you feel that results are visible from the use of lean management?	70,5	29,5
Do you feel that you have received information about the success of lean implementation?	65,0	35,0
Do you feel that changes made with the methodology of lean management are becoming more established than before?	58,9	41,1

When respondents discussed their experiences with the support they received using lean management in their work, all agreed that they received support from their immediate superiors. For example, one of the interviewees stated, “All ideas are always very well received” When most respondents talked about support from their superiors, they primarily referred to their superiors’ attitudes toward the improvement projects to be implemented, with the supervisors agreeing that such work should be undertaken.

However, despite all respondents implementing lean management in their work, not everyone agreed on its benefits. Some respondents, along with their department staff, expressed negative attitudes toward the methodology, even though they were actively using it. These negative attitudes seemed to arise because the managers felt that the principles of lean management were self-evident – many believed they had already been applying similar practices before formally being introduced to the methodology.

The findings also indicate that 33 of 56 managers (59%) strongly agreed or somewhat agreed that lean management practices were becoming more established at Landspítali than before. The researchers believe that this discrepancy can be explained by the increasing culture of bureaucracy at Landspítali, which is characterised by little tolerance for change. Bureaucratic culture entails control, stability, and predictability; processes are transparent, and power is centrally controlled, giving individuals at the top of the hierarchy considerable control over the organisational structure. Bureaucratic culture dominates organisations, prioritising stability, supervision, effective innovation, creativity, and flexibility. Therefore, leaders must be willing to listen to their subordinates, encourage creativity and innovation, and allow employees at lower organisational levels to hold decision-making power to change this culture [11].

Furthermore, 39 of 60 managers (65%) positively responded when asked if they had been informed about the outcomes of implementing lean management. Kuhn [35] and Kotter [8] highlight the importance of managers being informed about performance and vision in order to achieve successful changes. Another role of managers is to communicate information to their employees. Indeed, managers who are uninformed about performance cannot communicate the information to employees. This hindrance can lead to resistance to change, which can occur when employees experience uncertainty.

During the qualitative research, it emerged that the managers' experiences varied considerably. It was common for managers to have good experiences with streamlining management, which was used to explain the reasons for change to the employees. The participants mentioned that streamlining management prevented work redundancy and reduced decision-making stress and errors, thereby increasing patient safety.

The researchers also assessed that the managers' knowledge of the project map of streamlining management and the innovation that could arise in the process allowed them to fully utilise the staff's skills, resulting in a good experience. Managers also reported that streamlining management was used to improve working conditions for employees and coordinate processes. The starting point for continuous improvement is continuous flow, referring to an uninterrupted process.

The findings reveal significant variation in how lean management is perceived and implemented at Landspitali. While all managers had adopted the methodology, some viewed it as redundant, believing they were already applying similar practices before its formal introduction. This suggests a gap between the intended benefits and the perceived value of lean management.

To address this, more tailored training and clearer communication about the unique advantages of lean management are necessary. These adjustments could better align managerial perceptions with the methodology's goals, leading to more effective implementation. The next section will explore strategies to enhance understanding and appreciation of lean management among managers.

DISCUSSION

This section answers the three main research questions presented in the introduction. Landspitali has undergone extensive implementation of the lean management methodology, requiring alterations in the organisation, culture, and employees' attitudes. Thus, Landspitali has experience with the implementation process, making it timely to examine current circumstances and assess how the process has unfolded. This paper aimed to determine the managers' attitudes toward the lean management methodology and whether they felt that they received adequate education and support in applying it. The latter question was formulated based on the earlier study's findings [12], which suggested a need for improved education and follow-up practices for managers.

RQ₁: Have the attitudes of Landspitali managers toward lean management changed with increased implementation?

Most managers were familiar with the methodology, but some felt they needed to be more informed about the outcomes achieved through its application. Therefore, employees must be informed about the results of lean management in order to maintain the changes. However, it is promising that approximately half of the managers believed that the lean management methodology was becoming more established than before.

The results revealed that fewer managers responded affirmatively when asked if they thought the changes made with lean management were becoming more established than before. Indeed, this outcome can be explained by a culture of bureaucracy characterised by little tolerance for change. To transform or alter the existing culture, leaders must be open to hearing from their subordinates, foster creativity and innovation, and empower lower organisational-level employees to wield decision-making authority [11].

RQ₂: What are the experiences of Landspitali's management with lean management?

The interviews and open-ended questions in the questionnaire revealed that the managers' experiences with lean management varied considerably. Managers perceived the lean management methodology as valuable for communicating with staff, improving processes, and reducing waste. However, they found the methodology time-consuming and unsuitable for their work environment. Both the quantitative and qualitative research revealed that not everyone was equally satisfied with lean management. However, in both cases, lean management was identified as time-consuming. In the qualitative study, the managers revealed that the methodology needed to be better tailored to each department.

RQ3: Do Landspítali managers feel they received adequate education and support to apply lean management in their work?

According to the results, most managers claimed to have received education in the methodology; however, only about half felt moderately or very familiar with lean management, while only one-third expressed that they had received adequate education and training. Regarding support for the application of the methodology, the managers needed guidance about where to seek support if needed; however, they believed that they had support for changes in the form of approval from their superiors. The qualitative study indicated that the managers needed more clarity regarding the sources of support for the improvement projects they oversaw. Support could be enhanced through the establishment of a dedicated team, a topic that was discussed in connection with the topic of managerial expertise.

The results suggested that Landspítali should increase follow-up on implementing lean. Employees must believe that the methodology will improve services and the working environment. Emphasis must be placed on informing managers and staff about the success of the lean management methodology, thereby laying the groundwork for embedding changes. This goal can be achieved by creating milestones and increasing faith and support for the ongoing changes. The researchers believe that the results of this study indicate successful implementation, although there have also been slight setbacks. The results provide an opportunity to reassess and evaluate the need for adjustments, such as information flow, training, and support.

CONCLUDING REMARKS

This study has significant implications for the practical application of lean management in healthcare settings and the broader theoretical understanding of lean management implementation across various industries. The findings underscore the importance of tailoring lean methodologies to the unique needs of healthcare environments, where the complexity and variability of operations differ markedly from those in manufacturing and other sectors. The results suggest that a one-size-fits-all approach to lean management may not be effective and that adaptation and customisation are critical for successful implementation.

The study aimed to answer three key research questions: (1) RQ1. How have the attitudes of Landspítali managers toward lean management evolved with increased implementation? (2) RQ2. What are the experiences of these managers with lean management? (3) RQ3. Do the managers feel they have received adequate training and support to apply lean management? The findings revealed that while most managers were familiar with lean management, only about half felt they had received adequate training. Many expressed concerns about the sustainability and effectiveness of lean practices. These outcomes highlight broader challenges, such as bureaucratic resistance and the need for sustained leadership commitment, and provide valuable insights for improving theoretical lean management models. Specifically, the study emphasises the need to incorporate organisational culture and leadership dynamics into these models to predict better and enhance the success of lean initiatives in non-manufacturing settings.

While the study provides valuable insights into implementing lean management at Landspítali, several limitations should be acknowledged. The focus on managerial attitudes may not fully capture the experiences and perceptions of frontline employees or other stakeholders who are also critical to the success of lean initiatives. This limitation could affect the generalizability of the findings, as the perspectives of those directly involved in daily operations are essential for a holistic understanding of lean management effectiveness.

Additionally, the reliance on self-reported data from surveys and interviews introduces potential biases, such as social desirability bias, where respondents might overstate their positive experiences or downplay challenges. The inherent subjectivity in the qualitative analysis could also affect the interpretation of the findings despite efforts to mitigate this by using multiple coders. Furthermore, the study's limitation to a single institution in Iceland, which may have specific cultural and organisational characteristics, raises questions about how these findings can be applied to other settings, particularly in larger or more diverse healthcare systems.

To address these limitations, future research should expand the scope of inquiry to include a more diverse range of participants, including frontline staff, patients, and other stakeholders. This would provide a more comprehensive understanding of how lean management is perceived and implemented across different levels of the organisation. Moreover, longitudinal studies that track the impact of lean management over an extended period would be valuable in assessing the long-term sustainability of the changes introduced and their effects on patient outcomes, employee satisfaction, and overall organisational efficiency. Such studies could also explore how managerial attitudes evolve, particularly in response to changes in organisational culture or leadership.

Additionally, further research could investigate the cross-cultural applicability of lean management principles by conducting comparative studies across different countries and healthcare systems. Such research would help identify specific cultural, regulatory, or structural factors that influence the success or failure of lean initiatives in healthcare, contributing to a more nuanced understanding of how to adapt these principles to various contexts. Moreover, expanding the theoretical framework to include concepts from organisational behaviour, change management, and leadership studies could enhance understanding of the conditions under which lean management thrives. For instance, examining how different leadership styles influence the acceptance and effectiveness of lean practices could provide actionable insights for organisations seeking to implement these methodologies.

In conclusion, while this study provides a solid foundation for understanding the implementation of lean management at Landspítali and addresses the key research questions, significant scope remains for further research to deepen understanding of the methodology's practical applications and theoretical underpinnings. The role of the Lean Academy in improving training and support should also be further explored and expanded. By addressing the limitations identified and exploring new avenues of inquiry, future research can contribute to more effective and sustainable lean management practices in healthcare and beyond.

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THE MYTH OF INFLUENCERS: DOES GENERATION Z REALLY TRUST THEM?

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DOI: 10.7906/indecs.22.4.2
Regular article

Received: 12 October 2023.
Accepted: 3 February 2024.

ABSTRACT

For many, modern communication is unimaginable without social media, which created the foundations for the emergence and development of new opinion leaders. These so-called influencers seek to create connected and stable communities of followers by publishing content on their official profiles. The main goal of this article, based on the results of qualitative content analysis and quantitative survey research, is to conclude how Generation Z perceives influencers and their communication on social media and what the connection is between the attitudes of influencers and the selected public. To attain this goal, a qualitative analysis of the Instagram profiles of the three most popular influencers in Croatia was carried out to gain a deeper insight into the observed topic. Furthermore, an empirical study was conducted to investigate the perception of members of Generation Z about Instagram influencers. The research showed that respondents do not believe in the veracity of the content published by influencers on social media and do not share similar values with them. In conclusion, the results showed that Instagram influencers, with the content on their official profiles, do not contribute to shaping the attitudes and behaviour of members of Generation Z.

KEY WORDS

social media, Instagram, influencers, marketing, Generation Z

CLASSIFICATION

JEL: M31, M37

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INTRODUCTION

Today's communication is unimaginable for many without social media, which offers countless features for easier connection with other users and includes these platforms in marketing strategies. Social media also enabled the development of new opinion leaders who dedicated themselves to the professional publication of content on their profiles and are known today as influencers to the public. The advantages of social media, as well as the impact of influencers on their audience, have been recognised by numerous brands that cooperate with them to achieve their marketing goals. Considering the topic presented in this article, various studies dealt with the influence and contribution of social media in different contexts and communication in general. For example, some authors emphasise that not only external communication is changing, but internal communication is as well. Namely, employee satisfaction stems not only from material incentives but also from a wide range of non-material incentives, such as efficient communication [1]. When communication is mentioned, in recent years, there has been a significant increase in digital advertising through influencers' active participation on many social media platforms. Budgets for influencer marketing rise yearly, and the return on investment from influencer marketing is higher than from other marketing channels [2].

Furthermore, the contribution of digital promotion is also visible in different areas, such as the presentation of heritage. Positive developments in implementing the digital promotion of cultural heritage during and after the pandemic are evident, but not fast enough considering the accelerated development of new smart technologies, according to the opinion of some authors [3]. Some researchers also emphasise the visibility of information and social media. To build efficient knowledge management, the most important thing is to have visibility of general information about clients, their behaviour, business activities, and intentions on social media [4]. Speaking specifically about Generation Z and influencers, the research most closely related to this topic shows that social media influencers can influence Generation Z brand loyalty, and purchase intentions are able to mediate social media influencers and Generation Z brand loyalty [5].

The main goal of the article, based on the results of qualitative content analysis and the results of quantitative survey research, is to conclude how the most followed Croatian influencers and their communication on social media are perceived by Generation Z (people born between 1995 and 2010) and what is the connection between the attitudes of influencers and the target public. In this regard, it is interesting to compare some other research on a similar topic. The results of a nationwide online survey of 227 Chinese Generation Z people show that social media influencers have a significant impact on Generation Z online consumer behaviour, especially on the Douyin social media platform [6]. The research conducted by Djafarova and Bowesapplies [7] applied the Stimulus-Organism-Response model to the context of Instagram. The findings of their qualitative study based on eight extensive focus groups conclude that there are significant gender differences in relation to impulse purchasing behaviour on Instagram. Instagram is vastly influential in encouraging impulse purchases amongst females. However, this was not the case for male participants. Also, in today's rapidly developing digital landscape, driven by the innovation of Industry 4.0, an increasingly powerful Generation Z consumer has emerged. The authors reveal five macro trends impacting brand affinity amongst Generation Z, who are global citizens, digital accelerators, future-proof, climate-aware consumers, and equality activists. These macro trends and values are shaping consumer culture and developing brand relationships [8]. Furthermore, social media advertising strategies, including using traditional celebrity endorsers and micro-celebrity influencers, are prevalent marketing tools. However, the trend of using virtual influencers to endorse products is a novel potential way to attract young consumers. An interesting fact is that some findings highlight the effectiveness of attachment theory in social media endorsement advertisements [9]. To conclude, the importance of consumerism for business survival and growth, albeit in a more

authentic, meaningful, and sustainable way, along with the increasing use of digital media such as social media, has led to the proliferation of social media influencer marketing and its burgeoning interest among academics and professionals [10].

In accordance with the aforementioned, the article is focused on three specific goals. The first is to investigate the perception of Generation Z about influencers, then to analyse the content of the posts of the three most popular Instagram influencers in Croatia, and, finally, to investigate the contribution of the content published on the influencers' Instagram profiles to the attitudes and opinions of respondents, i.e., Generation Z. The purpose of this article is to clarify how Generation Z perceives the content created by the most popular influencers and whether this contributes to the creation of their opinion on the topics they are exposed to. For research purposes, two methods were used – content analysis and survey. The goal of the content analysis is to conduct preliminary research in order to gain a better insight into the observed topic and the type of content that the most popular Croatian influencers post on their official Instagram profiles, and thus try to understand what attracts an extremely large number of audiences to their profiles. Furthermore; a survey was conducted to analyse the habits of using Instagram and the perception of influencers among members of Generation Z (people born from 1995 to 2010) and the connection between the attitudes of influencers and the generation above.

The mentioned research papers, from a different perspective, deal with understanding the role of influencers in marketing. In addition, some research also deals with the importance of the connection between influencers and followers for establishing trust. For example, some authors say that brand control elicits strong reactions in terms of avoidance behaviour in the absence of a relationship. However, it has a less severe influence on avoidance behaviour when followers enjoy a strong relationship with the influencer. They thus argue that, in the case of strong relationship ties, that is, a strong relationship between an influencer and their followers, the followers value the relationship more, which protects the influencer against perceived brand control [11]. On the other hand, some new studies deal with the impact of influencer content on followers. For example, these findings lend strong support to the effect of verbal cues on users' responses. Specifically, the authors found that when the advertising post presents weak argument quality, the enhanced attention to the photo of the micro-influencer leads to an increase in the behavioural activation system, with possible implications on advertising effectiveness and online message design [12]. Following up on these and similar research, this article offers a better understanding of the relationship between the most followed Croatian influencers and their followers; that is, it brings results that explain how Croatian followers create their attitudes based on the influencers' posts on their social networks. Whether these posts contribute to the formation of the follower's thinking or not.

After the introduction, the section on social media as a modern way of communication follows, which thematises the role of social networks in modern communication. After that comes the section How have influencers changed marketing communication? Which is aimed at understanding new marketing phenomena that continue to be influenced by influencers and their actions. The section titled Importance of Influencers in Shaping Public Attitudes explains the influence of influencers on followers and their attitudes, and the section Characteristics of Generation Z as a Target Audience describes the characteristics of Generation Z with the aim of better understanding that target group. The Methodology section describes the research objective, problem and research tool. The Results section follows, in which the results of the content analysis are first presented, followed by the results of the survey questionnaire. The Discussion presents a summary of the research results and links them to the set research objective. The Conclusion, which includes the main highlights of the work and a list of literature, follows.

LITERATURE REVIEW

SOCIAL MEDIA AS A MODERN WAY OF COMMUNICATION

We live in a society shaped by the presence of information and communication technologies, and their historical development reveals the significant influence of new media on the transformation of communication [13]. Thanks to technological progress, people have moved on to social communication, and “in this communication, new media play an increasingly important role today, which is recording an unstoppable development” [14; p.14]. First, new media refers to the Internet, websites, computer multimedia, computer games, 3D animation and virtual reality, as well as video-on-demand services and social media [15]. Their essential characteristic is that they abolish face-to-face communication, i.e., they are based on impersonal communication and technical virtuality [13]. Communication becomes two-way, which is significantly different from the communication model of Shannon and Weaver, who understand communication as “exclusively technical and linear and one-way” [16; p.20]. Digital media and communication on the Internet have become an inseparable part of the everyday life of the majority of the population [17]. Technology has enabled the “quick transfer of information from one end of the world to another, business at the speed of thought, and construction of different types of virtual realities” [13; p.16]. With the enormous amount of content provided by digital media, the ease of obtaining and accessing information has never been more accessible in human history [17]. The presence of various forms of digital media, such as social media, websites and games, has created social connectivity [17], and today, more than ever before, one can notice the persistence of the “global village”, which communication theorist Marshall McLuhan talked about back in the 1960s. McLuhan believes that “humanity lives in a ‘global village’ created by electronic interdependence because electronic media have brought all social institutions into a state of mutual dependence” [16; pp.45-46]. In the book *Global Village*, Croatian political scientist Anđelko Milardović reflects on the information society in the context of the globalisation process and presents an overview of the basic ideas essential for understanding the transformation of contemporary societies and the world in which we live. He states that the information and communication dimension of globalisation enables the understanding of the “global village” metaphor [13].

With the development of the Internet, McLuhan’s metaphor “global village” became a reality. As a result, “21st-century man literally became a technology addict connected to a machine (computer) with a permanent connection online from zero to twenty-four hours a day” [13; p.23]. In addition, the Internet and social networks have changed the human understanding of communication, and the urges for which people go to the Internet have also changed, i.e., “it used to be because they wanted to be informed, they wanted to see and experience, read and learn. The reason people go online today is that they want to be part of communication, they want to participate in it, they want to be present, they want people to read about them, and they want to read about others” [18; p.168].

Furthermore, social media and communication apps have brought about the biggest change in the way people communicate in recent history, such as well-known tech giants like Facebook, Instagram, WhatsApp, Twitter and LinkedIn. Social media have gained enormous popularity, gaining millions and even hundreds of millions of users. This can be attributed to the amazing concept of Web 2.0 technology, which places users at the centre of interaction, empowering them to generate and share content with other users [19]. This is confirmed by the statistical data published in the Global Digital Reports report, one of the most read reports on digital trends and behaviour on the Internet. According to the report, in April 2023, there were 4,8 billion active social media users in the world. For context, the world’s population reached 8,03

billion at the beginning of April 2023, which would mean that more than half of the Earth's population uses social media [20].

IMPACT OF INFLUENCERS ON MARKETING COMMUNICATION

As already stated earlier, social media have redefined the way of communication, both among users of social media and among companies that have “moved” their business to the digital environment in order to keep up with the times and reach their target audience. The emergence of social media in the last two decades has significantly influenced the way in which marketing communication is carried out through traditional media channels, such as newspapers or television, which today have been replaced by digital platforms [21]. The advancement of technology has led to changes in marketing trends, making traditional media less attractive to younger generations. However, they emphasise that each medium still has its unique audience. As a result, advertisers tailor strategies to effectively communicate with their target market, using the appropriate medium where their audience is. The emergence of social media was especially beneficial to numerous brands that recognised them as an ideal platform for branding [22]. The above is supported by research that shows that social media are more effective in promoting products and services and that users have greater trust in the opinions of other users compared to traditional marketing methods [21]. Social media offer several advantages, including cost-effectiveness and the ability to reach a specific target audience more precisely, which makes them crucial to companies' marketing strategies because these platforms empower consumers to share information actively and quickly about products and services, improving the exchange of experiences and ultimately increasing the effectiveness of marketing communications for the company [23]. However, social media have not only contributed to the development of trends and changes in traditional marketing. The emergence and popularity of social platforms contributed to the creation of “new creators of public opinion, i.e., influential persons, who gained their popularity and influence primarily thanks to the development of new technologies” [24; p.5]. It was the influential people who attracted the attention of business entities, who, in recent years, have shown significant interest in these people, who are recognised for their influence on the market [22]. Therefore, it is not surprising that there is an increase in interest in the study of various influential factors on consumer behaviour, including the characteristics of public opinion leaders – influencers, the effect of communication messages on brand trust and the tendency to share information by word of mouth, especially in the context of social media in the digital era [22].

Although today the term influencer is most often mentioned in the context of social media, they are not a new phenomenon that is the result of their development and popularity; on the contrary, they have always existed – “in the past, they were members of royal families, politically powerful and influential people, athletes and other public and famous individuals” [24; p.5]. The popularity and use of social media around the world have contributed to experts and those who are not able to reach many more individuals than ever before, which has encouraged many to dedicate themselves professionally to publishing their content and opinions on social platforms [24; p.5]. There is no doubt that these influential individuals attract exceptional attention from business entities. Still, they also become the subject of research by numerous authors, so it is necessary to list their characteristics and answer the question – who are influencers?

IMPORTANCE OF INFLUENCERS IN SHAPING PUBLIC ATTITUDES

As already stated, the importance of influencers on social media is increasing because they can shape consumer attitudes, which is especially valuable for marketers. In the context of influencer marketing, due to the added value influencers bring to a brand, product, or service,

influencer credibility is generally considered a key determinant of advertising effectiveness [25, 26]. However, to understand their role in shaping audience attitudes, it is necessary to explain what attitudes are and how they can be changed.

Aronson, Wilson, and Akert state that most social psychologists define attitude as an “evaluation of people, objects or ideas” [27; p.217]. According to the Croatian Encyclopaedia, an attitude is “an acquired, relatively permanent and stable structure of positive or negative emotions, evaluations and behaviour towards an object (person, group, phenomenon, idea)” [28]. Attitudes consist of three components: an emotional aspect that includes emotional reactions toward the object of the attitude (such as another person or a social problem), a cognitive aspect that includes thoughts and beliefs about the object of the attitude, and a behavioural aspect that includes actions or visible behaviour toward the object of the attitude [27]. Furthermore, they are equated with evaluations. They include positive or negative reactions to something because people tend to evaluate and not remain impartial observers of the world [27, 28]. Although attitudes can generally be considered a relatively permanent tendency to respond positively or negatively, it is important to note that a change in attitude is possible. The authors state that this can be influenced by two basic mechanisms: persuasion or behaviour modification, whereby persuasion refers to the conscious and intentional sending of a verbal or non-verbal message to shape, change or strengthen the attitudes, opinions, beliefs, values and behaviour of the individual we are addressing [29].

Aronson, Wilson, and Akert further argue that attitudes sometimes change and explain that the reason is often a reaction to social influence [27]. Even something as intimate and individual as attitude is greatly influenced by the behaviour of those around us. The authors state that the concept of advertising is precisely because our opinion about consumer goods can change, such as when we hear someone claim that a new and improved detergent provides superior cleaning or observe a famous person wearing a certain brand of jeans. Aronson, Wilson, and Akert report that Hovland et al., drawing on their experiences during World War II when they worked for the US military to boost the morale of American soldiers, conducted extensive research on the conditions most likely to influence people through persuasive messages. Specifically, they explored the “Who says? What? To whom?” factors, focusing on the source of the message (how knowledgeable or attractive the speaker is), the message itself (the quality of the arguments), and the audience (what types of appeals work with reluctant or receptive audiences). This approach, better known as the Yale approach to attitude change, has led to many valuable insights into how individuals change their attitudes in response to persuasive messages. Concerning the source of information, it was found that a credible speaker has a greater power of persuasion than one with less credibility. Additionally, an attractive speaker, whether due to physical appearance or personality traits, is usually more persuasive than an unattractive speaker. By looking at the nature of communication, Hovland et al. found that people are more likely to be influenced by messages that do not have the overt goal of changing their attitudes. Finally, the nature of the message is significant. Individuals between the ages of 18 and 25 are particularly sensitive to attitude change, while the attitudes of people after that age become more stable and resistant to change [27].

However, it is the credibility of the source that has been proposed as the dominant antecedent of the attitude towards the ad and, ultimately, the effectiveness of advertising [26]. Belanche et al. [25] state that cooperation with influencers would be useless if they cannot influence. From a relational perspective, influencers seek to cultivate stronger psychological bonds with their followers to foster lasting relationships. Therefore, it is not surprising that influencers face challenges when it comes to attracting and retaining followers, as this is essential for cultivating a successful community that serves as the foundation of their influence. Alignment between influencers and the products they promote is key to increasing the effectiveness of marketing

campaigns that rely on influential individuals. Conversely, when influencers deviate from their usual content and promote unrelated products, their followers may be surprised by such content, which could potentially cause a sense of confusion and make them wonder if the influencer is driven by commercial motives for posting such content and not by a real personal interest [25].

Mesarić and Gregurec [30] emphasise that the most successful influencers are not necessarily those with the largest number of followers. Brands must prioritise influencers who stay true to their style and provide their followers with carefully selected high-quality and relevant content. The authors also state that they should be honest but also enthusiastic and authentic and should focus on promoting products they use and have knowledge about. This is why true influencers do not endorse every product that comes their way but instead carefully select the brands they represent. Depending on their previous recommendations, the audience evaluates them as a credible source of information and decides whether to trust them or not. Belanche et al. [25] surveyed a sample of 341 respondents, and the results revealed that followers consider influencer-product unity as an important cue to evaluate influencers. The perception that the post is paid communication significantly damages the perceived credibility of the influencer, but its effect on the attitude towards the influencer is insignificant. Furthermore, the authors concluded that the influencer's credibility plays a central role in the success of influencer marketing and that this characteristic had a positive effect on the attitude towards the influencer.

Although a change in attitude is possible, it is important to remember that not all attitudes are created equal. Aronson, Wilson, and Akert [27] explain how some are based more on beliefs about the object of the attitude (cognitively based attitudes), while others are more influenced by emotions (emotionally based attitudes). Various studies have shown that the most effective approach to changing attitudes is to “fight fire with fire”. If the attitude is cognitively based, it is best to try to change it with rational arguments, but if it is emotionally based, appealing to emotions is more effective. The authors conclude that advertising is very effective in influencing attitudes, as evidenced by split-market testing research. It is most successful when advertising is tailored to the type of attitude and when the product is presented as personally meaningful to the individual.

By associating positive emotions with the product, the advertiser can transform a product that may seem impersonal into one that evokes feelings of nostalgia, love, warmth, and affection in general [27]. Therefore, even in the context of influencer marketing, it is crucial to understand the prevailing attitude of people towards the product and adapt the ad accordingly. The primary goal of influencers is to establish strong and lasting relationships with their followers in order to create successful communities. Belanche et al. [25] state that it is important to recognise the significance of each post, especially when it comes to commercial communication that may deviate from the influencer's typical content. Consequently, each post has the potential to influence attitudes, perceptions and behavioural reactions towards the influencer in their constant connection [25].

CHARACTERISTICS OF GENERATION Z

Social media gathers and attracts a huge number of users of different age groups and preferences, which marketing experts are aware of. Influencers, who have to adapt their communication to the age of the audience following them, are also aware of this. Although every person in this world is an individual for himself or herself, until now, there have been many attempts to generalise and define different groups of people, and one of the results of the generalisation is the creation of the term “generation” [31].

A generation can be defined as "a group of people determined by age, i.e., persons who were born during a certain period, who grew up similarly and had similar experiences, and therefore, their values and attitudes are similar" [32; p.20]. Living in similar conditions, such as the same economic and historical circumstances, exposure to the same events (e.g., cultural or environmental), and under the influence of similar technology can significantly shape the thinking, decision-making and behaviour of individuals [31].

Each generation has unique characteristics and perspectives, which are often completely unknown to other generations, so it is not surprising that "the almost proportional growth between digitisation and the generation gap is most evident precisely in the example of age groups" [33; p.123].

Many authors disagree about the exact age limits of different generations. Still, they agree that there are veterans, the baby boom generation, Generation X, Generation Y, Generation Z, and the latest, Generation Alpha [32].

Most previous research on generational differences has been conducted in the United States, Canada and Great Britain; however, due to significant implications for the economy, labour market and marketing strategies of organisations, this issue has become the interest of authors and numerous considerations around the world [31]. Generational research is significant because the results provide valuable insights into understanding the dynamics, values and attitudes of different groups.

Table 1 presents an overview of generational differences according to technology usage and cultural differences.

The influence of digitalisation on generational divides has become increasingly evident, particularly in the context of Generation Z, who have grown up in a world saturated with technology and social media. Fistrić [33] highlights the widening generational gap due to rapid digital advancements, with Generation Z's digital fluency contrasting sharply with older generations' experiences [34]. This fluency shapes their social interactions and expectations since Generation Z's social interests are deeply intertwined with their technological environment, influencing how they connect with others and perceive content online [35]. In educational settings, adapting to Generation Z's expectations, particularly their preference for interactive and technology-driven experiences is crucial for engaging and retaining their attention [36]. These technological influences extend into the workplace challenges and opportunities of managing a multigenerational workforce. Generation Z's tech-savviness can be both an asset and a source of tension [37].

Moreover, the integration of artificial intelligence in communication, such as in the music industry, exemplifies how technology is reshaping fan engagement, further illustrating the unique ways Generation Z interacts with digital content [38]. Generation Z is an ambitious generation of individuals that is becoming more significant in the research of the entire communication industry. The actions of this generation are reflected in the shaping of the media, and the most important means of communication with them is influence marketing.

The author believes that the peculiarity of this generation is the fact that they live in the digital world as if it were real and do not see the boundary between global and local. Musicians, athletes, YouTubers and influencers are equally important to them [38]. In addition, some authors state that versatility and self-centeredness are the most expressive characteristics of Generation Z that determine their behaviour in the communication environment and their unique approach to the environment [39; p.27], and other authors call them "digital natives" because they believe that its members are able to receive information very quickly in parallel with other tasks and provide significant preference to the visual [40; p.2].

Table 1. Generational differences according to technology usage and cultural differences (compiled by the authors according to McCrindle, Mark. 2014. The ABC of XYZ).

	Traditionalists 1925 – 1964	Baby boomer 1946 – 1964	Generation X 1965 – 1979	Generation Y 1980 – 1994	Generation Z 1995 – 2010
CULTURAL TECHNOLOGY	Radio (wireless) Motor vehicle Airplane	TV Audiocassette Transistors	VCR Walkman IBM PC	Internet, Email, SMS DVD PlayStation, Xbox, iPod	MacBook, iPad Google, Facebook, Twitter Wii, PS3
MUSIC	Jazz Swing Frank Sinatra	Elvis, Beatles, Rolling Stones	INXS Nirvana Madonna	Eminem Britney Spears Jennifer Lopez	Rihanna Justin Bieber Taylor Swift
TV AND MOVIES	The appearance of TV <i>Gone with the Wind</i>	Colour TV <i>Easy Rider</i>	MTV <i>ET</i>	Pay TV <i>Titanic</i>	Smart TV <i>Avatar</i>
POP CULTURE	Fluffy jeans Roller skates	Short skirts Rolls	Ripped jeans Piercing	Baseball caps Men's cosmetics	Skinny jeans V-neckline
KEY EVENTS	Great depression Word War II	Neil Armstrong The Vietnam War	Stock Market Crash Berlin Wall fall	Landslide Thredbo 9/11	Iraq/Afghanistan War Arab Spring
INFLUENTIAL PEOPLE	Government	Experts	Practitioners	Colleagues	User-generated forums
SALES AND MARKETING	Press and radio Persuasive	Mass media ATL marketing	Direct/Targeted Media BTL marketing	Electronic media Through a friend	Interactive campaigns Positive brand association
PURCHASE AND INFLUENCES ON PURCHASE	The origin of the brand Storytelling	Brand loyalty Authorities	Rebranding Experts	They are not brand-loyal Friends	Brand evangelism Trends
FINANCIAL VALUES	Long-term savings	Long-term needs	Medium-term goals	Short-term wishes	Impulsive buying

METHODOLOGY

RESEARCH GOAL AND HYPOTHESIS

The main goal of the article is to determine the contribution of influencer communication on their official profiles in forming the attitudes of Generation Z members based on the results of a qualitative analysis of the content and the results of the survey. Furthermore, the purpose is to clarify how Generation Z perceives the content created by the most popular influencers and whether this contributes to the creation of their opinion on the topics they are exposed to. The results of this type of research will offer a deeper insight into understanding the perspective of Generation Z, as well as their views on the digital content on the social media they consume. The two hypotheses of this article are as follows:

H₁: Instagram influencers, with the content on their official profiles, contribute to shaping the attitudes and behaviour of members of Generation Z (change of opinion, purchasing behaviour, etc.)

H₂: Generation Z mainly trusts the content that influencers publish on their Instagram profiles.

Two research approaches have been used. The first is a content analysis of Croatia's most popular influences. The second is survey research on a sample of Generation Z social media users.

CONTENT ANALYSIS

The posts on the official Instagram profiles of the three most popular influencers in Croatia were investigated through qualitative content analysis. The goal of the content analysis is to conduct preliminary research to gain a better insight into the observed topic and the type of content that the most popular Croatian influencers post on their official Instagram profiles and thus try to understand what attracts an extremely large number of audiences to their profiles. In addition, the goal of the content analysis was to determine the type of content that the selected influencers publish but also to discover the most popular posts in the given time frame (the most likes, shares and comments) to offer these posts for evaluation to respondents in the survey questionnaire.

For that purpose, the content analysis is used to determine the advertising announcements in the selected period, which were also offered to the respondents in the survey questionnaire with the aim of checking whether such an announcement would encourage the respondents to buy. As stated previously, many brands often collaborate with well-known influencers in order to achieve marketing goals, whereby the visually oriented application Instagram is recognised as a leading platform for influencer marketing. Furthermore, the characteristics of influencers and their classification regarding the number of followers and the type of content they publish are listed, and each category has unique characteristics that differentiate it from the others. What kind of content is published by the most famous Croatian influencers, what messages are conveyed by their posts, and to what extent collaboration with brands is represented on their profiles are just some of the topics covered by the content analysis.

According to the list of top influencers, which was created on March 22, 2023, as part of Manjgura's education "Media image", the most popular influencers on Instagram are Jelena Perić (994 000 followers), Mirta Miler (991 000 followers) and Amadea Muša (935 000 followers) [41]. It is important to emphasise that the list excludes media celebrities, such as athletes or musicians, who, although they are considered influencers, primarily gain their influence from traditional media. From the date of publication of the list of the most popular Instagram influencers to the start of the content analysis, the number of followers of the mentioned influencers changed, which also affected the order in the list itself. Mirta Miler is currently in first place with 1052 519 followers, followed by Amadea Muša with 923 237 followers, while Jelena Perić took third place with 990 207 followers. The period from May 1 to 31, 2023, was selected for content analysis. The posts were analysed according to the following parameters: date of publication, type of publication (informative/educational, promotional, entertainment, beauty or other), publication format (photo, video, infographic or GIF), the number of "likes", the number of comments, and it was studied whether the content is closely related to the type of influencer and whether the post calls for user engagement (marking the post with a "like", commenting, sharing, etc.).

SURVEY RESEARCH

A survey was conducted from June 7 to 29, 2023, to analyse Instagram users' habits, influencers' perceptions among Generation Z (people born from 1995 to 2010), and the connection between influencers' attitudes and the generation above. The questionnaire was designed in four parts. The first part investigated the demographic characteristics of the research participants. The second part contained questions about the Instagram usage habits of members of Generation Z and following influencers on the said social platform. In the third part of the survey, questions were used to investigate Generation Z members' perceptions of the Instagram influencers that respondents follow and their influence on their decisions. In the last part of the survey, the respondents evaluated the posts of the three most followed Instagram influencers in Croatia. They expressed their degree of agreement with the offered statement

related to the given photo. The research used content available to the public that was collected on the profiles of the mentioned Instagram influencers from May 2023 for the respondent's evaluation of the mentioned posts. Considering that content that was voluntarily placed on social media was used in the creation of this research, there were no ethical challenges in the implementation of this research.

It should be emphasised that minors did not participate in the research. However, according to the age range, they belong to Generation Z, considering the necessary parental consent to participate in the survey.

Furthermore, regardless of whether the respondents follow the selected influencers, the intention is to determine how the posts of the most popular influencers affect different publics, that is, different members of the Z generation that the selected influencers are targeting with their posts. So, the goal is to show whether the influencers would succeed in getting the target public (Generation Z) to change their attitude or possibly buy the product regardless of whether or not they follow them on social networks.

The survey questionnaire was distributed by e-mail and social media using the snowball method. The research sample is random and non-probabilistic. Members of Generation Z, i.e., people born from 1995 to 2005 in Croatia, could access and fill out the anonymous questionnaire.

RESULTS

CONTENT ANALYSIS RESULTS

The First Influencer

The first influencer, Mirta Miler, is a make-up influencer better known under the username *mime makeup*. According to the above list of top influencers, Mirta Miler is in first place with more than a million followers on Instagram; therefore, according to the influencer classification, she belongs to the mega-influencer category. She has been involved in social media for several years; more precisely, she started publishing her make-up content on Instagram in 2018. In 2019, she opened an account on TikTok, which has 17 million followers. She became famous for posting short videos demonstrating her makeup skills while narrating a short story.

As can be seen in Table 2, in the mentioned analysed period, Mirta Miler published a total of ten posts on her official Instagram profile, of which five were photos and five were videos. The post that achieved the highest audience engagement was a video of an influencer filming the tattooing process, and this post garnered 181 458 likes and 546 audience comments. Although Mirta Miler is a make-up influencer, in the mentioned analysed period, only three posts were closely related to the type of influencer. Most of the posts are entertaining, 60% of them, to be exact. There is only one promotional post, and in the description of the post, the influencer has tagged the company, but there is no paid partnership or sponsored hashtag. In the description of all posts, the said influencer uses up to one sentence, and sometimes the description contains only emojis. Furthermore, it was observed that the influencer speaks in English in all the videos made, as she uses English in the descriptions of the posts. None of the posts on Mirta Miler's Instagram profile invites the audience to engage, i.e., to like the photo, comment, share, etc.

Table 2. Content analysis of Mirta Miler’s Instagram profile.

DATE	PURPOSE	TYPE	# OF LIKES	# OF COMMENTS	RELATION OF CONTENT TO THE TYPE OF INFLUENCER	INVITATION TO USER ENGAGEMENT
7.5.	Promo	Video	181 458	546	No	No
12.5.	Fun	Video	113 178	647	No	No
18.5.	Fun	Photo	54 895	179	No	No
18.5.	Promo	Video	22 371	56	Yes	No
21.5.	Rest	Photo	94 210	190	Yes	No
24.5.	Rest	Photo	89 481	164	No	Ne
27.5.	Fun	Photo	80 958	105	No	No
30.5.	Fun	Video	12 631	45	Yes	No
30.5.	Fun	Photo	40 704	44	No	No
31.5.	Fun	Video	8 128	21	No	No
Total # posts from May 1 to May 31: 10						

The Second Influencer

Amadea Muše is a beauty and fashion influencer from Split who, according to the aforementioned list, is in second place with 923 237 followers, which means she belongs to the macro-influencer category. Better known to the general public under the username amadea_dashurie, she opened her Instagram profile in 2013, and today, she is one of the most followed Croatian influencers who collaborates with numerous renowned global brands.

Table 3 shows that, in the period from May 1 to May 31, 2023, Amadea Muše published 17 posts. Amadea Muša’s post about the device for abs that she recommends to her followers achieved the highest number of audience comments, 69 to be exact. Unlike Mirta Miler, Amadea Muše published ten posts related to fashion or make-up; that is, 58.8% of the posts are closely related to the type of influencer. Although Amadea Muše initially based her posts on beauty content, in the analysed period, more fashion-related posts were noticed (eight of them). In contrast, beauty content was published to a much lesser extent (two posts). 41.2% are

Table 3. Content analysis of Amadea Muše’s Instagram profile.

DATE	PURPOSE	TYPE	# OF LIKES	# OF COMMENTS	RELATION OF CONTENT TO THE TYPE OF INFLUENCER	INVITATION TO USER ENGAGEMENT
1.5.	Fashion	Photo	Not visible	54	Yes	Yes
4.5.	Promo	Photo	Not visible	56	Yes	Yes
6.5.	Fashion	Photo	Not visible	44	Yes	Yes
7.5.	Rest	Photo	Not visible	53	No	No
8.5.	Promo	Video	Not visible	26	Yes	No
10.5.	Promo	Video	Not visible	20	No	No
12.5.	Beauty	Video	Not visible	45	Yes	No
13.5.	Promo	Photo	Not visible	31	Yes	No
15.5.	Promo	Photo	Not visible	69	No	No
17.5.	Rest	Photo	Not visible	51	Yes	No
17.5.	Rest	Photo	Not visible	47	No	Yes
19.5.	Promo	Photo	Not visible	38	Yes	No
22.5.	Promo	Photo	Not visible	68	No	Yes
25.5.	Beauty	Video	Not visible	18	Yes	No
28.5.	Rest	Photo	Not visible	35	No	No
30.5.	Promo	Video	Not visible	50	Yes	Yes
31.5.	Rest	Photo	Not visible	21	No	Yes
Total number of posts from May 1 to May 31: 17						

promotional posts, and it is important to note that covert advertising was also observed with this influencer in two posts. In contrast, the other promotional posts indicated a paid partnership, and the advertised brand was indicated. Like the previous influencer, Amadea Muše uses English in the description of her posts. In the description of the analysed posts, 76.78% of the posts contained a question intended for followers, i.e., the posts invited users to engage. In comparison, a significantly smaller percentage of posts (23.53%) contained a description of up to one sentence and emojis.

The Third Influencer

Beauty influencer Jelena Perić is third on the list of the most followed Instagram influencers in Croatia; she currently has 990 207 followers. Although she posts content on her YouTube she became famous when she started posting make-up tutorials on Instagram in 2016. Her videos went viral, and that year, the influencer job was still an unknown and under-researched field in Croatia. By publishing make-up content, she gained popularity. She was at the top of the list in terms of the number of followers, which can also be attributed to the fact that they declared her the Croatian Kim Kardashian due to her resemblance to the American star, who is also one of the most followed celebrities on Instagram. According to the number of followers, Jelena Perić belongs to the category of macro-influencers.

During the analysed period, Jelena Perić published a total of 26 posts, of which 18 were photos and 8 were videos (Table 4). The post that achieved the highest audience engagement, at least as far as comments are concerned, given that the number of "likes" is not visible, is the prize contest, i.e., the photo in which Jelena Perić, in cooperation with the Good Food restaurant, is giving away a valuable mobile phone. The mentioned post collected 35,211 comments. Most of the posts are promotional, 73.1% to be exact. At the same time, it is important to emphasise that although, according to Instagram's guidelines, it is necessary to emphasise paid cooperation, none of the posts of the said influencer has such a label. Jelena Perić also does not publish content that invites the audience to engage, and only 19.2% of posts encourage user interaction. The descriptions of the posts are mostly written in Croatian, and considering the percentage of sponsored posts, the descriptions in the analysed period mostly refer to the brand that the influencer promotes.

The conducted qualitative content analysis provided useful information about the type of content of the most followed Croatian influencers, the compatibility of posts with the type of influencer, and the engagement of their large audience. According to the literature, mega-influencers are considered more passive compared to macro-influencers and micro-influencers [42], and the characteristics above can be observed in the results of the content analysis. Mega-influencer Mirta Miler published 10 posts in the period from May 1 to 31, while macro-influencers Amadea Muše and Jelena Perić created more content on their Instagram profiles in the same period. Thus, Amadea Muše published 17 posts, most of which encouraged the audience to interact in the form of liking, commenting, or sharing content. In comparison, Jelena Perić published 26 posts in the same period. In addition, although the advantage of macro-influencers is that they have an exceptional ability to reach a large number of people, which makes them ideal for brand awareness campaigns, analysing the content of Mirta Miler's profile in the mentioned period, only two posts were noticed that reflect cooperation with brands. The influencer above mostly publishes content of an entertaining nature, while she published considerably less make-up content in the observed period. Unlike the other two colleagues, visible under Mirta Miler's every post is the number of "likes". At the same time, for Amadea Muše and Jelena Perić, no information is available on how many people "liked" the photo, but only the number of comments is available. Although Mirta Miler's posts do not invite audience

Table 4. Content analysis of Jelena Perić’s Instagram profile.

DATE	PURPOSE	TYPE	# OF LIKES	# OF COMMENTS	RELATION OF CONTENT TO THE TYPE OF INFLUENCER	INVITATION TO USER ENGAGEMENT
1.5.	Lifestyle	Photo	20 313	83	No	No
2.5.	Beauty	Photo	Not visible	65	Yes	Yes
4.5.	Promo	Photo	Not visible	25	No	No
5.5.	Promo	Video	Not visible	31	No	No
6.5.	Promo	Photo	Not visible	136	No	No
8.5.	Promo	Photo	Not visible	80	No	No
9.5.	Promo	Photo	Not visible	42	No	Yes
11.5.	Promo	Video	Not visible	13	No	No
12.5.	Promo	Video	Not visible	28	No	Yes
13.5.	Promo	Video	Not visible	31	Yes	No
14.5.	Rest	Photo	Not visible	29	No	No
18.5.	Promo	Photo	Not visible	17	Yes	No
19.5.	Rest	Photo	Not visible	20	No	No
20.5.	Beauty	Photo	Not visible	34	No	No
22.5.	Promo	Video	Not visible	18	No	No
23.5.	Promo	Video	Not visible	35	No	No
24.5.	Promo (giveaway)	Photo	Not visible	47	No	Yes
24.5	Promo	Photo	Not visible	55	Yes	No
25.5.	Promo	Photo	Not visible	18	Yes	No
26.5.	Promo (giveaway)	Photo	Not visible	35 211	No	Yes
29.5.	Promo	Photo	Not visible	13	No	No
29.5.	Promo	Photo	Not visible	44	No	No
30.5.	Rest	Photo	Not visible	48	No	No
30.5.	Promo	Video	Not visible	34	No	No
31.5.	Promo	Photo	Not visible	33	No	No
31.5.	Rest	Video	Not visible	15	No	No
Total number of posts from May 1 to May 31: 26						

engagement, her posts achieve an extremely high number of comments and likes. For the sake of comparison, Mirta Miler’s post that received the most comments received 647 comments, and Amadea Muša’s post with the most comments received 69. In contrast, 136 people commented on Jelena Perić’s most popular post (if we leave out the prize contest, of which a condition is to comment on the photo in order for the audience to participate).

In addition, macro-influencers can be of great value to advertisers whose products and services are related to the topic that this type of influencer publishes on their profile [22], which was noticed by analysing the posts on Amadea Muša’s profile. This beauty and fashion influencer collaborates with brands that are related to the topics she normally deals with, so such promoted posts do not stand out from the rest of the content. In contrast, the analysis of the content revealed a discrepancy between the sponsored posts on Jelena Perić’s profile and the type of influencer who sponsors a certain car brand, alcoholic and non-alcoholic beverages, clothing brands, and the like, while 19.2% of the posts cover beauty topics that should be the primary content of her profile. As already stated, all three influencers have posts that represent covert advertising, and such posts especially dominate the profile of Jelena Perić. In contrast, on the profiles of Amadea Muše and Mirta Miler, there are only two posts without the paid partnership label. Covert advertising is a tool used by the media and individuals who want to promote products in a way that is both illegal and unethical. The Media Act and the Electronic Media Act expressly prohibit covert advertising, as stated in the Code of Honor of Croatian

journalists [23]. "Covert advertising and promotional journalist contributions are not allowed. Interweaving and connecting journalistic articles and advertisements is also prohibited. Whether paid or free, advertisements, like all paid information, must be clearly and unequivocally distinguished from journalistic contributions." [23]. Although this provision of the Code of Honor of Croatian journalists does not directly apply to influencers, it would be desirable for all those who participate in the media and Internet space to familiarise themselves with the media laws and regulations in the Republic of Croatia and to comply with them [24]. It should be noted that social media such as Facebook, Instagram and TikTok are not classified as media and are, therefore, not subject to the same legal obligations in Croatia or the European Union, which leaves room for influencers on social media to manipulate the audience by publishing content that is a reflection of paid cooperation and failure to mark it with a promotional post label, which leads the audience to consider such posts as honest recommendations of products and services. Despite the above, female influencers have an extremely large number of followers, which may mean that covert advertising and, generally, a lot of sponsored content do not change the attitude of their audience towards the influencer. Furthermore, one of the reasons for changing the order on the list of top influencers and the exceptional popularity of Mirta Miler and Amadea Muše can be the use of the English language. If the content is in English, there is a greater chance of reaching a larger audience; nevertheless, at the same time, it can prove to be a greater challenge to stand out in the midst of increased competition.

SURVEY RESEARCH RESULTS

Demographic Characteristics

In the end, 176 Generation Z members filled out the questionnaire, of whom 139 were women (79%) and 37 were men (21%). The largest percentage of respondents, 42.6% to be exact, is between 21 and 23 years old. More than half of the members of Generation Z who participated in the survey are full-time students (67.6%), while 26.1% are employed, 5.1% are part-time students and 1.1% are unemployed.

It is important to point out that, by analysing the answers, it was observed that some participants are employed but still studying. Therefore, the percentage of students who filled out the questionnaire is significantly higher (85.2%).

According to higher education institution representation, students of the Catholic University of Croatia (62%), Faculty of Economics, University of Zagreb (13.3%), Edward Bernays University of Applied Sciences (6%), VERN' University (4%), Libertas (2%), Faculty of Law of the University of Zagreb (1.3 %), Faculty of Humanities and Social Sciences, University of Zagreb (1.3 %), University of Applied Health Sciences (1.3 %), Faculty of Medicine Osijek (1.3 %), Faculty of Croatian Studies (1.3 %), Faculty of Electrical Engineering, Computing and Information Technologies Osijek (0.67 %), Business Academy Aarhus (0.67 %), Faculty of Medicine Zagreb (0.67 %), Technical Polytechnic in Zagreb (0.67 %), Teacher Faculty of the University of Zagreb (0.67%), Faculty of Educational Sciences (0.67%), Faculty of Transport Sciences (0.67%) and Faculty of Agriculture (0.67%).

Most respondents who took part in the research studied psychology, 17.3% to be exact, while 16.7% studied communication, 14% studied nursing, 8% studied sociology, 5.3% studied business economics, and 3.3% studied medicine. Slightly over half of the respondents, 50.6% to be exact, are studying at the graduate level, 47.4% at the undergraduate level, 1.3% at the postgraduate specialist and 0.6% at the doctoral study program level. The vast majority of respondents, i.e., 83.8% of them, attend university studies, while 16.2% of them are enrolled in professional study programs. The largest percentage of members of Generation Z, 29.4%, is

in the fifth year of study, 20.3% in the second year, 19.6% in the first year, 15.7% in the third year, and 15% of respondents are in the fourth year of study.

Social Media Usage Habits

More than half of Generation Z members (64.2%) answered that they use social media extremely often. Most respondents (92.6%) have their own Instagram profile; 86.9% have a private account on this popular social network, while 13.1% have a public profile.

The largest percentage of respondents (31.3%) spend from 30 minutes to 1 hour a day on Instagram, while 29% spend from 1 to 2 hours a day, 19.3% spend from 2 to 3 hours a day, 15.3% spend less than 30 minutes, and 5.1% spend more than 3 hours a day using Instagram.

When asked how many influencers they follow on Instagram, 39.2% answered that they follow from 1 to 5 influencers, 25.6% follow from 6 to 10, and 17.6% of members of Generation Z do not follow any influencer on Instagram. In comparison, 11.4% follow more than 15 influencers on Instagram.

The most common answers were fashion influencers (40.9% of respondents chose this type of influencer as one of the three answers). The same percentage of answers was recorded for lifestyle and fitness influencers (34.9%), and 34.2% followed well-known public persons.

Slightly more than half of the respondents (53.4%) also follow Croatian influencers on Instagram, after which they were asked to name up to three Croatian Instagram influencers they follow.

Although the vast majority of Generation Z members surveyed declared that they follow at least one influencer, 63.6% stated that they do not check the content that their favourite influencers publish on their profiles every day.

Motivation for Following Influencers

As a reason for following influencers on Instagram, the most common answers chosen by respondents were: “for distraction” (46.6%), “they share useful tips” (40.3%), “they publish quality content” (39.2%), “they publish visually appealing photos” (39.2 %), “I like to follow which products they use so that I could buy them myself” (23.9 %).

Slightly more than half of the respondents, i.e., 51.7% of them, bought at least once a product that they learned about through an influencer. In comparison, 48.3% never bought a product that they learned about through an influencer, i.e., 29% of them bought a product 1-2 times, 15.9% bought the product 3-5 times, 5.7% of them bought a product 6-10 times, while 1.1% of respondents bought a recommended product more than 10 times.

Regarding influencer recommendations for cafes, restaurants, and the like, 56.8% of respondents visited a place at least once because of their recommendation. In comparison, 43.2% never visited a place because of an influencer’s recommendation.

Furthermore, 91.5% of respondents stated that they never changed their opinion on a topic due to the impact of an influencer. In comparison, 7.4% of respondents who initially had an opinion that differed from the opinion of the influencer stated that they changed it on the following topics: (1) cosmetics, (2) beauty tips, (3) religion, abortion, LGBT, coaching, mental health, (4) in general, what is the meaning of influencers, (5) religious topics, (6) religion, (7) war, environmental and food topics, (8) fast fashion, (9) fitness influencer regarding healthy recipes, (10) some trends.

However, despite the following, the largest percentage of covered participants (72%) do not consider the influencers they follow on Instagram as role models. More than half of the

respondents (68.7%) mostly disagree with the statement, "I consider the advice of influencers with a large number of followers to be credible".

The number of followers is not a reflection of the influencer's credibility, which is shown by the percentage of disagreement of Generation Z (78.5%) with the statement, "I consider the advice of influencers with a small number of followers less credible than those with more followers". Furthermore, the respondents mostly disagree with the statement that they have applied the advice of the influencers they follow at least once in their lives (45.5%). In comparison, 30.7% mostly agree with the stated statement, and 23.9% neither agree nor disagree.

In addition, 28.5% of Generation Z members surveyed mostly agree that they share similar values with the Instagram influencers they follow, 34.7% neither agree nor disagree, and 36.9% disagree.

More than half of the respondents (51.1%) agree with the statement that influencers provide them with new ideas on where to travel. In comparison, 32.3% of the respondents disagree with this statement, and 16.5% neither agree nor disagree. 58.8% of the respondents do not agree that they often go to places (cafes, restaurants, festivals, concerts, etc.) recommended by influencers, while a much smaller percentage of respondents (18.8%) agree. A significant majority of respondents, more precisely 83.6%, do not even agree with the statement that they often use services recommended by influencers (hairdressers, beauticians, barbers, pedicurists, manicurists, etc.). Also, 69.3% of the respondents do not agree that they would be happy to buy a product from an influencer they follow. However, more than half of the respondents (67.6%) believe that influencers have a significant influence on consumers when making a purchase decision.

The largest percentage of respondents, i.e., 44.4% of them, do not believe in the truth of the content that influencers publish on their Instagram profiles, and 42% partially believe it. In comparison, only 13.6% of respondents believe in the truth of what influencers publish. Respondents were then asked what type of content published by influencers inspires trust in them, and the most common answers were travel, fitness, honesty, use of products they advertise, unfiltered depictions of life, family, authenticity, and advice. Generation Z was then asked what type of content causes distrust towards influencers, and 41.6% answered sponsored posts.

Experimental Evaluation of Influencer Posts

Members of Generation Z were offered three posts each from the most followed Croatian Instagram influencers – Mirta Miler, Amadea Muše and Jelena Perić. The criterion for selecting the post was the highest number of "likes", but considering that the overview of the number of "likes" is only available on Mirta Miler's profile, the criterion for selecting the posts of Amadea Muše and Jelena Perić was the largest number of comments under the post. Respondents had to rate on a scale of 1-5 how much they liked the displayed post and the degree of agreement with the statement below each post.

Furthermore, 44.3% of respondents did not like Mirta Miler's post with the highest number of "likes". 85.8% of respondents do not agree with the statement, "The post made me want a certain product (e.g., buying a dress, jewellery) or using certain services (e.g., tattooing)", and it is interesting to note that no respondent fully agreed with the said statement. The second post by mega-influencer Mirta Miler did not achieve better results either, so 42.1% of the respondents rated that they did not like the photo. Furthermore, most participants generally disagree with the statement that the photo shown makes them want to travel (67.6%). Mirta Miler's third photo did not achieve a positive reaction from Generation Z, as more than half of

the respondents (50.3%) rated that they did not like it, and mostly they disagreed with the statement that they liked the post because it was entertaining (65.3%).

Respondents were also offered three posts by Amadea Muše, which were selected based on the highest number of comments, given that the number of “likes” is not visible. The first post, which received 69 comments on Amadea Muša’s official Instagram profile, was evaluated extremely negatively, i.e., 58% of respondents said that they did not like the photo at all. For the same photo, 81.8% of them said that they would not buy the displayed product that the influencer is promoting. The second post by Amadea Muše achieved significantly more positive reactions from Generation Z, as more than half of respondents (56.9%) said they liked it. Nevertheless, 57.9% of respondents would not hire the company mentioned in the post’s description if they needed it for future space decoration. Amadea Muša’s last photo was rated by most respondents as neither like nor dislike (39.2%). Given that the influencer is promoting a clothing brand in the photo, respondents had to rate the degree of agreement with the statement, “I would not buy the clothes shown because paid collaborations reduce my trust in the influencer”. The results show that the respondents’ opinions are divided; 39.7% mostly disagree with the statement, 36.3% mostly agree with the statement, and 23.9% neither agree nor disagree.

At the end of the survey, respondents were offered the three most commented posts by Jelena Perić. The first post was liked by 38.1% of the respondents; however, half of the respondents did not start following the said influencer because of the prize contest (54%). More than half of the respondents, 57.9% to be exact, rated that they liked the second displayed post by Jelena Perić, but 73.9% of the respondents did not agree with the statement “I would like to use one of the services listed in the description of the post because the influencer used them”. The last post offered was also liked by 61.4% of the respondents, but more than half of the respondents (55.7%) disagreed that they would visit Dubrovnik because of the influencer’s post.

The data indicates that Generation Z respondents generally exhibit a critical or ambivalent attitude towards the posts of Croatian Instagram influencers Mirta Miler, Amadea Muše, and Jelena Perić. Despite being popular on Instagram, these influencers’ posts did not resonate strongly with the surveyed audience. Mirta Miler’s posts, although receiving the highest number of likes, were often disliked by respondents, and there was a significant lack of interest in purchasing or using the products and services promoted. Amadea Muše’s posts elicited mixed reactions, with one post being somewhat favoured, but trust issues regarding paid collaborations were evident. Similarly, Jelena Perić’s posts had some positive responses, but they were not sufficient to influence behaviour, such as following the influencer or acting on the recommendations. This suggests that high engagement metrics on Instagram do not necessarily translate to genuine influence or trust among Generation Z, who may be more sceptical of influencer marketing tactics.

DISCUSSION

The first hypothesis (H_1) of this research was that Instagram influencers, with the content on their official profiles, contribute to shaping the attitudes and behaviour of members of Generation Z (change of opinion, purchasing behaviour, etc.). Research results indicate that this hypothesis is partially confirmed.

Most respondents have never changed their opinion on a topic due to the impact of influencers, 91.5% to be exact. The survey showed that the majority of Muša’s respondents visited a place or bought a product due to an influencer’s recommendation, but the largest number of respondents did so only once, while 43% of the covered members of Generation Z never visited a place or bought a product due to their recommendation. Furthermore, most respondents do not agree with the statement about applying the advice at least once in their life (54,6%), about

frequently going to the recommended places (56.8%) or frequently using the recommended services (43.2%).

The respondents' answers about the most followed Croatian influencers prove the above. Almost the majority (67.6%) of the surveyed Generation Z believe that influencers have a significant influence on consumers when making a purchase decision. Still, it should be taken into account that the statement was made in such a way that respondents express their opinion that other consumers, unknown to them, are influenced by influencers, but not they, which is evident from the research mentioned above results. In accordance with the above, hypothesis **H₁** (Instagram influencers, with the content on their official profiles, contribute to shaping the attitudes and behaviour of members of Generation Z (change of opinion, purchasing behaviour, etc.)) is partially confirmed.

The second hypothesis (**H₂**) presumed that Generation Z mainly trusts the content that influencers publish on their Instagram profiles. Results indicate that the hypothesis was rejected.

Respondents mostly disagreed with the claims that the content of the mentioned influencers would encourage them to buy, travel, use services and the like (73.9%). While a promoted post without a paid collaboration tag was rated poorly, a post featuring the influencer with family received significantly better ratings. The above can relate to the most common responses of respondents to the question "What type of influencer content inspires trust in you?" when they answered that these are depictions of life and family. At the same time, sponsored posts instil distrust towards the influencer. It is interesting to point out that the respondents stated in their answers that they do not believe in the truth of the content published by influencers and that they have no influence on shaping their attitudes. However, they believe that influencers have a significant influence on other consumers when making a purchase decision.

More than two-fifths of respondents (44.4%) generally do not believe in the integrity of the content that influencers publish on their social media. As the most frequently stated answer to the question of what type of content causes them distrust, they stated that these are sponsored posts (41.6%). Furthermore, they do not consider influencers with many followers to be credible (68.7%), but they also do not consider those with fewer followers not to be credible (78.5%). Accordingly, hypothesis **H₂** was rejected.

CONCLUSION

This article provides a clear picture of social media's development and features in the context of influencers' role in marketing. The research places special emphasis on Instagram, which is particularly valuable for influencers and brands due to its features that allow the promoted message to reach the target market more easily and precisely. Although all generations are exposed to the content of social media, marketers are particularly interested in the so-called Generation Z, which refers to all people born between 1995 and 2010. These individuals do not know a world without technology; they are very familiar with all trends and form a significant part of the influencer audience precisely because of their exceptional presence on social platforms and exposure to the content of influencers.

The theoretical contributions of this research are as follows. Firstly, respondents do not believe in the truth of the content that influencers publish on their official Instagram profiles. Furthermore, Instagram influencers do not contribute to shaping the attitudes and behaviour of members of Generation Z with the content on their official profiles. Respondents confirmed this by evaluating the posts of the most followed Croatian influencers, thus confirming the previous research results [11]. Second, results show that Croatian followers generally do not harmonise

their attitudes, nor do they change their attitudes according to the influencers they follow. However, this result is in contrast with previous research in Indonesia, which showed that social media influencers can influence Generation Z brand loyalty and purchase intentions [5; p.105].

The practical implications of this research are mostly relevant for marketing professionals, as it brings a deeper understanding of Croatian social network users and their view of influencers. The research showed that followers of Croatian influencers are not inclined to change their personal opinions based on the influencer's views and are not very receptive to buying products or services promoted by influencers. This is certainly useful information for all practitioners in marketing and public relations, and it can be a guideline for choosing influencers and budgeting their campaigns.

The limitation of this research is that not all members of Generation Z, i.e., all people born after 2005, could participate in the survey. If minors were included, it would be necessary to obtain parental consent for their participation in the survey. By surveying the entire Generation Z, i.e., by including in the sample those under 18 years of age, it would be possible to gain new insights on the observed topic. The results of this survey cannot be generalised to the entire population, so it would be useful to conduct further research on a larger sample, as well as to examine younger generations. In addition, all three Croatian influencers belong to similar categories regarding the type of content they publish. Accordingly, it is necessary to include influencers from different fields in future research. Influencers are no longer a new phenomenon on social media, and numerous brands cooperate with them to achieve their goals, often using a non-transparent way of advertising. Since globalisation has taken off and once distant trends have reached Croatia, but also due to the lack of legal regulations that allow covert advertising on social media, it is necessary to study the mentioned topic in more detail, as well as to expand research in Croatia.

ACKNOWLEDGMENTS

Ruža Iva Jurišić conducted the research for this article for her M.Sc. thesis entitled "Analysis of Connection of Influencers and the Target Public". The thesis supervisors were Asst. Professor Krešimir Dabo, Ph.D. and Asst. Professor Matilda Kolić Stanić, Ph.D. The thesis was defended in 2023 at the Department of Communication Sciences, Catholic University of Croatia, Croatia.

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THE INTEGRATED MARKETING COMMUNICATION IN CROATIAN COMPANIES

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DOI: 10.7906/indecs.22.4.3
Preliminary report

Received: 20 March 2024.
Accepted: 27 May 2024.

ABSTRACT

Integrated Marketing Communication (IMC) represents a pivotal approach in contemporary business, emphasising the coordination and integration of various communication tools to achieve a coherent and consistent message. This research investigates how Croatian companies have integrated IMC into their marketing strategies within the Croatian business environment. The findings indicate a growing trend of adopting this integrated approach, with a primary focus on consistency, personalisation and effectiveness of IMC activities. A synergy between marketing communication channels and an emphasis on adaptable, innovative IMC strategies has been recognised. However, challenges such as inter-departmental coordination within companies and optimisation of IMC strategies are pointed out as areas that require further attention. Despite these challenges, Croatian companies recognise the importance and potential of IMC as a strategic tool to enhance their market visibility and competitive advantage. Considering the dynamism of the market environment, continuous innovation, education, and adaptation are crucial for achieving the long-term success of IMC strategies.

KEY WORDS

integrated marketing communication, IMC, communication channels, IMC strategies, Croatian companies

CLASSIFICATION

JEL: M31, M37, M39

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INTRODUCTION

The contemporary business world is experiencing swift changes in technology and the ways companies communicate with consumers. This dynamic environment underscores the significance of Integrated Marketing Communication (IMC) as an indispensable strategy for businesses striving to maintain a unified and impactful market presence [1].

This article aims to investigate the IMC among Croatian companies. Employing a blend of qualitative and quantitative research methodologies, this study aims to create a clear picture of the current state and practices in Croatian companies through an analysis of accessible corporate materials, including the companies' websites and social media platforms. The qualitative analysis aims to decipher the implementation degrees of IMC, assessing the coherence and collaborative effectiveness of various communication tools. The quantitative analysis is conducted through a survey research, focusing on the perception of marketing professionals regarding the application of IMC.

The study aims to not only map out the current state of IMC application in Croatia but also to provide valuable insights into the perspectives and experiences of marketing practitioners in the field, bearing in mind that the development of the Internet and new technologies makes marketing and communication experts aware of new market opportunities.

The article is structured as follows: After the introduction, the literature review aims to provide an overview of the notion of IMC and the current research on IMC in Croatia. In the third chapter, the methodology is outlined, consisting of content analysis, survey research, and integrated analysis. The results follow the methodological approach in the fourth chapter. The last two chapters are devoted to discussion and conclusion.

LITERATURE REVIEW

INTEGRATED MARKETING COMMUNICATION

Many authors have provided various definitions of marketing communications from an IMC perspective, such as a process of development and application of diverse forms of persuasive communication with customers and prospects [2] or, more enhanced, a process of creating and implementing various forms of communication with potential and existing consumers within a defined timeframe, aiming to influence the behaviour of the selected audience [3]. Kotler and Keller explain IMC as harmonious planning of marketing communications through different communication channels, uniting the brand image and company message to achieve maximum effectiveness [4]. Those IMC forms include advertising, sales promotion, personal selling, direct marketing communication, public relations, and publicity [5]. Nevertheless, Kotler et al. [6] extend the list by adding the following forms: events and experiences, interactive marketing, and word-of-mouth marketing. All the forms above are in line with the basic functions of marketing communication, which involve attracting consumers' attention, generating interest in the offer conveyed through marketing communication, and encouraging the purchase of products [7]. Therefore, it is obvious that marketing communications are means by which a company establishes a dialogue and builds relationships with consumers [8]. Kesić [2] also emphasises the focus on customers and states that a company seeks to influence consumer behaviour by implementing integrated marketing communication activities, whether it aims to encourage new behaviour, strengthen existing behaviour, or change the current behaviour.

In addition, the author declares that marketing communications will be successful and effective only if a company has a good understanding of its customers and creates and implements IMC activities based on their characteristics [2]. Namely, in order to reach its target audience, the author further explains that a company needs to use more marketing communication channels that produce a synergistic effect and encourage customers to engage in the desired behaviour.

According to Batra and Keller [9], significant changes in the consumer decision journey call for much more carefully planned and executed integrated marketing communication programs to guarantee maximum results. These programs should involve the deployment of stage-appropriate media and messages in the ideal order. The authors present an extensive framework with two conceptual models intended to increase the effectiveness and efficiency of integrated marketing communication campaigns, drawing on this deeper understanding of the communication processing and consumer path to purchase.

As Kraljević and Perkov [10] claim, the result of integrated marketing communications should manifest through a better market position and higher profits. They also state that the comprehensive application of integrated marketing communications in practice helps companies achieve competitive advantages. Pirić [11] strongly supports the latter opinion, explaining that integrated marketing communications play a significant role in market competitiveness, profitability, and the lifespan of a company, as well as in creating a company's image and the overall success of the company. This requires marketing professionals to use various tools and methodologies. Namely, the challenge lies in identifying the most applicable and beneficial tools, as each one has its own set of pros and cons, and no single method can fully capture the entire scenario [12]. Nevertheless, today's imperative of digital platform usage emphasises the role of digital marketing, which has been identified as an important tool for predicting a brand position [13].

In times of accelerated development of ICT technology, when traditional marketing communication tools are more and more substituted by modern digital ones [14], it is obvious that the increasing trend of investing in digital marketing will continue to grow, as stated by Sesar, Martinčević and Hunjet [15].

Regarding the goal of integrated marketing communication, Ihzaturrahma and Kusumawati claim that it is to inspire and improve consumers' attitudes so that they are interested in the benefits of the product or service brand [16]. However, it is believed that the major role of IMC is to convey consistent messages and build long-term healthy relationships with customers [17]. In other words, IMC does not limit a company to a single message or brand. Instead, it allows companies to target various audiences and integrate multiple brands and messages within a single organisation [18]. According to Ang [19], marketing professionals ideally aim for interactions that create positive synergy, meaning that the combined effect of using multiple communication channels and tools in a campaign is greater than using any single channel on its own. The author agrees that a unified campaign theme is valuable, but he also claims that it's often necessary to blend various tactics and messages aimed at diverse audiences. When creating marketing communications, it's crucial to weigh the choice between a single message or multiple yet cohesive messages. Namely, marketing professionals must grasp the benefits of different marketing communication strategies and tools for their successful integration to enhance their marketing campaigns [20]. Rogić et al. [21] claim that effective marketing campaigns are especially relevant for social media platforms as they play a significant role in brand development. As for branding, Widjaja [22] agrees that an integrated communication strategy is essential in building a company's brand image.

Percy [23] argues that despite widespread agreement on the benefits of IMC, its adoption remains limited by challenges, such as organisational structure or resistance to change. Egan [24] supports the argument of the resistance to change and further elaborates that it all begins with the coordination of IMC activities. Also, Vernuccio et al. [25] offer IMC practitioners some interesting insights suggesting that they should give maximum attention to both strategic and organisational aspects. De Pelsmacker et al. [5] agree that IMC is far from reality in most companies and suggest that functional specialisation, both in companies and in external marketing agencies, is the main reason for this. Traditionally, distinct organisational

units have been in charge of managing the various components of the communications mix as separate operations. In case a company's communications operations are not consolidated into a single department, at the very least, information exchange, interdepartmental communications, and coordination of all communications efforts must be planned for. Therefore, the same authors conclude that deficiency in internal communication and the perception of planning and coordination are difficult and act as further barriers to the organisation of IMC.

Dewhirst and Davis [26] state that IMC is relatively new as an academic subject and highlights the necessity for more robust theoretical frameworks and evidence of its effectiveness, including additional case studies. The authors argue that case studies are particularly relevant and valuable for generating theories that can be tested. Moreover, they suggest that case studies focusing on unusual or extreme scenarios could be especially beneficial for creating well-founded theories. Furthermore, measuring the effectiveness of IMC still stands as one of the most intricate aspects of the field, with numerous unresolved questions despite significant progress in evaluating marketing efforts, including IMC initiatives. The emergence of new technologies in today's digitally driven, consumer-centric environment introduces additional complexities in gauging the success of IMC strategies [27]. Through the adoption of a customer-centric viewpoint and the consideration of both qualitative and quantitative assessments of message content and channels, Reinold and Tropp [28] introduced an innovative approach to measuring the IMC effectiveness of a company and its competitors.

CURRENT RESEARCH OF INTEGRATED MARKETING COMMUNICATION IN CROATIA

In exploring the multifaceted landscape of IMC within different geographical contexts, attention is drawn to previous research findings from various regions, including Northern Macedonia [29], Slovenia [30], and the Republic of Serbia [31]. A comparison of this research reveals a consistent theme: the strategic integration of communication tools enhances business performance and consumer engagement. These studies collectively underscore the importance of consistency, targeted communication, and data-driven decision-making in IMC strategies. Challenges such as inter-departmental coordination and personalisation are identified, resonating with the findings from the Croatian environment. This literature not only provides a comparative backdrop but also enriches the understanding of IMC's role in achieving competitive advantage in dynamically evolving markets.

In the process of analysing the application of IMC in Croatian companies, several key criteria have been defined to reflect the fundamental principles and objectives of IMC and compiled based on the study of relevant literature, including an analytical piece on the effectiveness of marketing communications within the Slovenian marketplace [30] and literature with IMC principles [2, 32]. The criteria above serve as the basis for evaluating and comparing the effectiveness and consistency of IMC among the analysed companies. Those evaluation criteria are provided later in the methodology chapter of this paper.

The literature selected for this research serves as a foundational framework for understanding the multifaceted nature of IMC. Works like Blakeman's [33] comprehensive exploration of IMC and Clow and Baack's [34] detailed insights into integrated marketing strategies provide a modern context for advertising and other forms of marketing communications. De Pelsmacker and co-authors [35] offer a European perspective on marketing communications, which is particularly relevant given the geographic focus of the research. Fill and Turnbull's [36] work contributes to the understanding of the creation and execution of marketing communications, and Krajinović [37] further elaborates on marketing communication performance in the modern environment, i.e. on digital platforms.

Namely, the empirical studies by Jerman and Završnik [30], along with Kesić's [2] insights into IMC, give a holistic approach to the topic consisting of both empirical and theoretical frameworks. This blend of international and regional sources ensures a comprehensive theoretical backing, facilitating a robust analysis of IMC application in the Croatian business context.

In conclusion, and following the former study of available literature, it was observed that there is a growing recognition of integrated marketing communication as one of the most crucial constructs in marketing in general, which importance becomes greater with today's dominant role of digital channels and social media in marketing communication. As a result, substantial research interest has been generated in the area of IMC and its application in Croatian businesses, particularly in leading Croatian retail companies. Therefore, the conducted research aimed to gain a better understanding of the integration of IMC activities into company marketing strategies and the acceptance of an integrated approach to marketing communication in the Croatian market, for which there is still a lack of appropriate literature. This study sought to overcome the research gap above with new findings and better insight relating to the Croatian market.

METHODOLOGY

The research is designed to combine quantitative and qualitative approaches to ensure a comprehensive insight into the application of IMC in Croatian companies. This allows for the measurement and understanding of various aspects of IMC, thereby providing a wider set of data.

CONTENT ANALYSIS

The content analyses focus on available corporate materials, including marketing content, websites, and social networks, from a selection of notable companies to evaluate their IMC execution. The analysed companies include Kraš, Croatian Telecom, Rimac Automobiles, Algebra University, Bagatin Clinic, Valamar Riviera, Infobip, Studio Moderna, Privredna Banka Zagreb, and Gligora.

The selection of companies for this study was guided by the objective of encompassing a broad spectrum of industries, ensuring the representativeness of the sample. By including companies from various sectors, the research aimed to capture a wide range of IMC practices and strategies, thus providing a more holistic view.

The qualitative part of this research focuses on a deeper understanding of how Croatian companies use different marketing communication channels and tools in their operations. Aiming to provide an objective and comprehensive analysis, and based on the criteria mentioned, specific guidelines have been designed to help evaluate various aspects of IMC. After reviewing general information about the company, the first step is to analyse the website, which includes checking the consistency of messages on the website with those used on other communication channels. The coherence of visual identity also plays a vital role in terms of checking whether brand colours, typography, logo, and other visual elements are consistently used. The analysis also covers aspects such as user experience, search engine optimisation (SEO), analytics, and content marketing, examining how user-friendly the website is and how content and analytical tools are tailored according to the target audience.

Namely, by analysing social media channels, selected companies are evaluated on message consistency, visual identity coherence and user engagement criteria. This includes assessing how social media profiles use brand visual elements and how regularly each brand communicates with users. The analysis of advertising, email marketing, PR, sponsorship, and sales promotion follows similar guidelines. Consistency of messages and coherence of visual identity remain key criteria, with a particular focus on personalisation in marketing communication activities. Sponsorships are further examined in terms of brand relevance and relevance to the target group, while sales promotion is evaluated regarding the target group.

Digital tools like Semrush's SEO and online advertising performance tools were used to evaluate the marketing communication strategies of the selected companies successfully. This tool offered insights into website traffic and advertising strategies on Google's search network. It allowed for an evaluation of keyword effectiveness and the visibility of paid ads, providing a comprehensive look at how companies optimise their search engine presence and attract potential customers. Social media advertising effectiveness was examined using Meta's Ads Library, displaying active campaigns across Facebook and Instagram. For display ads, Google's Ad Transparency Centre provided data on active advertisements from specific marketers. These analytical tools were instrumental in evaluating the digital marketing communication strategies of the selected companies.

SURVEY RESEARCH

In the quantitative part of the research, the topic is approached from a different perspective, focusing on the perception and attitudes of marketing professionals within Croatian companies regarding the application of IMC. The survey method was selected, utilising Microsoft Office Forms to collect the data. The survey was primarily distributed via LinkedIn to the marketing professionals who listed their employment in the marketing departments of their respective companies. This platform was chosen for its professional relevance and direct access to individuals engaged in marketing roles. To capture a broader audience, the survey was also sent directly to marketing departments using email addresses collected from the companies' official websites. This dual-channel distribution was intended to cover a broader spectrum of marketing professionals, including those who may not be active on LinkedIn. This increased the overall response rate and diversity of insights. Furthermore, this approach ensured that the survey reached professionals actively engaged in marketing roles. Their insights ensure the data collected is relevant and reflective of the latest trends and challenges in marketing communications.

The anonymity of the survey was emphasised in the invitation to encourage honest and unbiased responses, which is crucial for gathering authentic insights into the application of IMC strategies. This method aims to achieve the most authentic and objective responses that will contribute to understanding the real-world application of IMC within Croatian companies. The survey responses were collected in July and August 2023, and a total of 37 responses were gathered, providing a fresh perspective focused on how marketing experts within Croatian companies perceive and apply IMC strategies.

INTEGRATED ANALYSIS

Accordingly, the research objectives have been defined as follows: (i) to identify approaches and tactics that Croatian companies use in applying IMC; (ii) to analyse the consistency and coherence of IMC application in selected Croatian companies; (iii) to investigate the importance of adaptability and innovation of IMC strategies in selected Croatian companies.

Furthermore, to achieve the stated objectives and to obtain a comprehensive picture of the application of IMC in Croatian companies, the following research propositions (RP) have been set: (i) RP1: The IMC strategies of Croatian companies are consistent and aligned in their application; (ii) RP2: Marketing experts in Croatian companies generally recognise the importance of adaptability and innovation for the effectiveness of their IMC strategies.

A set of fundamental benchmarks reflecting IMC's core tenets and aims has been established to explore how Croatian companies apply IMC. These benchmarks, derived from a comprehensive review of existing literature [2, 29, 31], form the framework for appraising and contrasting IMC effectiveness and coherence across the companies in focus (Figure 1):

- *Message and tone consistency*: Consistency in communication refers to the uniformity of messages that a brand sends through various marketing channels, including advertising, social media, email marketing, content marketing, and public relations.
- *Visual identity coherence*: Evaluates the coherence of brand visual elements such as colours, logos, typography, and photography styles. Visual coherence is vital for maintaining brand recognition and affirming credibility in the eyes of consumers.
- *Channel synergy*: Refers to the alignment and integration of different marketing communication channels to create a unified customer experience.
- *Alignment of objectives and measurable key performance indicators (KPIs)*: Evaluate whether there is a clear connection between brand marketing objectives and measurable KPIs. This includes setting specific, measurable goals that are directly linked to business outcomes, such as sales, lead generation, or user engagement.
- *Integration of online and offline activities*: This refers to a brand's ability to link its online and offline marketing efforts. Integration allows companies to provide a consistent user experience across all platforms, whether through online ads, promotional events, point of sale, or customer support.
- *Department coordination*: Evaluates how well departments within a company are coordinated in terms of marketing communication and other marketing activities. Effective coordination among departments such as sales, marketing, customer support, and management is key to ensuring consistency and effectiveness of marketing efforts.
- *Segmentation and personalisation*: Enable brands to target and tailor their marketing activities to different user groups. Personalisation can help create more relevant and effective campaigns, while segmentation allows for the focus of resources on specific target groups.
- *Use of data and analytics*: Evaluate how a company uses data to monitor, measure, and optimise its marketing activities.
- *Adaptability and innovation*: Assesses how willing a company is to adapt to changes and how innovative its approach is. Adaptability and innovation are key to maintaining a competitive edge and responding to the changing needs of the market.

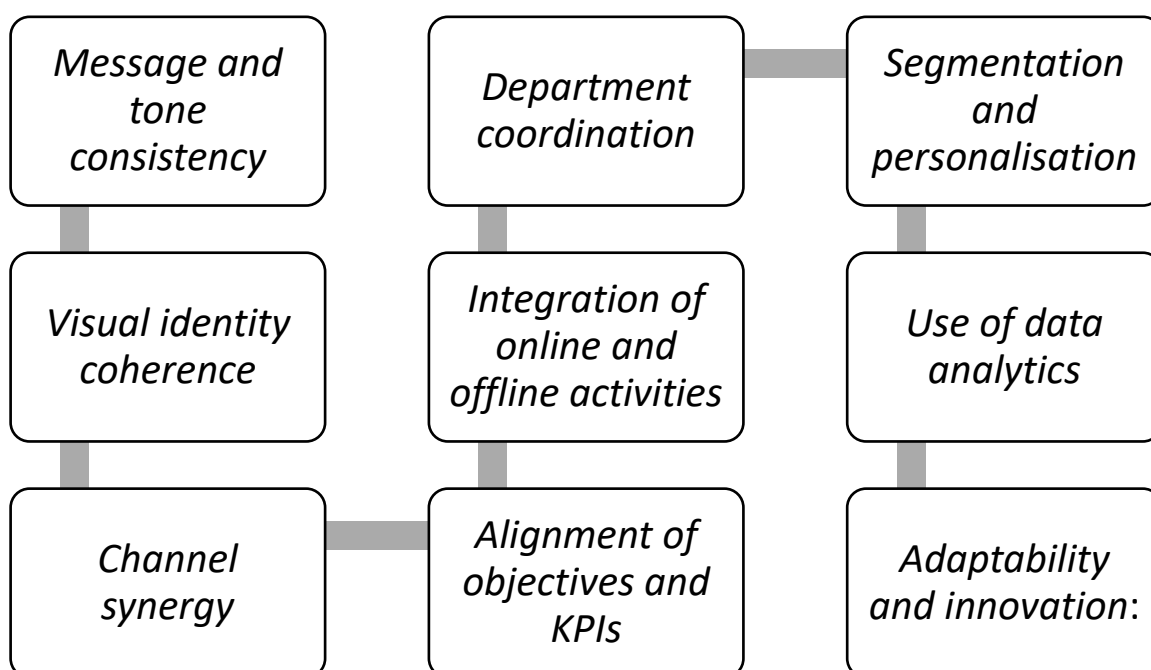


Figure 1. Research framework.

These criteria provide a holistic view of IMC, assessing not only technical aspects such as message consistency or channel synergy but also strategic components like adaptability and innovation. By applying them, it is possible to gain deeper insights into how IMC is applied in practice and identify areas for potential improvement within each selected company.

RESULTS

Delving into the effectiveness of communication strategies within Croatian companies, the analysis summarises how varied media channels and marketing tools are employed to achieve cohesive brand messaging. The insights gathered from a comprehensive review of the integration and adaptability of these strategies reflect the broader context of market engagement and the pursuit of synergy in corporate communications.

CONTENT ANALYSIS RESULTS

The research analysed the integration of marketing communications among Croatian companies, focusing on how ten distinct companies – Kraš, Hrvatski Telekom, Rimac Automobili, Algebra, Poliklinika Bagatin, Valamar Riviera, Infobip, Studio Moderna, Privredna banka Zagreb, and Gligora – implemented IMC strategies.

A variety of channels and tools were used to gather insights into these companies. The sources included company websites, social media platforms like Instagram, Facebook, TikTok, YouTube, and LinkedIn, PR articles, and emails from company newsletter subscriptions. Additionally, analytical tools such as Meta, Google, and Semrush were crucial in examining advertising strategies. This approach provided a detailed overview of each company's communication efforts and strategies for engaging with the audiences.

Each company was evaluated based on criteria such as message and tone consistency, visual identity coherence, channel synergy, integration of online and offline activities, segmentation and personalisation, and adaptability and innovation.

It is important to note that this analysis could not fully evaluate certain IMC criteria due to the nature of the research. Specifically, the alignment of objectives with KPIs, coordination between departments, and the use of data and analytics were not assessable from an external viewpoint. These aspects, crucial for a comprehensive IMC strategy, were instead analysed anonymously in the survey part of the research, highlighting the limitations of external analysis in fully capturing the intricacies of IMC integration.

Despite these limitations, the analysis highlighted a general trend among the companies towards maintaining strong message and tone consistency, visual identity coherence, and, in some cases, channel synergy. However, the integration of online and offline activities emerged as a significant area for improvement across the board. This gap points to a potential underusage of integrated marketing strategies, underscoring the need for a more holistic approach to IMC that encompasses both digital and traditional mediums.

Companies like Kraš and Croatian Telecom serve as excellent examples in their approach, demonstrating message consistency and visual identity coherence across multiple platforms. They effectively integrated online and offline marketing efforts, aligning their campaigns closely with business objectives, which is indicative of a mature IMC strategy. Rimac Automobili stood out with its targeted communication strategies, reflecting a deep understanding of its niche markets. Their consistent branding and focused messaging resonate well with their specific audience segments, underscoring the importance of a tailored IMC approach.

Insights from Semrush, Meta Ad Library and Google's Ads Transparency Center provide a perspective into how these companies manage their digital advertising strategies. Kraš has

opted not to advertise on the Google network, focusing instead on social media advertising campaigns. Meanwhile, Hrvatski Telekom implements a comprehensive digital strategy that includes search and display advertising on Google, including video ads through the Google Display Network. This approach ensures a high level of visual consistency and strong brand recognition across multiple platforms. In contrast, Rimac Automobili has focused entirely on organic traffic without the support of advertisements.

Companies like Algebra and Poliklinika Bagatin also illustrate effective IMC strategies. Algebra's use of search and display ads, along with active social media campaigns, ensures consistent messaging that aligns with its educational offerings. Poliklinika Bagatin, similarly, maintains coherence in messaging across both Google and social media platforms, effectively communicating their healthcare services. On the other hand, Valamar Riviera integrates ads seamlessly across Google Ads and social media, maintaining message and visual identity consistency, while Infobip focuses on Google search ads and Facebook.

In terms of adaptability and innovation, most companies, with the exception of Gligora, received positive ratings, indicating a general willingness to embrace market changes and innovate within their marketing strategies. This adaptability is key in today's fast-paced market environment, where the ability to respond to new trends and consumer demands swiftly can significantly impact a company's competitive edge.

SURVEY RESEARCH RESULTS

The survey questionnaire responses were collected from a sample of 37 marketing professionals employed within Croatian companies. The retail industry is the most represented industry, with as many as 13 companies responding. This is followed by the marketing and advertising industry, with responses from 4 companies. Each of the three responses was collected from the production, education, wholesale distribution, technology, and construction sectors.

In the study, most companies had between 11 to 50 participants, representing 49%. Companies with over 50 employees followed at 32%, while those with up to 10 employees constituted 19% of responses. The founding years of the companies varied, with most of them established in the early 2000s and the oldest participating company founded in 1968. 70% of the companies primarily operate in the domestic market, 22% in international markets, and 8% equally in both. 78% of respondents represented companies in the B2C market, 16% in the B2B market, and 6% in both markets.

Companies with 11 to 50 employees were the most represented at 49%. The majority operate in the domestic market, and a significant 78% serve the B2C segment. Nearly half of the companies have fully integrated IMC into their strategies, with 60% of marketing professionals affirming its effectiveness. However, opinions on IMC's role in overall marketing strategy varied, with 43% of respondents attributing significant importance and 27% of respondents considering it highly significant.

Within the survey, the majority of the questioned marketing experts, around 48.6%, perceive high consistency in their brand's messaging across various channels, while 21.6% rate it as very high. In terms of synergy, 45.9% rate it as high, and 21.6% as very high. Regarding the use of analytics, 59.5% of respondents use it very frequently. When it comes to market segmentation, 78% implement it within their strategies, and over half utilise personalisation in communications. In assessing adaptability, opinions were mixed, with 45.9% finding their strategies neither highly nor lowly adaptable. Coordination within companies also received varied responses, with 21.6% rating it as good. Lastly, 78% of participants anticipate that IMC will grow in importance in the future.

INTEGRATED ANALYSIS RESULTS

After a detailed analysis of different companies' communication strategies, a recapitulation table (Table 1) was created. The criteria defined in Figure 1, as well as ratings, were assigned in three gradations: -, +, and ++.

The “-” sign indicates areas where the company shows significant deficiencies or room for improvement, but also areas that the research of company communication could not cover. Some criteria were rated low because there was not enough information in the analysis that would directly speak about them (coordination between departments, the connection of goals and KPIs, and the use of data and analytics). “+” indicates aspects where the company performs well, but there is also some room for optimisation. Sign “++” indicates areas where the company achieves excellent results.

Table 1. Criteria for assessing IMC strategies of selected Croatian companies.

Criteria	Kraš	Croatian Telecom	Rimac Automobiles	Algebra	Bagatin Clinic	Valamar Riviera	Infobip	Studio Moderna	Privredna banka Zagreb	Gligora
Consistency of messages and tones	++	++	++	++	++	++	++	++	++	+
Coherence of visual identity	++	++	++	++	++	++	++	++	++	+
Synergy between channels	++	++	++	+	++	++	++	++	++	-
Alignment of goals and KPIs	-	-	-	-	-	-	-	-	-	-
Integration of online and offline activities	++	++	+	++	+	+	+	++	+	+
Coordination between departments	-	-	-	-	-	-	-	-	-	-
Segmentation and personalisation	+	++	-	++	+	++	-	+	++	+
Use of data and analytics	-	-	-	-	-	-	-	-	-	-
Adaptability and innovation	++	++	+	+	+	+	+	+	+	-

After a detailed analysis of the companies according to the set criteria, we can observe several significant facts. Most companies, including Kraš, Croatian Telecom, Rimac Automobiles, Algebra, Bagatin Clinic, Valamar Riviera, Infobip, Studio Moderna, and Privredna Banka Zagreb, achieve impressive consistency in clearly and coherently conveying their messages, establishing a strong connection with customers.

On the other hand, Gligora achieves a medium score in some categories but faces certain challenges, especially when it comes to the synergy between different communication channels. Innovation and adaptability are key to success in a dynamic market environment, and while most companies show the ability to adapt and innovate, some, like Gligora, may put more effort into this segment to remain competitive.

The research results indicate that an integrated approach to marketing communications is increasingly at the centre of Croatian companies' marketing strategies. Given the significantly high percentage of respondents – 84% – who already use or plan to use such an approach, it becomes clear that the surveyed companies recognise the benefits of consistent and integrated communication with their target groups. It can be concluded that IMC has become a relevant component in Croatian marketing strategies.

DISCUSSION

All research objectives were achieved based on the qualitative and quantitative research conducted. The qualitative research clearly shows that companies use an integrated approach to marketing communications. Quantitative conclusions provide information about the perception of IMC and challenges such as departmental coordination and personalisation, which help us understand some of the challenges.

Regarding the research proposition, RP1, “The IMC strategies of Croatian companies are significantly consistent and aligned in their application”, was confirmed through qualitative research. The second research proposition, RP2, “Marketing experts in Croatian companies generally recognise the importance of adaptability and innovation for the effectiveness of their IMC strategies”, was confirmed through survey research where the responses indicate that the marketing professionals within the selected companies are aware of the need for adaptability and innovation in their IMC approaches.

Regarding the perception of IMC effectiveness, most respondents believe that the integration of marketing communication channels is not a mere trend but a strategy that brings concrete business results. Although generally rated good, the synergy between different marketing communication channels provides room for improvement. Regarding the level of synergy, the respondents' answers significantly showed a lack of confidence. Hence, the research results indicate a need for further education and guidance on integrated marketing communication within the sampled companies.

Furthermore, the particularly impressive finding pointed out the increasing emphasis on data-driven decision-making. The widespread use of analytics among marketing professionals indicates recognition of the importance of quantifying and measuring marketing activities, which can lead to a better understanding of consumers and a more efficient approach to the market. While most respondents believe that their companies maintain a high consistency of brand messages, there is, however, room for improvement in the synergy between different marketing channels.

Similarly, while most companies believe their strategies are moderately adaptable, there is room for improvement given the dynamic market and constantly changing consumer habits. Moreover, coordination between departments is essential for achieving coherent marketing campaigns. According to the majority of the respondents, the coordination above is considered average, indicating a need for better communication and synergy within the companies.

CONCLUSION

In the contemporary marketing environment, IMC becomes a key element of a successful marketing strategy. It is important that different marketing channels are not viewed in isolation but that their activities are aligned to achieve a synergistic effect. When communication channels operate in harmony, brands can build a stronger and more consistent connection with their target audience, thereby increasing consumer trust and loyalty.

Based on the combined quantitative and qualitative research conducted, we can conclude that, although Croatian organisations largely recognise the significance of IMC, there is still much room for improvement in their application. While the quantitative analysis provides a broader picture of the perceptions and approaches of marketing professionals, the qualitative analysis, which covered ten companies from different sectors, allowed for a deeper understanding of specific challenges and opportunities. Some have already adopted best practices, while others are still searching for optimal methods to integrate their marketing communication efforts.

The qualitative nature of this study presents certain limitations that warrant discussion. One significant constraint is the inability to evaluate internal company metrics directly, such as the alignment of objectives with KPIs, coordination between departments, and the use of data and analytics. These elements are crucial for a comprehensive understanding of IMC efficacy but require access to private company data or in-depth interviews with company personnel, which were beyond the scope of this external analysis. Consequently, these criteria were explored through an anonymous survey in the second part of the research, which, while insightful, may not fully capture the intricate internal dynamics of IMC practices. It is also important to note that qualitative assessments can be inherently subjective, relying on the interpretation of publicly available data, which may not always provide a complete picture of a company's IMC strategy. Eventually, the last identified limitation, which should be highlighted, refers to the study focus and results relating exclusively to the Croatian market and Croatian companies. Therefore, the research that was conducted leaves room for expansion into other similar markets in the future.

As a recommendation for future research, a more detailed analysis of each element of IMC is suggested. It would be particularly useful to direct research to specific industries, studying how they adjust their marketing approaches to achieve synergy and consistency. In this context, analysing good and bad examples within the selected industry could provide deeper insights into the best practices and challenges faced. It would also be beneficial to deepen the understanding of Croatian companies' adaptive strategies considering rapid market changes. Furthermore, future analyses could focus on the tools, technologies, and practices that companies use in their efforts to achieve harmony in their marketing communications. Finally, research focusing on technological limitations, resources, and regulations could provide a deeper understanding of how these variables affect the application of IMC.

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MANAGER COMMUNICATION STYLE AND WORK ENGAGEMENT OF EMPLOYEES IN HEALTHCARE SERVICES

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DOI: 10.7906/indecs.22.4.4
Regular article

Received: 2 July 2023.
Accepted: 20 February 2024.

ABSTRACT

Managers employed in public healthcare systems are in charge of many jobs, including administration and organisation of procedures, but the most important of all is human resource management. Every manager must have certain communication competencies because one of the main characteristics of good leadership is the quality of communication with employees. This research aimed to examine how the communication and support of the immediate superior, the nurse manager, affects the work engagement of nurses. The survey was conducted online based on a specially constructed questionnaire. The research sample consists of nurses employed in the public hospital system of the Republic of Croatia. The results showed that there were differences in the work engagement of nurses with respect to the perception of different communication styles of nurse managers, as well as that there was a correlation between the perception of nurse manager support and the work engagement of nurses. It was also found that there was a different association between different communication styles and supervisor support. Nurse managers do not work directly with patients, but the way they communicate indirectly affects the quality of health care. Therefore, it is extremely important to use an assertive communication style and provide support to nurses who directly pursue nursing care, which ultimately leads to a better quality of health care for the users.

KEY WORDS

communication style, healthcare system, nursing management, supervisor support, work engagement

CLASSIFICATION

APA: 2720, 3640, 3660

JEL: D23, M54

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INTRODUCTION

Managers employed in public healthcare systems are in charge of many jobs, including administration and organisation of procedures, but the most important of all is human resource management. Every manager must possess well-developed communication competencies because communication is the main tool in human resource management, and it can be said that quality communication with employees is one of the fundamental characteristics of good leadership. Their subordinates perceive managerial communication as the way of their leadership, but managers are often not aware of that, so they do not give enough importance to communication [1]. Successful execution of management functions is the result of successful communication [2], and research finds that there is a strong connection between supervisor communication competence and job satisfaction [3] as well as satisfaction with managerial communication is associated with employee relational outcomes [4]. Employees whose managers possess good communication skills are more engaged and more innovative, and they are less likely to leave their jobs [5], which is extremely important due to healthcare worker shortages, both globally and in Croatia. Another research shows that a leader's communication style can be directly related to employees' attitudes and behaviours [6]. Dasgupta et al. [6] also found that there is a connection between managerial communication style and the perception of supervisor support. In contrast, other authors [7, 8] found that there is a connection between perceived supervisor support and work engagement. Lappalainen et al. [9] conducted their research on employees from the private and public sectors (including healthcare workers), and the results showed that there is a positive connection between assertiveness and employee engagement. According to the Croatian Institute of Public Health [10], nurses represent the most numerous professions, with a share of 43.1% of all health professionals employed in the Croatian healthcare system. Nurses are the bearers of nursing care (which is an integral part of healthcare services), and the communication competence of nurse managers is one of the most important factors that can improve efficiency in achieving the objectives in healthcare institutions [11]. Considering those facts, this research was conducted on a sample of nurses, and it was based on assertive communication in nursing management and nurses' work engagement. This research aimed to examine how the communication and support of the immediate superior, the nurse manager, affects the work engagement of nurses who are employed in the public health system of the Republic of Croatia. The research had a goal to answer the following research questions:

- RQ₁:** Is there a connection between the different communication styles of the nurse manager and the work engagement of nurses?
- RQ₂:** Is there a connection between the assertive communication style of the nurse manager and the support of the immediate superior nurse manager?
- RQ₃:** Is there a connection between the support of the immediate superior nurse manager and the work engagement of nurses?

Therefore, the purpose of this research was to examine the connection between perceived managerial communication style (assertive, passive (unassertive) and aggressive), perception of manager's support and nurses' work engagement.

The paper is structured as follows. After the introduction, an overview of the literature on assertive communication, organisational and supervisory support and work engagement was presented. In addition to the presentation of the theoretical background, the same section also presents previous research based on which the research propositions were formed. After that follows the section on research methodology, in which the characteristics of the participants are presented, as well as the research instrument and procedure. The obtained results are presented in the section on research findings, and the paper ends with a section discussion and

conclusion. In the last section, along with the discussion and conclusion, limitations and direction of further research are presented.

LITERATURE REVIEW

ASSERTIVE COMMUNICATION

Ames [12] states that assertiveness is a basic component of successful leadership, and therefore, it is necessary for interpersonal and organisational effectiveness. Dasgupta et al. [6] found that when managers communicate with an assertive communication style, it leads to a higher perception of supervisor support, and a higher perception of supervisor support increases satisfaction with communication of supervisors and organization-based self-esteem. The result is a stronger emotional connection with the organisation, which ultimately leads to a reduction in absenteeism. Assertive communication consists of the honest expression of thoughts and feelings and standing up for one's rights while at the same time respecting the rights of other people [13]. Assertiveness as a communication style significantly affects the process of building trust between superiors and employees [14], increases work motivation [15], and positively affects conflict resolution [16]. Following the above, the first research proposition was formed:

RP₁: There is a positive relationship between the assertive communication style of the nurse manager and the work engagement of nurses.

Contrary to the first research proposition, it was assumed that passive and aggressive communication would be negatively correlated with work engagement, so the following two research propositions were formed:

RP₂: There is a negative relationship between the passive communication style of the nurse manager and the work engagement of nurses.

RP₃: The aggressive communication style of the nurse manager negatively affects nurses' work engagement.

People who communicate with an assertive style more often notice behaviours that can be a source of conflict as well as problems in the organisation. They also less often have conflicts with subordinates, more often resolve conflicts immediately and more often resolve conflicts personally rather than hierarchically [16]. However, the application of assertiveness in communication with employees can also be a challenge because, in addition to positive consequences, assertive communication can have negative consequences if the manager is "overly" assertive [12]. There are certain shortcomings and obstacles when using an assertive style of communication, and other authors, so Sindik et al. [17] argue that the excessive use of assertive communication, especially when it comes to managerial communication, can border on aggressiveness, which can obstruct effective communication. Alargić and Atanasijevski-Đurić [18] state that it is not possible to apply an assertive style of communication in any situation or communication with any person because sometimes other people do not accept assertiveness in communication. They also state that people who communicate assertively can give the impression of arrogance or aggressiveness, which is a consequence of a lack of social skills. On the other hand, workers may be held back from acting assertively for fear of upsetting the working climate or interpersonal relationships [19]. In order to avoid the mentioned negative consequences and obstacles, nurse managers must know how to use assertiveness in communication with their employees. Stojčić et al. [16], in their research, which was conducted on nurses, found that older participants showed a statistically significantly lower level of assertiveness compared to younger participants. Assertiveness is a learnable skill [9], and this was proved by research conducted on nursing students. Lin et al. [20] conducted experimental

research on nursing and medical students, and the results showed that students from the experimental group showed higher levels of assertiveness after attending the assertiveness training program. Moreover, Ilhan et al. [21] point out that assertiveness can be improved during nursing studies without any special education in assertiveness. Besides formal nursing education, Ardita et al. [15] place emphasis on nurse managers who should conduct assertive communication workshops with nurses in their work units with the aim of achieving better work motivation, which will ultimately lead to better quality nursing care. So, it is necessary that assertive skills are acquired during nursing education, and later education during work should not be neglected either.

ORGANISATIONAL AND SUPERVISOR SUPPORT

When it comes to perceived organisational support, various studies have determined that a higher perception of organisational support contributes to more effective achievement of organisational goals. In their research, Neves and Eisenberger [22] found that there is a positive connection between the manager's communication and perceived organisational support. They determined that high-quality communication management affects the work performance of employees because it signals that the managers (i.e. the organisation) value the contribution of their employees and that managers care about the well-being of their employees. In accordance with the research above, a fourth research proposition was formed:

RP₄: There is a positive relationship between the nurse manager's assertive communication style and organisational support, i.e., the support of the immediate superior nurse manager.

Furthermore, research shows that there is a positive connection between perceived supervisor support and work commitment [23], as well as perceived organisational support and organisational commitment [24]. The same was determined in the sample of nurses. Nurses who perceived higher levels of organisational and supervisor support show higher levels of work engagement [7, 8], higher levels of job satisfaction and consequently a higher level of organisational commitment [25]. In their research, Ho et al. [26] proved that nurses who perceived higher levels of organisational support show not only higher levels of job satisfaction but also higher satisfaction of working with their managers and better results of nursing care. Due to such research findings, the fifth research proposition was formed:

RP₅: There is a positive relationship between organisational support, i.e., the support of the immediate superior nurse manager, and nurse work engagement.

In another study, which was also conducted on a sample of nurses, it was found that there is a negative relationship between perceived organisational support and the level of turnover intention, burnout and reduced personal achievement [27]. Chen & Chen [28] determined that supervisor support has a positive effect on burnout among nurses. The positive effects of highly perceived organisational support were also observed during the Covid-19 pandemic, in which perceived organisational support turned out to be a protective factor in the prevention of anxiety, which means that nurses who perceived a higher level of organisational support showed a lower level of anxiety related to Covid-19 [29].

WORK ENGAGEMENT

Work engagement is important in every organisation, especially in the healthcare system, where the main goals are focused on human health. Due to different research, it is determined that work engagement is positively associated with job performance [30, 31], better patient outcomes [5] and patient safety [32]. Work engagement affects achieving more effective

organisational goals [33], and there is also a positive correlation between work engagement and job satisfaction [7]. Sawatzky & Enns [34] state that the lack of nursing work engagement is one of the key factors that result in leaving their workplace. A negative connection between work engagement and turnover intention was also found in other research that was conducted on nurses and healthcare professionals [7, 35]. García-Sierra et al. [30] point out that engagement is a result of the interaction between different factors that are associated with professional environments and, as such, it is susceptible to modification. Nurse managers should work on fostering work engagement in their organisational units, and managerial communication is one of the main factors that influence work engagement. So, nurse managers have to use their communication skills with the aim of ensuring job satisfaction and also to provide higher quality nursing care to healthcare users.

RESEARCH MODEL

Based on the stated research propositions, the following research model has been developed, Figure 1.

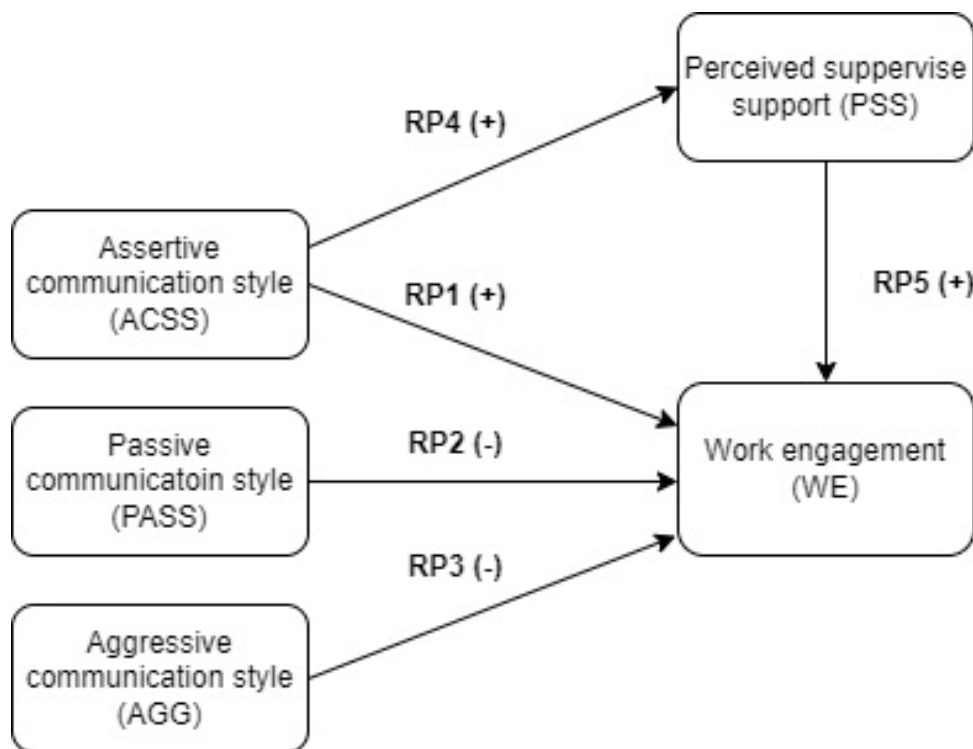


Figure 1. Research model.

RESEARCH METHODOLOGY

SAMPLE DESCRIPTION

The research sample consists of nurses employed in the public hospital system of the Republic of Croatia.

Nursing is a regulated profession, and its basic activity is nursing care. Only nurses can perform nursing care, and only within the scope of competencies they acquire through their education. Nursing education in the Republic of Croatia is carried out at the high school and academic levels (undergraduate and graduate nursing studies). Although there are still no nursing studies at the postgraduate level in the Republic of Croatia, nurses can enrol in postgraduate studies, for example, in the field of public health or management.

Nursing care is focused on the patient, as well as on the healthy individual and the entire community. Therefore, nurses can be employed in many different places, such as kindergartens, physicians' offices, public health institutions, home healthcare services, nursing care facilities, etc. In general, their workplaces are most often in health, social, and educational institutions. According to the report of the Croatian Institute of Public Health [10], 32,383 nurses were employed in the Croatian healthcare system in 2021. Still, there is missing data about the number of nurses employed only in public hospitals. However, according to the number of public hospitals and the number of patients' beds inside them, as well as the fact that public hospitals provide health care 24 hours a day, it can be concluded that the largest number of nurses work exactly in the public hospital system. For that reason, nurses employed in the public hospital system of the Republic of Croatia were selected for the sample in this research, and that was strictly stated in the description of the research, which was in the introductory part of the questionnaire. In order to reach the target population, the survey questionnaire was distributed via social networks during June and July 2022.

Participation in the research was voluntary and anonymous. The collected data was analysed using descriptive statistics and correlation analysis. Correlation analyses were conducted using IBM SPSS Statistics 28.0 software.

A total of 138 respondents completed the survey, of which 84.78% were women and 15.22% were men. The average age of the participants is 33.24, with the youngest participant being 20 years old and the oldest 60.

Regarding education, 34.78% of participants have completed high school nursing programs, 44.93% have completed undergraduate nursing studies (bachelor's degree level), 15.22% have completed graduate nursing studies (master's degree level), and 5.07% have completed postgraduate specialist studies and postgraduate doctoral studies.

The distribution of participants by the level of education is shown in Table 1.

Table 1. Distribution of participants by level of education.

Level of Education	<i>N</i>	%
High School	48	34.78
Bachelor's Degree	62	44.93
Master's Degree	21	15.22
PhD and Postgraduate Studies	7	5.07
In total	138	100.00

34.78% of participants were employed in a hospital ward, 21.01% in emergency departments, 15.94% in intensive care units, 7.25% in polyclinics, and 21.01% at other workplaces in the Croatian public hospital system. Table 2 shows the distribution of participants by workplace.

Table 2. Distribution of participants by workplace.

Workplace	<i>N</i>	%
Hospital Ward	48	34.94
Intensive Care Unit	22	15.94
Emergency Department	29	21.01
Polyclinic	10	7.25
Others	29	21.01
In total	138	100.00

Out of the total number of participants, 28.26% hold some managerial positions at their workplace (team leader or head nurse), while the remaining 71.74% do not perform managerial duties.

RESEARCH INSTRUMENT

A survey questionnaire was specially constructed for this research, and it was comprised of four parts. The first part of the questionnaire refers to socio-demographic characteristics such as sex, age, education level and workplace.

The second part measured perceived managerial communication styles. The questionnaire refers to the perception of the communication style of the immediate superior (head nurse or nurse who is the team leader if the employees work in teams), and it is based on the test of communication styles developed by Brigham Young University [36]. The questionnaire consists of 24 items that assess three styles (assertive, passive (unassertive) and aggressive), which superiors can use in interaction with their employees [6]. The questionnaire is answered using a five-point Likert scale ranging from 1 (“Strongly disagree”) to 5 (“Strongly agree”).

In the third part, the support of managers to employees was measured using a short version of the Survey of Perceived Organizational Support [37]. For this research, the word “organisation” was replaced by the word “nurse manager”, which refers to the supervisor (an immediate superior nurse who is a team leader or head nurse). The questionnaire consisted of eight items that were answered using a seven-point Likert scale ranging from 0 (“Strongly disagree”) to 6 (“Strongly agree”).

In the fourth part, the shortened version of the Utrecht Work Engagement Scale [38] was used to examine nurses’ work engagement. The questionnaire consists of nine items answered using a seven-point Likert scale ranging from 0 (“Never”) to 6 (“Always – every day”).

All used constructs with their items are shown in Table 3.

RESEARCH FINDINGS

DESCRIPTIVE STATISTICS

Table 4 presents detailed results of descriptive statistics for all items grouped by variables. In the variable assertive communication style, item 5 has the highest mean of 3.87 with a standard deviation of 1.25. On the contrary, the lowest mean is item 6, with a mean of 1.96 and a standard deviation of 1.12. In the variable passive communication style, item 7 has the highest mean of 3.78 with a standard deviation of 1.10. Opposite of that, the lowest mean is item 6, with a mean of 2.18 and a standard deviation of 3.78. In the aggressive communication style, item 6 has the highest mean of 3.00 and a standard deviation of 1.38, while item 7 has the lowest mean of 2.35

Table 3. Constructs and items of the research instrument (continued on p.422).

Construct	Item code	Item	
Perceived managerial communication styles	Assertive style	ASS1	My nurse manager is able to recognise and express their good points.
		ASS2	My nurse manager is able to express negative feelings about other people and their actions without being abusive or cruel.
		ASS3	My nurse manager is able to receive compliments without denying them.
		ASS4	My nurse manager usually stands up for their rights and lets other people do the same.
		ASS5	My nurse manager is able to start or carry on with conversations comfortably.
		ASS6	My nurse manager can ask for what is rightfully theirs.
		ASS7	My nurse manager can take criticism without becoming defensive.
		ASS8	My nurse manager can easily express positive feelings about other people and what they do.

Table 3. Constructs and items of the research instrument (continuation from p.421).

Perceived managerial communication styles	Passive style	PASS1	My nurse managers feel guilty when they stand up for their rights or express their feelings.
		PASS2	My nurse manager let other people take unfair advantage of them.
		PASS3	My nurse manager does not express their views and feelings.
		PASS4	My nurse manager has difficulty saying “no” when they do not want to say “yes” to someone’s request.
		PASS5	My nurse manager has difficulty making reasonable requests of other people.
		PASS6	My nurse manager has difficulty recognising and expressing their good points.
		PASS7	My nurse manager rarely stands up for their rights.
		PASS8	My nurse manager usually feels good at first about getting their way but also feels guilty later because of how they went about it.
	Aggressive style	AGG1	My nurse manager often brags and makes unrealistic claims about their good points.
		AGG2	My nurse manager sometimes makes other people look or feel stupid, small, or afraid.
		AGG3	My nurse manager often ignores another person’s rights.
		AGG4	My nurse manager frequently takes unfair advantage of other people.
		AGG5	My nurse manager often makes unreasonable demands of other people.
		AGG6	My nurse manager often monopolises conversations.
		AGG7	My nurse manager sometimes becomes physically or verbally abusive when they are angry with someone or when they are criticising someone.
		AGG8	My nurse manager cannot comfortably start or carry on with conversations.
Perceived supervisor support	PSS1	My nurse manager values my contribution to its well-being.	
	PSS2	My nurse manager fails to appreciate any extra effort from me.*	
	PSS3	My nurse manager would ignore any complaint from me.*	
	PSS4	My nurse manager really cares about my well-being.	
	PSS5	Even if I did the best job possible, my nurse manager would fail to notice.*	
Perceived supervisor support	PSS6	My nurse manager cares about my general satisfaction at work.	
	PSS7	My nurse manager shows very little concern for me. *	
	PSS8	My nurse manager takes pride in my accomplishments at work.	
Work engagement	WE1	At work, I feel bursting with energy.	
	WE2	At my job, I feel strong and vigorous.	
	WE3	I am enthusiastic about my job.	
	WE4	My job inspires me.	
	WE5	When I get up in the morning, I feel like going to work.	
	WE6	I feel happy when I am working intensely.	
	WE7	I am proud of the work that I do.	
	WE8	I am immersed in my work.	
	WE9	I get carried away when I am working.	

*reverse scored items

and a standard deviation of 1.51. Results also reveal that in perceived supervisor support, item 1 has the highest mean of 4.02 and a standard deviation of 1.85, and the lowest mean is item 6, with a mean of 3.15 and a standard deviation of 1.99. In the last variable, work engagement, item 7 has the highest mean of 5.10 and a standard deviation of 1.27. The lowest mean in the same variable is item 5, with a mean of 3.05 and a standard deviation of 1.76.

Table 4. Results of descriptive statistics for all items grouped by variables, $N = 138$.

Construct	Item code	Min	Max	Mean	St. Dev	
Perceived managerial communication styles	Assertive style	ASS1	1	5	3.59	1.21
		ASS2	1	5	3.16	1.29
		ASS3	1	5	3.75	0.97
		ASS4	1	5	3.32	1.14
		ASS5	1	5	3.87	1.25
		ASS6	1	5	1.96	1.12
		ASS7	1	5	2.80	1.36
		ASS8	1	5	3.64	1.15
	Passive style	PASS1	1	5	2.21	1.20
		PASS2	1	5	2.31	1.32
		PASS3	1	5	2.28	1.22
		PASS4	1	5	2.60	1.33
		PASS5	1	5	2.75	1.40
		PASS6	1	5	2.18	3.78
		PASS7	1	5	3.78	1.10
		PASS8	1	5	2.23	1.14
	Aggressive style	AGG1	1	5	2.71	1.47
		AGG2	1	5	2.94	1.61
		AGG3	1	5	2.64	1.41
		AGG4	1	5	2.66	1.48
		AGG5	1	5	2.86	1.45
		AGG6	1	5	3.00	1.38
		AGG7	1	5	2.35	1.51
		AGG8	1	5	2.00	1.23
Perceived supervisor support	PSS1	0	6	4.02	1.85	
	PSS2	0	6	3.57	2.17	
	PSS3	0	6	3.75	1.95	
	PSS4	0	6	3.58	1.90	
	PSS5	0	6	3.75	2.13	
	PSS6	0	6	3.15	1.99	
	PSS7	0	6	3.68	1.98	
	PSS8	0	6	3.30	1.98	
Work engagement	WE1	0	6	3.49	1.53	
	WE2	0	6	3.63	1.52	
	WE3	0	6	3.86	1.51	
	WE4	0	6	4.01	1.67	
	WE5	0	6	3.05	1.76	
	WE6	0	6	3.73	1.65	
	WE7	0	6	5.10	1.27	
	WE8	0	6	4.64	1.48	
	WE9	0	6	3.89	1.67	

Table 5 presents the descriptive statistics for perceived managerial communication styles, PSS, and WE among 138 nurses in the public hospital system of the Republic of Croatia. Notably, while AGG, PASS, and ACSS have scores on a 1 to 5 scale, both PSS and WE are measured on a 1 to 7 scale, which allows for a more nuanced understanding of these aspects.

Table 5. Descriptive statistics of perceived managerial communication styles, PSS and work engagement, $N = 138$.

Variable	Min	Max	Mean	St. Dev.
AGG	1	5	2.64	1.185
PASS	1	5	2.54	0.639
ACSS	1	5	3.26	0.741
PSS	0	6	3.60	1.735
WE	0	6	3.93	1.240

The mean score for AGG is 2.64, suggesting that nurses generally perceive a moderate level of aggressive communication style from their managers. For PASS, the mean is slightly lower at 2.54, indicating that the passive communication style is perceived at a somewhat similar yet slightly less frequent level. The mean score for ACSS is 3.26, reflecting a moderate to somewhat higher presence of assertive communication styles as perceived by the nurses.

For PSS, with a mean of 3.60 on a 0 to 6 scale, the data shows that nurses perceive a moderate level of support from their immediate supervisors, though there is room for improvement. Finally, WE has the highest mean of 3.93, also on a 0 to 6 scale, indicating a relatively positive level of work engagement among the nurses.

These findings support the research's broader conclusion that different communication styles and the level of support provided by nurse managers significantly affect nurses' work engagement. The variability in responses, especially in PSS and WE, emphasises the importance of nurse managers adopting communication and support strategies that enhance engagement and ultimately improve the quality of patient care.

CORRELATION ANALYSIS

The research found that there is a different correlation between the nurse manager's different communication styles and nurses' work engagement, as well as between different communication styles and supervisor support.

Table 6 presents the correlation matrix for the average research variables, highlighting the relationships between different communication styles (AGG, PASS, ACSS), perceived supervisor support (PSS), and work engagement (WE) among nurses.

The positive correlation between AGG and PASS ($r = 0.422$, $p < .001$) suggests that these two communication styles may co-occur, though they are both generally less favourable styles. A strong negative correlation is observed between AGG and ACSS ($r = -0.787$, $p < .001$), indicating that as aggressive communication increases, assertive communication decreases, which aligns with the distinct nature of these styles. AGG also shows a strong negative correlation with PSS ($r = -0.845$, $p < .001$), implying that more aggressive communication is associated with lower perceived supervisor support.

PASS has a weaker negative correlation with ACSS ($r = -0.350$, $p < .001$) and a moderate negative correlation with PSS ($r = -0.408$, $p < .001$), suggesting that passive communication also negatively impacts assertive communication and perceived support.

ACSS, on the other hand, has a strong positive correlation with PSS ($r = 0.789$, $p < .001$), indicating that assertive communication is positively associated with higher perceived support

from supervisors. ACSS is also positively correlated with WE ($r = 0.349, p < .001$), though this relationship is moderate, suggesting that assertive communication can enhance work engagement. Lastly, PSS is positively correlated with WE ($r = 0.524, p < .001$), suggesting that higher levels of perceived supervisor support are significantly associated with greater work engagement among nurses. Results are shown in Table 7 and presented in Figure 2.

Table 6. Correlation matrix for average research variables.

Variable		AGG	PASS	ACSS	PSS	WE
1. AGG	Pearson's r	1				
	p-value					
2. PASS	Pearson's r	0.422	1			
	p-value	< .001				
3. ACSS	Pearson's r	-0.787	-0.350	1		
	p-value	< .001	< .001			
4. PSS	Pearson's r	-0.845	-0.408	0.789	1	
	p-value	< .001	< .001	< .001		
5. WE	Pearson's r	-0.414	-0.261	0.349	0.524	1
	p-value	< .001	0.002	< .001	< .001	

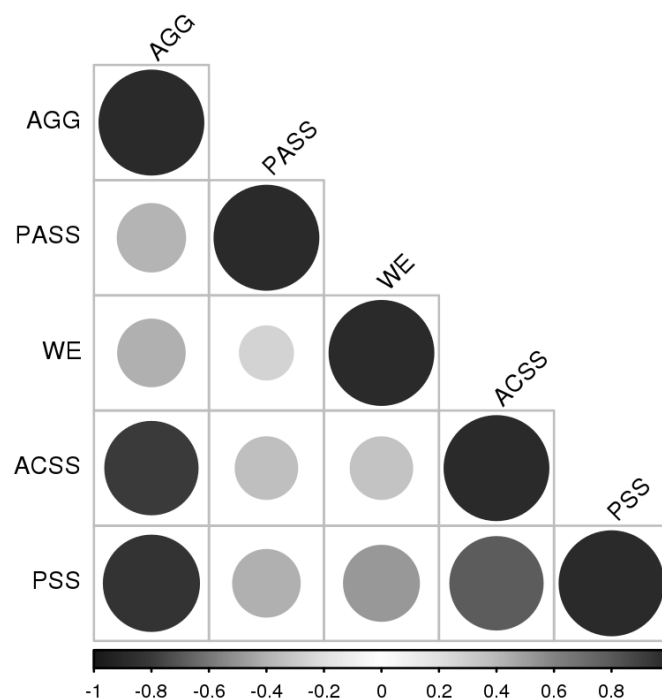


Figure 2. Correlation matrix for the average research variables.

Relationship between the Assertive Communication Style of the Nurse Manager and the Work Engagement of Nurses (RP₁)

RP₁ presumes that there is a positive relationship between the assertive communication style (ACSS) of the nurse manager and the work engagement (WE) of nurses. The correlation analysis, as outlined in Table 6, indicated that there is a positive correlation. Figure 3 presents the scatter plot of assertive communication style and work engagement, which confirms these results.

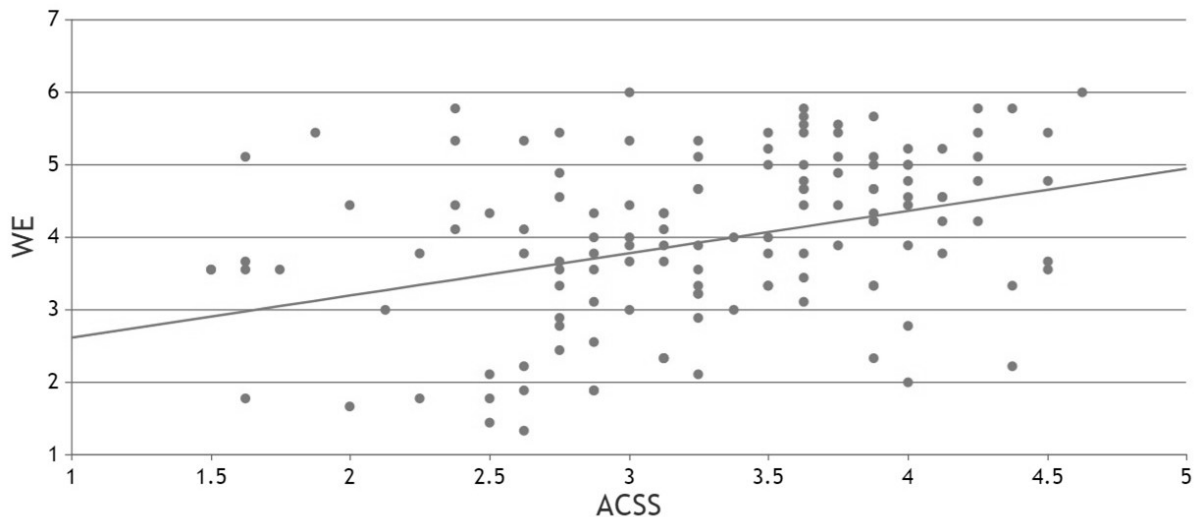


Figure 3. Scatter plot of assertive communication style and work engagement.

Figure 4 presents the heatmap of the correlation between individual items of these two variables. Pearson's correlation analysis reveals several important relationships between perceived managerial communication styles and work engagement among employees. One of the key findings is the strong positive correlation between assertive communication traits, such as the ability to recognise and express good points (ACSS1) and standing up for rights (ACSS4), and employee engagement. This suggests that managers who are confident in their communication and assertive in expressing their views tend to foster higher levels of work engagement among their staff.

Another significant result is the moderate positive correlation between managers' ability to express negative feelings constructively (ACSS2) and various aspects of work engagement. This indicates that managers who can provide feedback without being harsh or cruel are more likely to have engaged employees, highlighting the importance of balanced communication in leadership.

Some weak or negative correlations were observed, such as the relationship between asking for what is rightfully theirs (ACSS6) and certain aspects of work engagement, like feeling strong and vigorous at work (WE2). These findings suggest that while assertiveness is generally beneficial, certain assertive behaviours might not always align with higher employee energy levels, pointing to the complexity of communication dynamics in the workplace.

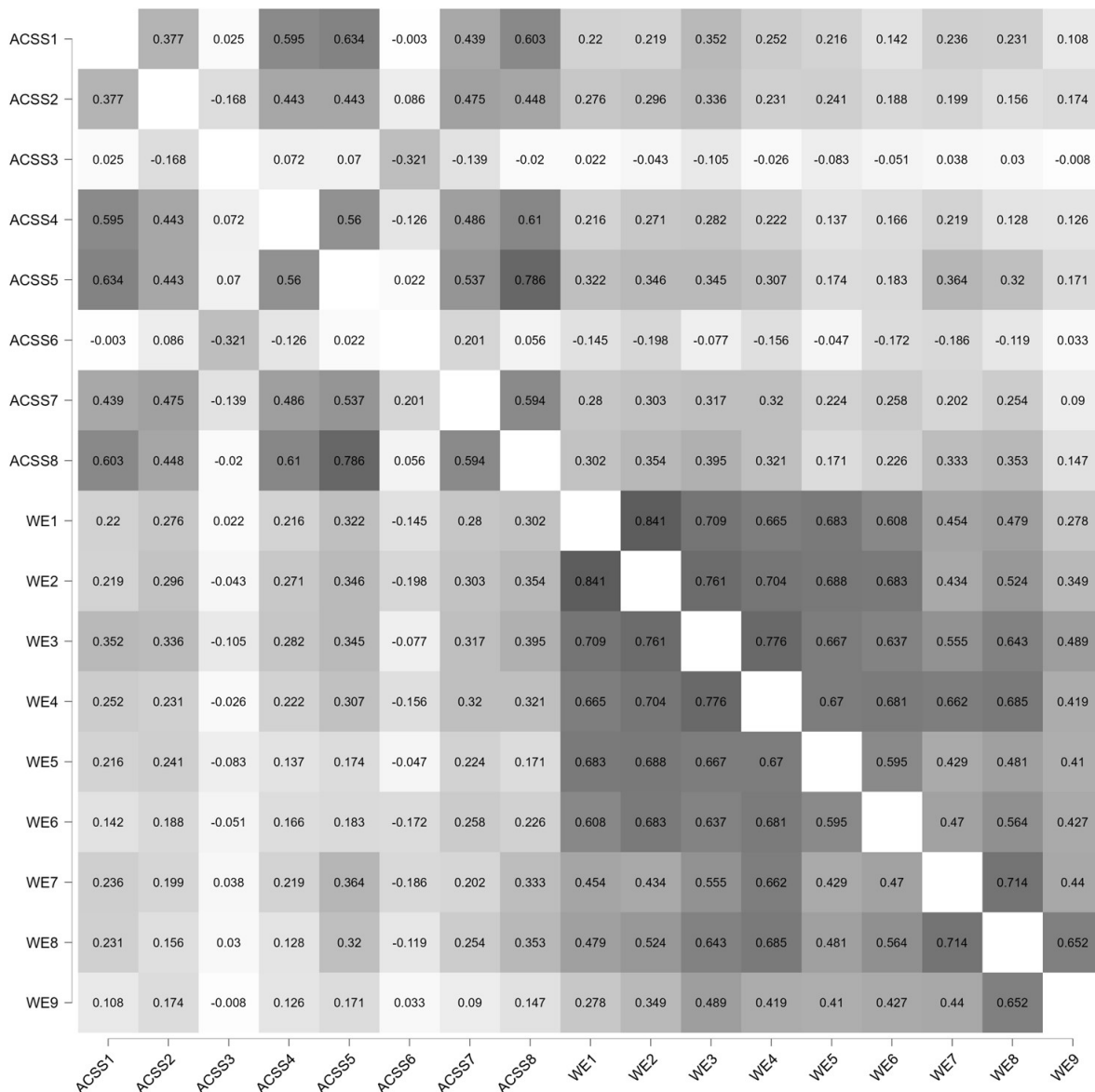


Figure 4. Heatmap of assertive communication style and work engagement – individual items.

Relationship between the Passive Communication Style of the Nurse Manager and the Work Engagement of Nurses (RP₂)

RP₂ presumes that there is a negative relationship between the nurse manager’s passive communication style (PASS) and nurses’ work engagement (WE). The correlation analysis, as outlined in Table 6, indicated a negative correlation. Figure 5 presents the scatter plot of passive communication style and work engagement, which confirms these results.

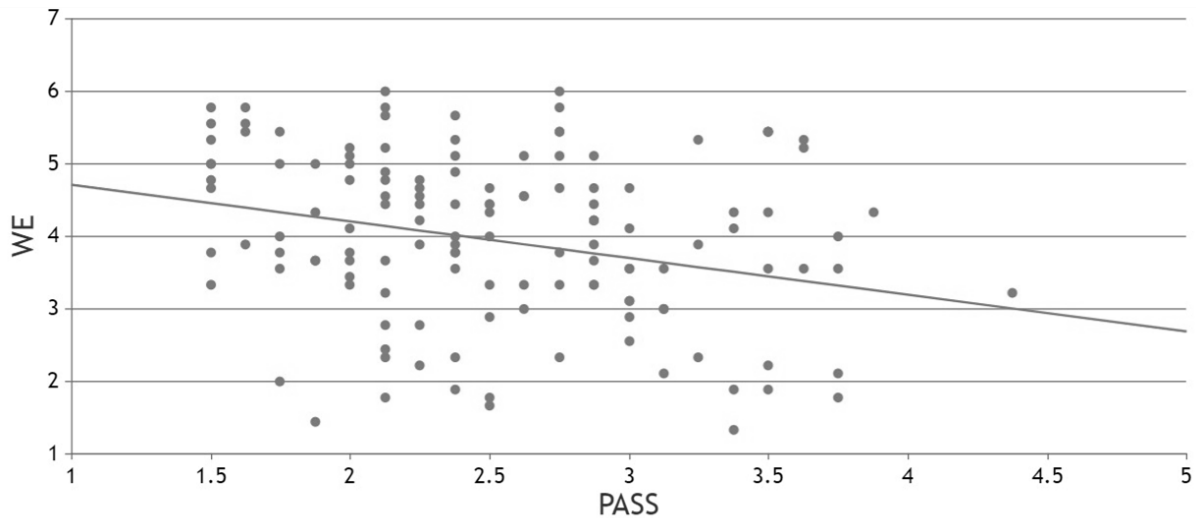


Figure 5. Scatter plot of passive communication style and work engagement.

Figure 6 presents the heatmap of the correlation between individual items of these two variables. The correlation matrix provided reflects the relationships between various constructs related to managerial communication styles, perceived supervisor support, and work engagement. Among the notable findings, the Assertive style (represented by items ASS1 to ASS8) generally shows positive correlations with work engagement (WE1 to WE9). For example, PACSS1 (likely corresponding to assertive communication styles) has a moderate positive correlation with WE8 ($r = 0.391, p < 0.001$) and WE2 ($r = 0.314, p < 0.001$), suggesting that assertive communication by nurse managers is associated with higher levels of work engagement among staff, particularly in terms of energy, enthusiasm, and immersion in work.

In contrast, the Passive style (represented by PASS1 to PASS8) shows weaker or even negative correlations with work engagement. For instance, PACSS7, which may correspond to passive communication behaviours, is negatively correlated with several work engagement items, such as WE2 ($r = -0.255, p = 0.002$) and WE4 ($r = -0.085, p = 0.322$). This indicates that passive communication styles, where managers avoid expressing their views or standing up for their rights, could potentially decrease work engagement, likely due to a lack of clear leadership or support felt by employees.

Aggressive communication styles (AGG1 to AGG8) also appear to negatively impact work engagement, although the correlations vary in strength. PACSS6, possibly reflecting more aggressive managerial behaviours, is negatively correlated with several work engagement items like WE5 ($r = -0.111, p = 0.195$) and WE6 ($r = -0.099, p = 0.246$). These findings suggest that when managers exhibit aggressive communication, it may demotivate staff and reduce their enthusiasm, energy, and satisfaction at work, highlighting the detrimental impact of such styles on workplace morale.

Finally, perceived supervisor support (PSS1 to PSS8) generally correlates positively with work engagement. For instance, high correlations between the perceived support variables and work engagement items (like WE1, WE2, and WE3) suggest that when employees feel supported by their managers, they are more likely to be engaged, energetic, and enthusiastic about their work. This underscores the importance of supportive managerial behaviours in fostering a positive work environment and enhancing employee engagement.

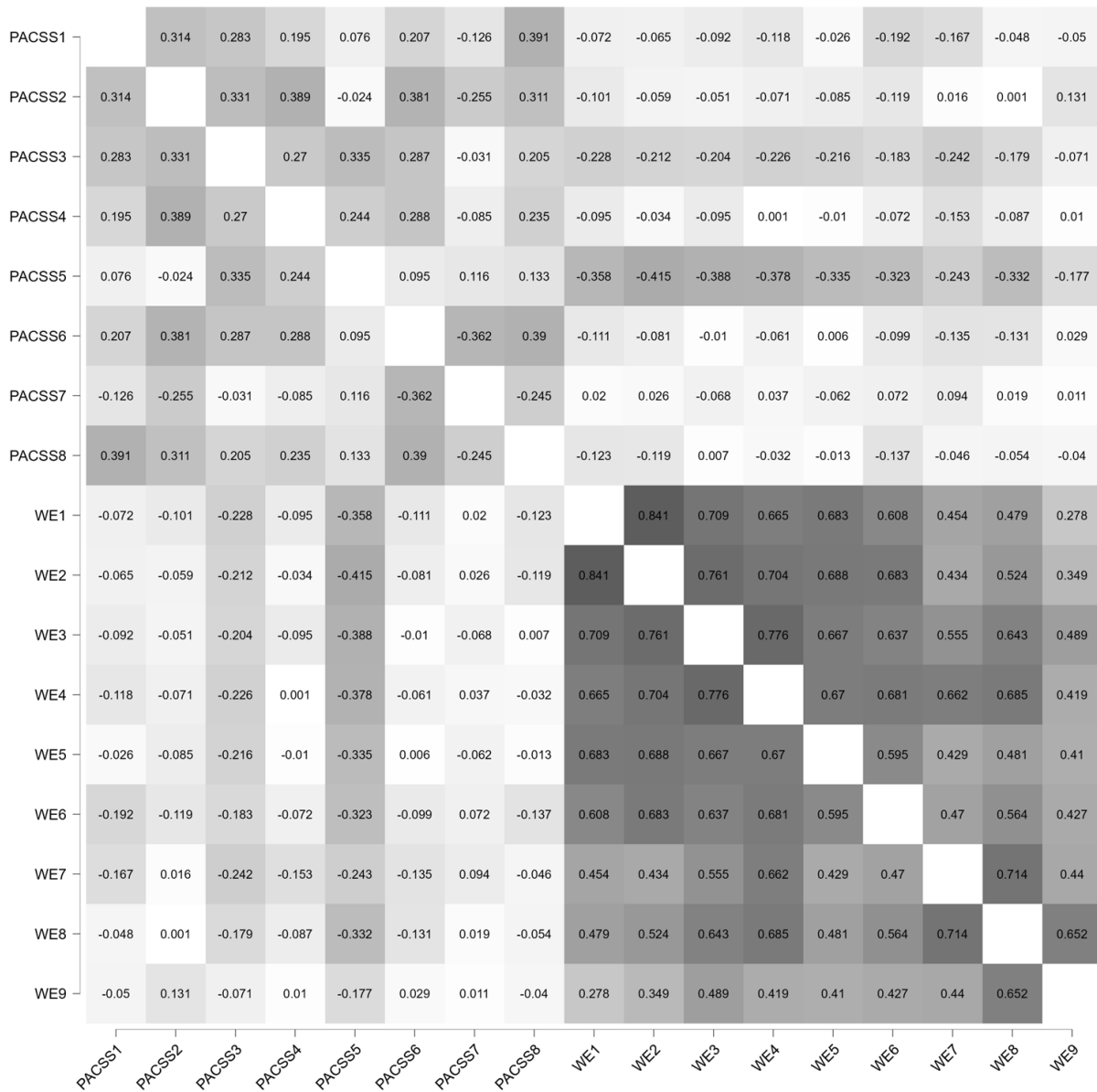


Figure 6. Heatmap of passive communication style and work engagement – individual items.

Relationship between the Aggressive Communication Style of the Nurse Manager and Nurses' Work Engagement (RP₃)

RP₃ presumes that there is a negative relationship between the nurse manager's aggressive communication style (AGG) and nurses' work engagement (WE). The correlation analysis, as outlined in Table 6, indicated a negative correlation. Figure 7 presents the scatter plot of aggressive communication style and work engagement, which confirms these results.

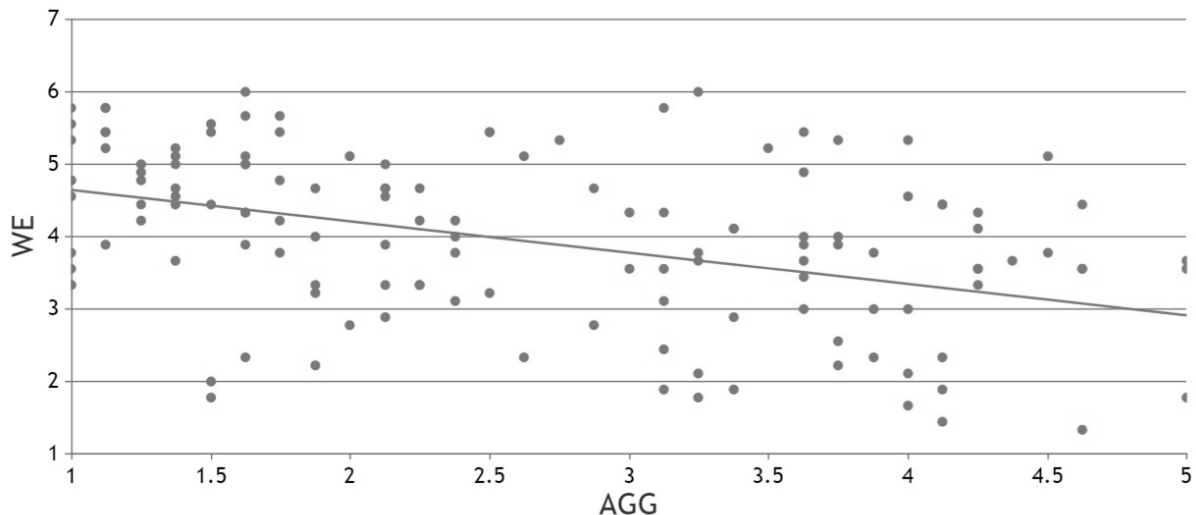


Figure 7. Scatter plot of the aggressive communication style of the nurse manager and nurses' work engagement.

Figure 8 presents the heatmap of the correlation between individual items of these two variables. Pearson's correlation analysis between aggressive managerial communication styles and work engagement reveals several key relationships that highlight the impact of negative communication behaviours on employee engagement. The analysis shows that aggressive communication styles (e.g., bragging, making others feel small, monopolising conversations) are strongly intercorrelated. For example, AGG1 (bragging) is highly correlated with AGG2 (making others look or feel small) and AGG4 (ignoring others' rights), suggesting that managers who exhibit one form of aggressive communication are likely to exhibit others.

A critical finding is the consistent negative correlation between all aggressive communication style items (AGG1-AGG8) and work engagement (WE1-WE9). These negative correlations, such as between AGG5 (making unreasonable demands) and WE3 (enthusiasm about the job), indicate that aggressive communication from managers significantly undermines employees' engagement levels. This suggests that employees are less likely to be enthusiastic, vigorous, and inspired at work when they perceive their managers as overly aggressive.

The strongest negative correlations are seen between AGG5 and several work engagement items, such as WE3, WE4, and WE8. This indicates that unreasonable demands and managers' monopolisation of conversations are particularly detrimental to employee engagement. The negative impact of these behaviours on work engagement is statistically significant across most of the items, underscoring the importance of reducing aggressive communication in the workplace.

Overall, the analysis unequivocally underscores the detrimental effect of aggressive managerial communication on work engagement. Managers who exhibit aggressive behaviors not only undermine individual aspects of employee engagement, such as enthusiasm and energy, but also contribute to a broader decline in overall work satisfaction. This stark reality underscores the urgent need for interventions aimed at curbing aggressive communication in leadership to foster a more positive and engaging work environment.

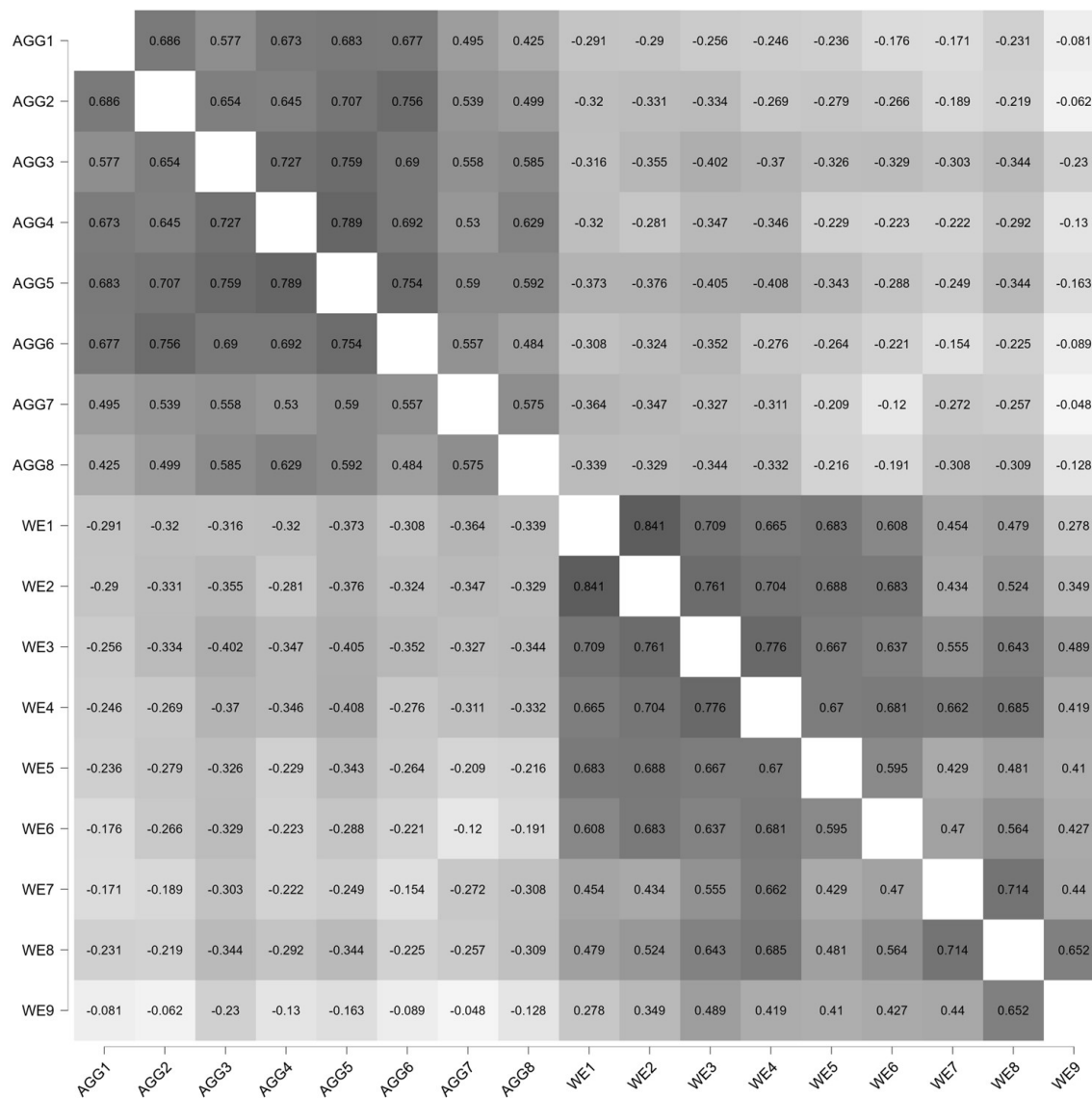


Figure 8. Heatmap of aggressive communication style and work engagement – individual items.

Relationship between the Nurse Manager’s Assertive Communication Style and Organisational Support, i.e., the Support of the Immediate Superior Nurse Manager (RP₄)

RP₄ presumes that there is a positive relationship between the nurse manager’s assertive communication style (ACCS) and organisational support, i.e., the support of the immediate superior nurse manager (PSS). The correlation analysis, as outlined in Table 6, indicated that there is a positive correlation. Figure 9 presents the scatter plot of the assertive communication style and the support of the immediate superior nurse manager, which confirms this result.

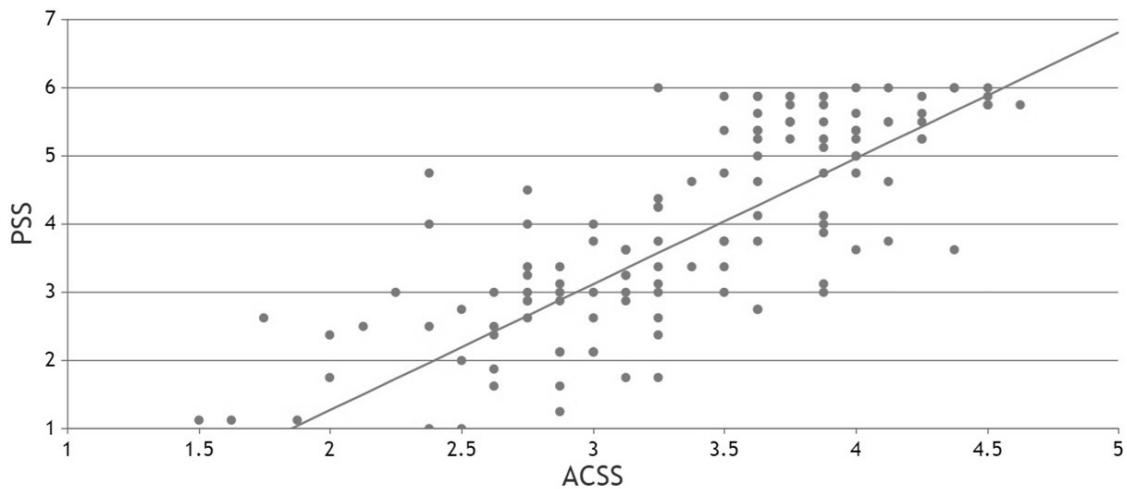


Figure 9. Scatter plot of assertive communication style and perceived supervisor support.

Figure 10 presents the heatmap of the correlation between individual items of these two variables. Pearson's correlation analysis between assertive communication styles (ACSS) and perceived supervisor support (PSS) reveals strong positive relationships, particularly highlighting how assertive managerial behaviours correlate with employees' perception of support from their supervisors. For instance, ACSS1 (recognising and expressing good points) and ACSS5 (being comfortable in conversations) show significant positive correlations with nearly all PSS items, indicating that managers who are confident and assertive in their communication are perceived as more supportive by their employees.

One of the most notable findings is the strong correlation between ACSS8 (expressing positive feelings about others), PSS1 (supervisor values employee contribution), and PSS4 (supervisor cares about employee well-being). This suggests that when managers actively express appreciation and positive feedback, employees feel more valued and supported, which is crucial for fostering a positive work environment.

Additionally, ACSS7 (taking criticism without becoming defensive) shows a significant positive relationship with several PSS items, such as PSS6 (supervisor cares about general satisfaction at work). This implies that managers who are open to feedback and handle criticism well are more likely to be viewed as supportive, further emphasising the importance of constructive communication in leadership.

It can be concluded that managers who exhibit assertive behaviours, particularly in giving and receiving feedback, are more likely to be seen as supportive, which can lead to higher job satisfaction and better employee outcomes.

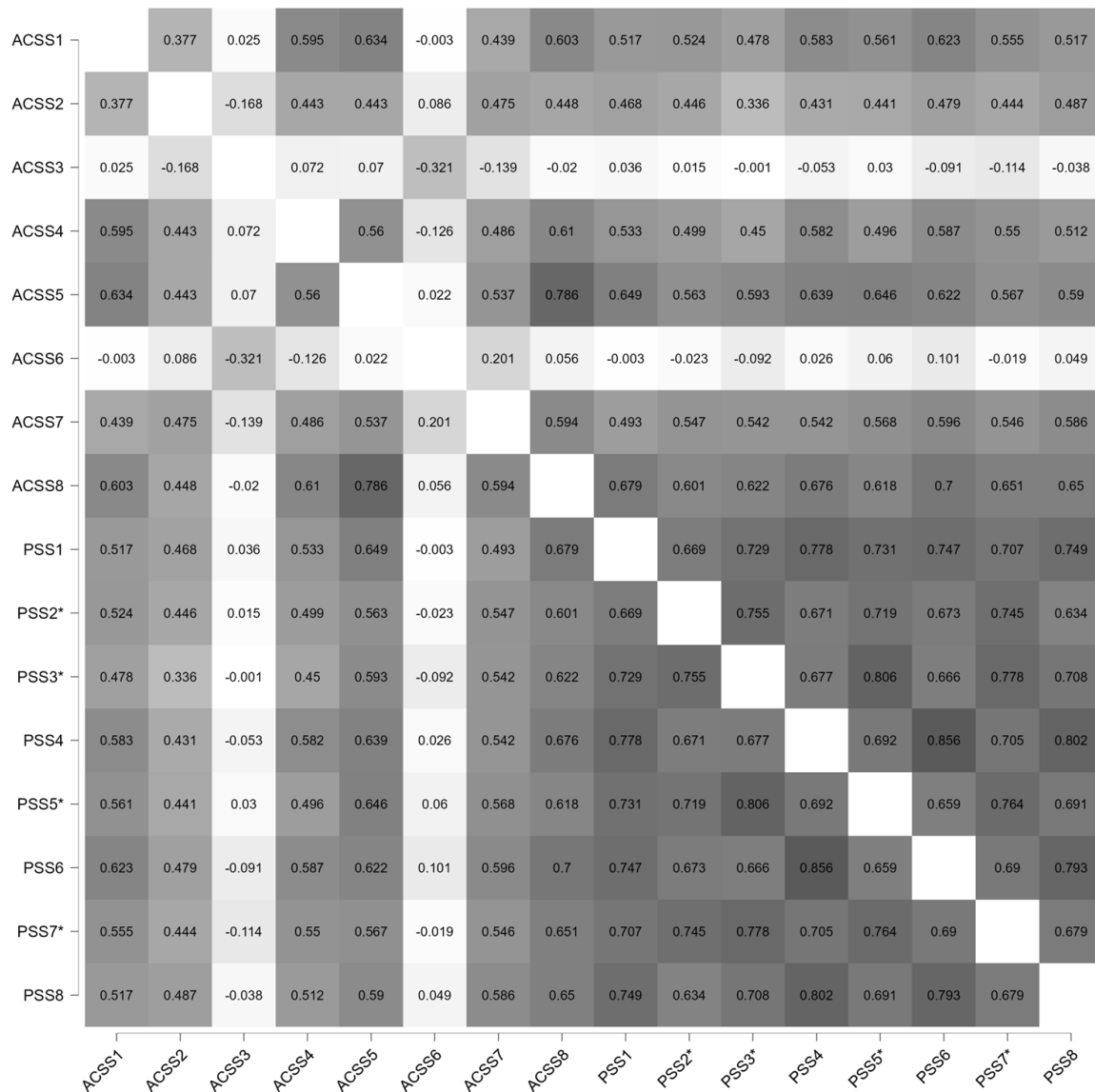


Figure 10. Heatmap of assertive communication style and perceived supervisor support – individual items.

Relationship between Organisational Support, i.e., the Support of the Immediate Superior Nurse Manager and Nurse Work Engagement (RP₅)

RP₅ presumes that there is a positive relationship between organisational support, i.e., the support of the immediate superior nurse manager (PSS), and nurse work engagement (WE). The correlation analysis, as outlined in Table 6, indicated that there is a positive correlation. Figure 11 presents the scatter plot of perceived supervisor support and work engagement of nurses, which confirms these results.

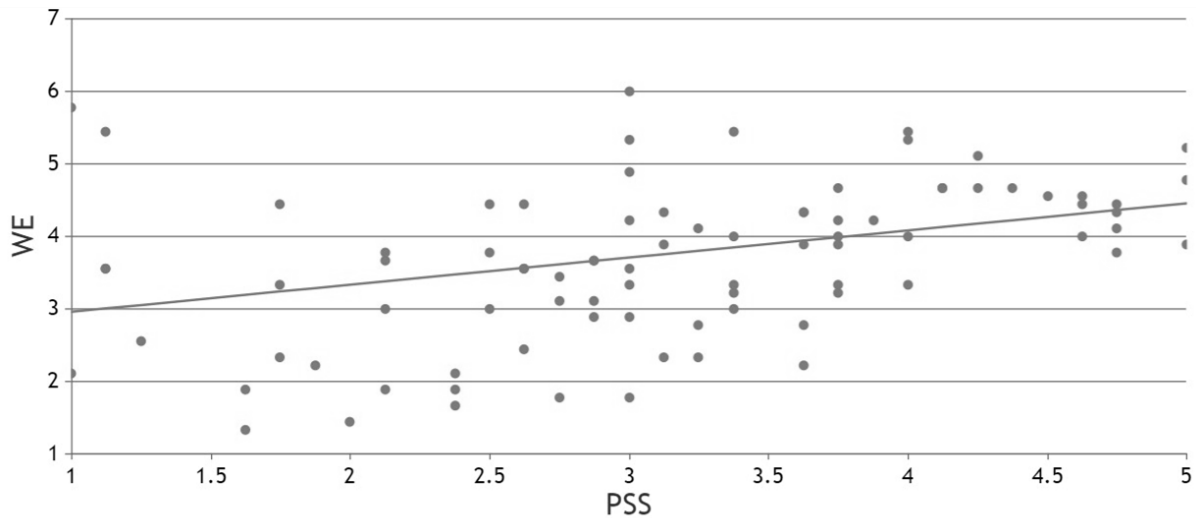


Figure 11. Scatter plot of perceived supervisor support and work engagement of nurses.

Figure 12 presents the heatmap of the correlation between individual items of these two variables.

Pearson's correlation analysis between perceived supervisor support (PSS) and work engagement (WE) reveals significant positive relationships, indicating that higher levels of perceived support from supervisors are strongly associated with greater employee engagement. PSS1 (supervisor values employee's contribution) shows a strong positive correlation with various work engagement items, such as WE2 (feeling strong and vigorous at work) and WE4 (being inspired by the job), suggesting that when employees feel valued by their supervisors, they are more likely to be engaged and motivated in their work.

The reverse-scored PSS items (e.g., PSS2, PSS3, and PSS5) also demonstrate strong correlations with work engagement, highlighting that when supervisors fail to appreciate employees' efforts or ignore complaints, it negatively impacts their work engagement. For instance, PSS3 (supervisor would ignore any complaint) is significantly negatively correlated with WE3 (enthusiasm about the job) and WE6 (happiness when working intensely), indicating that neglectful behaviour from supervisors can diminish employees' enthusiasm and overall work satisfaction.

PSS6 (supervisor cares about general satisfaction at work) and PSS8 (supervisor takes pride in employee accomplishments) are particularly strongly correlated with overall work engagement, with high correlations across multiple WE items. This suggests that when supervisors actively demonstrate concern for employees' well-being and take pride in their achievements, it leads to higher levels of energy, enthusiasm, and immersion in work among employees.

Supervisors who are supportive, attentive, and appreciative contribute significantly to higher levels of employee engagement, which is essential for maintaining a motivated and productive workforce. Conversely, lack of support and neglectful behaviours are associated with lower engagement, emphasising the importance of positive supervisor-employee relationships.

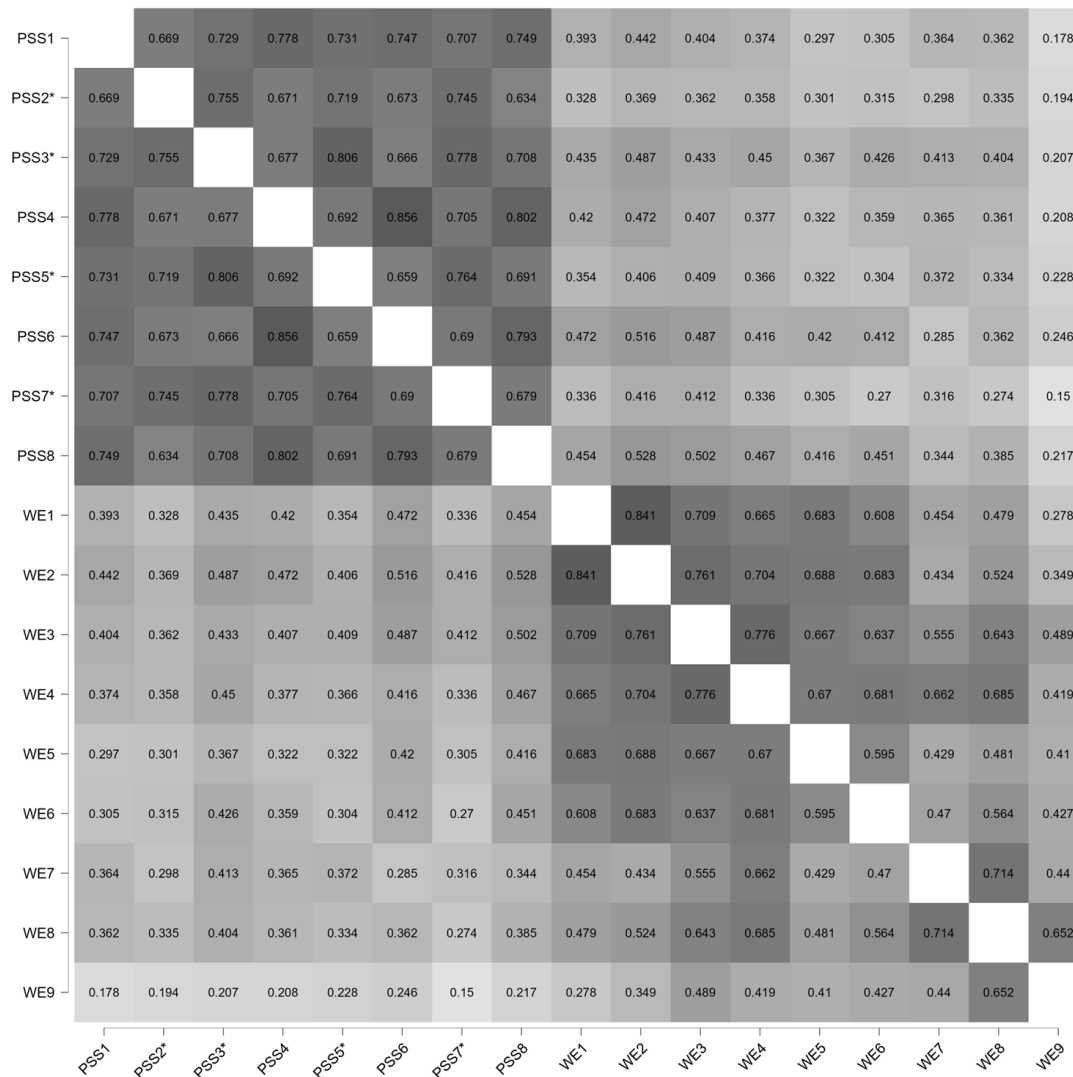


Figure 12. Heatmap of perceived supervisor support and work engagement of nurses – individual items.

DISCUSSION

The results indicate that the research propositions are confirmed. The results showed that there is a weak positive statistically significant correlation between the assertive communication style of nurse managers and the work engagement of nurses. It was determined that there is a weak but negative statistically significant correlation between passive communication style and work engagement and a moderate negative statistically significant correlation between aggressive communication style and work engagement of nurses. As a result of the above, the first three research propositions were confirmed (RP₁-RP₃). This result supports the findings of Fowler et al. [5], who confirmed that employees are more engaged if their managers possess good communication skills.

In this research, it was also found that there is a strong positive statistically significant correlation between supervisor support and the assertive communication style of the nurse manager, which confirms the fourth research proposition (RP₄). It was also determined that there is a very strong negative statistically significant correlation between perceived support and the nurse manager’s aggressive communication style, as well as a moderate negative

statistically significant correlation between perceived supervisor support and the nurse manager's passive communication style.

These results are in accordance with a study conducted by Dasgupta et al. [6], who found that the use of an assertive style in managerial communication increases perceived supervisor support, while the use of aggressive and passive styles decreases it.

This research also determined that there is a moderate positive statistically significant correlation between the perception of the nurse manager's support and the work engagement of nurses, which means that the fifth research proposition (**RP₅**) was also confirmed. This result supports the findings of other researchers who determined a positive correlation between perceived supervisor support and work engagement of nurses [7, 8].

As was said before, good communication skills are one of the most important characteristics of effective leaders [1], and therefore, nurse managers should pay special attention to their communication. Subordinates' perceptions of supervisory communication should not be neglected either, and supervisors need to reciprocate in ways that meet their employees' communication expectations [39].

As a practical implication, this research indicates that nurse managers should focus on factors which lead to improving work engagement due to numerous positive outcomes related to a nurse's work engagement. This research proves that the assertive communication style of nurse managers is one of those factors, as well as nurses' perception of supervisor support.

CONCLUSION

Nurse managers must possess a high level of communication skills and other knowledge because they need to be effective communicators and continuously transfer these knowledge and skills to their employees. In addition to sending assertive messages in the communication process, it is also important that the interlocutor knows how to receive such an assertive message while avoiding the pitfalls mentioned in the text. Therefore, it can be concluded that nurse managers have a demanding task when it comes to the education of their employees because, besides the transfer of communication skills, it also includes knowledge from other scientific branches, such as psychology and sociology. There is the question of how effective the formal education of nurse managers is when it comes to acquiring knowledge and skills that enable successful communication because, besides possessing these skills and the education of employees, they also collaborate with different subjects at different hierarchical levels, inside and outside their work units. In addition to the fact that the use of an assertive communication style is extremely important in achieving higher levels of work engagement, this research also confirmed the importance of providing support from nurse managers, which is closely related to communication. Besides scientific, this paper also has practical implications. This research was based on the examination of perception. The results show that only an assertive communication style positively correlates with supervisor support and work engagement of nurses, so nurse managers should use assertiveness in their communication with nurses.

This research has some limitations. First, it was conducted online by sharing a questionnaire on social networks, so all conclusions are related to the obtained sample of nurses. Second, the results would be more relevant if there were more nurses and nurse managers involved in the research. Finally, this study was based on perception, so there is missing information about nurse managers, such as sociodemographic characteristics or education level.

This article also represents a scientific basis for further research because, in addition to the already mentioned issue of formal education of nurse managers, the question is to what extent and how effectively continuous education of nurses is carried out in the workplace when it

comes to communication skills and the application of assertiveness. The profile of nurse managers in Croatia is unknown, so there is no data about their education level. One of the main questions that arises is whether nurse managers with higher education levels have better communication skills and, if not, why not. Another research subject could be the potential difference in communication style between an employee's perception and their perception of nurse managers. This research was conducted on nurses employed in the public health system, so it would be desirable in future research to involve nurses from private healthcare institutions to examine and compare the differences in managerial communication. Also, due to the lack of nurses in the public healthcare system, it can be examined whether the managerial communication style directly affects the nurse's intention to leave their workplace. Besides interpersonal communication, research conducted by Barišić et al. [40] showed that the use of information and communication technologies (ICT) in human resource management had an impact on organisational performance. Therefore, the impact of ICT on the relationship between managers and employees in health service should be investigated also.

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CONCESSIONS WITHOUT THE OBLIGATION TO PAY A CONCESSION FEE: THE CROATIAN CASE

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DOI: 10.7906/indecs.22.4.5
Regular article

Received: 15 May 2024.
Accepted: 1 July 2024.

ABSTRACT

Directive 2014/23/EU of the European Parliament and the Council of 26 February 2014 on the award of concession contracts has significantly altered the legal nature of concessions within the European Union. A concession is now simply defined as a contractual form. Furthermore, the Concession Directive provides the freedom for member states to independently determine the services they consider to be of general economic interest, including the methods of their organisation and funding, in accordance with EU law. The Directive grants extensive powers to member states to regulate concessionary relationships under national law; thus, the Republic of Croatia has addressed this issue with the Concessions Act of 2017. Typically, a concessionaire pays a fee upon receipt of a concession, which may be monetary or may include the transfer of ownership over constructed facilities upon the concession's expiration. However, a pertinent research question arises – how should public interest be addressed when a feasibility study indicates that an activity via concession is non-commercial? For example, certain activities that are commercial in major European ports might not be commercial in smaller Croatian ports. The Croatian Law on Concessions allows, as an exception, concessions without the payment of a concession fee – yet such an exception is legally and politically very sensitive and must be adequately justified. This article aims to investigate the conditions and justifications for awarding concessions without a concession fee, focusing on the implications for smaller ports in Croatia.

KEY WORDS

concessions, concession fee exemptions, public service, non-commercial activities, innovative industries concessions

CLASSIFICATION

JEL: K23

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INTRODUCTION

Concessions, in a broader sense, as a form of licenses whereby a sovereign permitted certain individuals to utilise his assets, trace their origins back to Roman law [1], with modern economic concessions having developed as early as the 19th century [2]. The second decade of the 21st century marked a renaissance in the application of concessions in Europe – they were unified at the level of the European Union, allowing for their extensive application across various sectors. The impetus for this significant shift in the concession model was driven by the economic crisis that began in 2007 [3], during which the European Union, as the state budgets of its member and candidate countries were affected by the crisis, sought to develop a model that enables private financing of infrastructure development, as well as the provision of numerous activities performed as public services. One of the methods of engaging private capital instead of direct budgetary investments was through concessions. Legal theory does not uniquely define concessions, but broadly speaking, in the legal evolution of concessions, we can distinguish two phases. Prior to the drafting of the first working documents that informed the Directive 2014/23/EU of the European Parliament and of the Council of 26 February 2014 on the award of concession contracts (Concessions Directive) [4], concessions were generally defined as permits to perform an activity conditioned by special approval [5]. According to classical theory, a concession was an act – variously named a grant, authorisation, or permit – issued by a state authority allowing citizens of that state, another state, or foreign nationals to perform certain activities, which are generally reserved by the state for individual licensing [6]. Substantively, a concession forms a special legal institution whereby public authority permits a designated entity, whether a natural or legal person, domestic or foreign, to use or exploit certain goods, perform certain works, or engage in specific activities [7].

With the European Union's decision, based on an Impact assessment by the Commission, to standardise the legal framework for concessions across the EU, there was a significant departure from the prior definition of concessions as acts of public authority distributing certain rights. Preceding documents to the Concession Directive noted that concessions are partnerships between the public sector and mostly private companies where the latter exclusively operate, maintain, and develop infrastructure (e.g., ports, water distribution, parking garages, toll roads) or provide services of general economic interest (e.g., energy, water, and waste disposal) [8]. Additionally, concessions are the most common form of Public-Private Partnership (PPP). The need for reform and emphasis on PPPs was undoubtedly catalysed by the global financial crisis of 2007-2010 [9][10], during which many countries found themselves unable to fund infrastructure projects through budgetary means alone, necessitating private financing. Even prior to this economic crisis, there were significant investments, for example, in port infrastructure, that states could not support independently [11]. The application of PPP further complicates the process of awarding concessions due to additional specific rules [12].

Another important reason for harmonising concession regulations, as stated in the accompanying documentation, was that “This loophole gives rise to potentially serious distortions of the Internal Market, such as direct awards of contracts without any competition (with associated risks of national favouritism, fraud, and corruption) and generates considerable inefficiencies” [8].

The proposal for the new Directive was published in 2011 [13], and the Concession Directive was adopted in 2014 with a two-year deadline for the adaptation of national legislation. The Directive not only significantly changed the legal nature of concessions but also the manner of awarding them – concessions are typically awarded through a public procurement process, already well-developed within the legal framework of the European Union. The Republic of

Croatia (from now on Croatia) enacted its Concessions Act in 2017 [14], slightly after the deadline set by the Concession Directive.

In the Croatian Concessions Act, a simple definition of a concession is provided: “A concession is a right acquired through a contract” (Article 3). As seen, the legal nature of concessions is significantly simplified compared to classical definitions. Croatia has further categorised concessions into three types: 1) concessions for the economic use of general or other goods; 2) concessions for works; and 3) concessions for services. (Article 3) Special emphasis on “general or other goods” was introduced mainly due to the maritime domain, which constitutes a third of the state’s territory. It should be noted that the designations “public works” and “public services” from the previous legislation, the Concessions Act of 2012, have disappeared [15]. This has allowed the state and entities authorised to grant concessions much greater freedom in awarding concessions that are not limited only to public works and public services.

The Croatian Concessions Act explicitly states the subsidiary application of public procurement procedures in awarding concessions. As prescribed by the Concessions Act: “Preparatory actions are conducted by the concession grantor in accordance with this Act, special law, regulations governing public procurement, and other regulations depending on the type and subject of the concession” (Article 14).

The concessionaire typically pays a fee for the concession. They have been granted the right to perform a certain activity by a public law body. For this right, they pay an annual amount, which has significant public giving implications in Croatia. Public giving means that this giving is regulated according to a special regulation and falls under the jurisdiction of the tax authority (in case of non-payment of the fee, the state has at its disposal all instruments as in the case of non-payment of taxes) [16]. However, as we will elaborate further in the text, it is possible to grant concessions without paying a concession fee as an exception to the general rule. Such concessions must be detailed and precisely justified – these are cases where the concessionaire is thus exempted from a fee which is legally equated with paying taxes and similar dues. Every such exemption must be detailed and precisely justified.

The possibility of granting concessions without a concession fee is stipulated in the provisions of both European and Croatian national law. Such concessions are more prevalent in European Union countries with large, sparsely populated areas, such as Croatia [17]. In these regions, it is necessary to reconcile the public interest in providing certain public services with the financial interests of the concessionaires. In practice, these concessions can give rise to significant concerns, including suspicions of favouritism towards the concessionaire. It would be detrimental to discontinue the provision of public services due to doubts regarding the use of the option to grant concessions without a concession fee. This would deprive demographically sparse areas of various public services, making them even less attractive for living and working. Therefore, this article seeks to elucidate how such concessions are feasible and the prerequisites that must be met, particularly with regard to a feasibility study, to ensure that such a concession is not only legally viable but also transparent and free from potential legal and political ambiguities.

Therefore, in the next chapter, we will analyse this process because it is crucial to answer the question we have posed: When are concessions without paying a concession fee possible and permissible? Subsequently, we will analyse the prerequisites that must be demonstrated in the documentation for granting a concession to deem such a concession justified, with particular emphasis on the feasibility study. Finally, we will present a practical case study – small inland navigation passenger terminals in Croatia – as well as the potential use of such concessions in innovative industries where it is not possible to precisely calculate the value of the concession and the potential earnings of the concessionaire.

PREPARATORY ACTIONS FOR AWARDING A CONCESSION

The Croatian Concessions Act states in Article 14 that preparatory actions for awarding a concession are all activities conducted to grant a concession and precede the start of the concession awarding process [18]. Further, it states that preparatory actions particularly include: 1. the appointment of an expert committee for the concession; 2. the preparation of a feasibility study for awarding the concession or analysis of awarding the concession; 3. the assessment of the concession's value; and 4. the preparation of documentation for bidding (Article 18) [19].

For our analysis, the feasibility study for awarding the concession is particularly important. The feasibility study considers the public interest, environmental impact, protection of natural and cultural goods, financial effects of the concession on the state budget of Croatia or the budget of local and regional (territorial) self-government units, and compatibility with economic development plans, spatial plans, and concession awarding plans (Article 18) [20].

The feasibility study for awarding a concession consists particularly of an executive summary, a general part, technical, financial, economic, and legal analysis, and, if necessary, an environmental protection report according to a special regulation or assessment of acceptability for the ecological network where applicable, cultural goods and health, and associated appendices, conclusions, and recommendations (Article 19). The same article further specifies, among other things, that the executive summary of the feasibility study for awarding a concession contains a description of the subject matter and purpose/objective of the concession. The same article precisely defines how the financial and economic analysis of the feasibility study for awarding a concession particularly includes an analysis of the costs and benefits of the concession in relation to the budget of the concession grantor, i.e., the state budget of Croatia and/or the budget of the local and regional (territorial) self-government unit, and the financial feasibility of the concession in relation to the concessionaire in accordance with professional standards and international standards. It should also be mentioned that for concessions of lesser value, a somewhat simpler analysis of awarding the concession may be prepared (Article 19) [21].

Based on all these data, the value of the concession is assessed, which is regulated by Article 20 of the Croatian Concessions Act. The estimated value of the concession is calculated as the estimated total revenue excluding value-added tax, which the concessionaire, acting with the care of a good businessman, will achieve based on the concession contract for the duration of the concession. The estimated value of the concession is calculated using an objective method established in the bidding documentation in accordance with a special law. The estimated value of the concession is calculated based on data from the feasibility study for awarding the concession [22].

AWARDING A CONCESSION WITHOUT A CONCESSION FEE

The issue of the concession fee is regulated by Article 57 of the Croatian Concessions Act [23] **Error! Reference source not found.** It states that the concession fee has the significance of public giving and is paid in money but can be agreed upon as a constant equal amount and/or as a variable amount depending on the specifics of the concession subject, principles established by the feasibility study for awarding the concession or the analysis of awarding the concession, and special law [24]. However, there is one exception described in the same article, which states that exceptionally, a concession fee does not have to be agreed upon in cases where the feasibility study for awarding the concession or the analysis of awarding the concession has determined that it is not financially justified unless otherwise regulated by a special law. (Article 57) This exception elaborates on recital 11 of the Concession Directive,

which reads: “Concessions are contracts for pecuniary interest by means of which one or more contracting authorities or contracting entities entrust the execution of works or the provision and management of services to one or more economic operators. The object of such contracts is the procurement of works or services by means of a concession, the consideration of which consists in the right to exploit the works or services or in that right together with payment”.

Article 57 of the Croatian Concessions Act also outlines the criteria for determining the amount of the concession fee. It prescribes how the amount and method of paying the concession fee are determined depending on the subject of the concession, the estimated value of the concession, the duration of the concession, the risks and costs that the concessionaire assumes, the expected profit, the scope of the concession, the equipment and value of the property or equipment and area of the general public or other good of interest to Croatia that is given in concession.

What are the cases where the concession fee amount does not need to be agreed upon? Concessions in Croatia can be given for various activities. The Concessions Act lists a total of 23 activities, emphasising that this listing is exemplary (thus, it is possible for other activities as well). A concession can thus be given for the exploitation of mineral resources, the use of waters, the right to hunt in state hunting grounds and game farms, on maritime property, in the area of nature protection, in the energy sector, for conducting activities of maritime and river transport, for providing public transport services, in the sports sector, in the health sector, for free zones, for aquaculture and other marine organisms, in the field of veterinary public health, and other activities [25].

PREREQUISITES FOR AWARDING A CONCESSION WITHOUT A CONCESSION FEE

The description of the subject matter and purpose/objective of the concession is part of the executive summary of the feasibility study for awarding the concession. When discussing which concessions could be granted without agreeing on a concession fee, it is necessary to start from that – the objective of the concession. It would be difficult to justify a concession for the exploitation of mineral resources, hunting rights, mariculture, or the energy sector without a fee because these are purely commercial activities from which the state wants to derive revenue. But what about organising public transport in less populated areas? Exploiting waters for irrigation, which makes some deserted areas agriculturally interesting? A veterinary clinic on an island where, even without paying a concession fee, it would be marginally profitable?

There are activities for which there is a public interest, and for various reasons, they do not have to be commercial. Additionally, the same activity may be commercial or not, depending on the circumstances; for example, port towing is considered very profitable in large Western European ports. Still, it is difficult to find interest in performing this activity even without a fee in a smaller Croatian port. Port towing is mentioned as an example because it represents an extremely important activity in ports (it can be mandatory), and the success and continuity of performing this service require significant resources. and such a technologically and capital-intensive activity requires, on the other hand, continuity of demand for its performance to ensure its justification [26]. A similar example can be given from the field of public passenger transport – a country that generally loses population, such as Croatia, also sees a decline in interest in public passenger transport [27]. Since there is a justified public interest in performing public transport, it makes sense to grant a concession without paying a concession fee. Moreover, local governments can also subsidise such services, which is also allowed by the Croatian Concessions Act in Art. 20. “If the concession grantor anticipates rewards or payments to the future concessionaire in accordance with a special law, it takes them into

account when calculating the estimated value of the concession”. The task of public law bodies is to ensure public services to citizens even when they are not profitable.

The first condition for awarding a concession without a fee, therefore, is the existence of public interest. Clearly, suppose a concession is defined as a right acquired through a contract. Why would the state (or another public entity to which the right to grant concessions has been transferred) grant a concession without a fee if there is no public interest? Public interest, or determining what constitutes public interest, is a topic that has been written about for centuries, and definitions are very diverse [28]. Almost anything can be justified as a public interest [29], so when we talk about public interest in the context of awarding concessions, we need to be very precise to prevent even suspicions of abuse where a potential concessionaire might be unjustifiably “forgiven” for paying the concession fee.

When preparing a feasibility study for a concession where, due to public interest, a concession fee is not charged, it is necessary to state the source of that public interest precisely. This can be a regulation that declares an activity to be of public interest. For example, public road passenger transport in Croatia is declared a public interest by the Road Transport Act [30]. It should be noted that some EU member states, such as Spain, began applying the concession model in public road transport as early as 1997 [31].

In Croatia, public interest is often explicitly stated in regulations that govern the management of public or common goods [32]. Public interest can also be an activity that is essential for performing some other activity of public interest, such as collecting waste from ships in public ports. Public interest can also be declared by an act of a public law body (for example, a decision of the Parliament, Government, county assembly, or others).

We could not accept that the feasibility study for awarding a concession itself concludes that something is “public interest” without referring to a regulation or other document. The declaration of public interest is a matter for a public law body, preferably a representative body, Law, or special decision, not a team that prepares the feasibility study for awarding a concession.

The second condition we mention is that the operational risk must not be a reason for awarding a concession without a fee. The Concession Directive states in recital 18: “The main feature of a concession, the right to exploit the works or services, always implies the transfer to the concessionaire of an operating risk of an economic nature involving the possibility that it will not recoup the investments made and the costs incurred in operating the works or services awarded under normal operating conditions, even if a part of the risk remains with the contracting authority or contracting entity. The application of specific rules governing the award of concessions would not be justified if the contracting authority or contracting entity relieved the economic operator of any potential loss by guaranteeing a minimum revenue equal or higher to the investments made and the costs that the economic operator has to incur in relation to the performance of the contract”. This is very clearly conveyed in the Croatian Concessions Act, which in Article 3 states that awarding a concession for works or services includes the transfer to the concessionaire of the operational risk in exploiting those works or services, which includes the risk of demand or supply or both. The transfer of part of the operational risk implies actual exposure to market changes so that any potential estimated loss suffered by the concessionaire is not symbolic and negligible. Further, the same article explains in detail how the operational risk is considered the risk of the concessionaire’s exposure to market conditions in such a way that the concession grantor does not guarantee that the concessionaire will indirectly or directly recover the invested funds or costs incurred in performing the works or providing the services that are the subject of the concession under normal operating conditions. This very strict limitation was introduced so that public law bodies would not guarantee profits or assume losses of the concessionaire, which can lead (and

sometimes has led in the past) to irregularities, as evidenced by examples worldwide [33]. The Impact Assessment, based on which the Concession Directive was introduced, noted: “Indeed, by transferring the main operating risks to a private partner and alleviating the public authorities of this burden, concessions make it possible, in certain cases, to carry out much-needed public works and services while keeping the corresponding commitments out of the government balance sheet” [34].

The third condition for awarding a concession without a fee, of course, is that the feasibility study for awarding the concession shows that the revenue from the concession would not be sufficient to charge a concession fee. This involves the part of the feasibility study for awarding the concession that contains the financial and economic analysis of awarding the concession. According to the aforementioned Article 19 of the Croatian Concessions Act, the financial and economic analysis of the feasibility study for awarding the concession particularly includes an analysis of the costs and benefits of the concession in relation to the budget of the concession grantor, i.e., the state budget of Croatia and/or the budget of the local and regional (territorial) self-government unit, and the financial feasibility of the concession in relation to the concessionaire in accordance with professional standards and international standards.

In the case of a concession without a concession fee, the criteria on which the concession grantor selects the most favourable offer cannot be based on the amount of the concession fee but on other criteria such as quality, operational costs and management costs, cost-effectiveness, service and technical support after delivery, delivery date, and delivery or completion deadlines, the price of the service for end-users, as prescribed by Art. 35 of the Croatian Concessions Act.

CASE STUDY OF A CONCESSION WITHOUT A FEE IN THE EXAMPLE OF AN INLAND WATERWAY PASSENGER TERMINAL

Nautical tourism on inland waters (inland waters include rivers and lakes) has emerged in recent years as a specific form of tourism that is attracting increasing interest from visitors in continental Croatia. In the counties along the international rivers Danube, Drava, and Sava, as well as smaller rivers like Bosut, infrastructure projects are underway with the primary goal of creating the prerequisites for the development of nautical tourism.

With the existing natural basis, the basic prerequisite for the development of all types of nautical tourism is the appropriate infrastructure for vessel docking and the boarding and disembarkation of passengers, which is provided at inland waterway passenger terminals. A terminal, according to the Navigation and Ports of Inland Waters Act [35], is the water part and the directly connected land area that is intended and equipped for docking, anchoring, and protecting vessels, loading, unloading, transshipping, and/or storing cargo, and/or boarding and disembarkation passengers. Unlike ports, where a wider range of port services is performed, terminals serve to perform individual port services.

According to the same law, port authorities and public institutions are responsible for ensuring the permanent, uninterrupted, and continuous performance of port activities in public ports and terminals. Port activities in public ports may be performed based on a concession. We note that under the broader term, port activities include port services and economic activities that are provided and performed in the port area.

When we talk about passenger terminals, two main types of port services are primarily performed: the berthing and unberthing of vessels, the reception and provisioning of vessels, crew, and passengers, and the servicing of vessels at anchorage.

The question arises if the capacity of berths at a smaller passenger terminal intended for excursion navigation is sufficient for the concession to provide the mentioned port services to be justified, given the current number of visitors in a smaller municipality in eastern Croatia, an economically underdeveloped area.

On the one hand, port services can only be performed based on a concession. The port authority, as the concession grantor, aims to entrust the organisation and supervision of docking, anchoring, and manoeuvring vessels at the terminal to an economic entity that will contribute to the improvement of the quality of port services through professional work. The port authority also has based on the Regulation on the Criteria for Determining the Amount of Port Fees in Inland Water Ports [36] and the decision on the number of port dues in ports and terminals made by each port authority for itself [37], secured revenue from port dues for the use of the shore/pontoon and fees for berths.

If, based on the analysis of the future concessionaire's revenue and costs, the legal prerequisites for calculating the concession fee are met, the port authority also acquires the right to a concession fee. The prerequisite for calculation is met if the economic-financial analysis of the feasibility study for awarding the concession shows that the estimated revenues of the concessionaire from providing port services are greater than the expenses incurred in providing port services.

The only basis for calculating the concession fee is the revenue of the concessionaire from port services charged based on the concession contract. At a smaller infrastructural passenger terminal, it is sufficient to provide only one commercial berth for the purpose of developing excursion navigation. Along with one commercial berth, another source of revenue for the future concessionaire is the revenue from accepting passengers in excursion navigation, which takes place during part of the year when weather conditions allow and is limited by the capacity of the vessels currently providing the excursion service, which is typically up to 30 passengers.

From the revenue from these two bases for calculating the concession fee, the future concessionaire will not be able to cover the operating expenses. Given that it is expected that the economic-financial analysis will show that the estimated revenues of the concessionaire from providing port services are less than the expenses incurred in providing port services, the concession fee should not be agreed upon because otherwise, no interested concessionaire would be found.

Therefore, the port authority, as the concession grantor, will ensure the sustainability of operations and financial stability by awarding a concession without a fee. Ultimately, at the terminal, this will ensure the provision of port services by an economic entity that will increase the safety and quality of services provided to end-users through professional work. For the future concessionaire, a financial-economic model will have to be devised to analyse the justification for awarding the concession from one case to another.

Unquestionably, such projects are of paramount importance for the development of new types of tourism and regional development, especially for the area of eastern Continental Croatia, which is among the least developed regions of Croatia [38].

CONCESSIONS WITHOUT CONCESSION FEES IN INNOVATIVE INDUSTRIES AND STATE-SPONSORED ACTIVITIES

As demonstrated by the specific example previously discussed, there are activities in which there exists a public interest in their operation. Yet, they do not generate commercial revenues sufficient to cover the concession fees.

A concession constitutes a public grant, and the obligation to pay concession fees is practically equated with tax obligations. The Croatian Concessions Act expressly stipulates in Article 82: “The Ministry responsible for finance shall collect concession fees from the concessionaire in accordance with the regulations governing the collection of taxes and other public dues”. This strict regulation, along with a special Concessions Register, was introduced following the 2012 Concessions Report, which highlighted serious shortcomings in the collection of concession fees [39].

However, like taxes, it is not always in the interest of collecting the highest possible concession fee. Take, for example, low-cost airline companies. Such companies negotiate with airport operators to obtain the lowest possible fees, offering in return an increased number of passengers. It is challenging for airports to compensate for the reduced earnings with the increased passenger volume [40]. Additionally, such negotiations can be quite stringent and border on the ethical limits of business dealings [41]. Despite this, the feasibility study for awarding concessions can justify cases where future concessionaires are required to facilitate access to low-cost companies (and to include this in the concession contract proposal), even if it means reduced revenues for the concessionaire and, thereby, a lower concession fee. Imposing the acceptance of low-cost carriers on the concessionaire is entirely appropriate and justified in tourist areas, as it is anticipated that tourists attracted by low airfares will spend money on accommodation, food, drink, cultural, and entertainment offerings. Thus, the state will largely compensate for the smaller earnings from concession fees through increased revenues in other ways.

The above example represents a case where it is opportune to limit the concessionaire’s earnings, and thereby indirectly the amount of the concession fee. The question arises of whether there are similar cases where it is reasonable and legally permissible to eliminate the concession fee. We believe there are and that the issue of paying concession fees should be considered more broadly economically.

One instance where awarding a concession without a concession fee may be opportune involves innovative industries [42]. For example, the new Croatian Maritime Domain and Sea Ports Act specifies that concessions are granted, among other things, for “the use of sea power for heating and/or cooling, the installation and use of solar/photovoltaic systems, and other innovative solutions relating to energy efficiency” [43]. Such installations do not yet exist on the Croatian Adriatic, are novel worldwide [44], and their profitability cannot be calculated in the feasibility study for awarding concessions. It is expected that years of research and optimisation will be required before the facility becomes profitable.

In innovative industries, the benefit to the state and the community lies in raising the technological level of society, the development of complex industries, and the arrival of highly qualified (and therefore well-paid professionals), who thereby pay high taxes and contributions on their earnings [45]. They will also need accommodation in the local community and will spend at least part of their income, thereby strengthening the local economy and paying taxes again [46].

Therefore, seeking the payment of concession fees for industries that are not developed to the level of established technology and whose profitability is not proven would not be opportune. An investor would choose another country to develop new technologies [47]. Here, the provision that does not allow the transfer of part of the operational risk to the concessionaire cannot be applied, as the profitability of innovative technologies (i.e., not of a specific business entity but entire technologies) still needs to be determined. If the concessionaire begins to operate profitably, they will inevitably pay taxes on their operations.

Another case where it may be justified to grant concessions without a concession fee involves activities significantly influenced by public authority and state subsidies, such as the case of the sale of electric cars. Chargers on highways will be profitable, and here, it is entirely justified to grant concessions with a fee. However, outside the main state roads, the profitability of chargers significantly depends on the number of electric cars in an area. And this number, in turn, depends on state subsidies. A recent German example shows that the elimination of subsidies for purchasing electric cars significantly affects the reduction of such car sales [48].

An undeveloped network of chargers can further worsen the sale of electric cars – in this case, it may be justified to grant concessions for chargers without paying a concession fee. In this instance, we also consider that there is no obstacle in terms of provisions prohibiting the transfer of part of the operational risk to the concessionaire, as the entire market significantly depends on subsidies, which are a political decision and can be introduced and revoked according to political will and the generosity of the state budget and specialised funds. The elimination of subsidies significantly affecting sales cannot be considered a business risk that the concessionaire must accept as an operational risk.

Similarly, concessions for new fuel chargers, such as hydrogen, should not only be exempt from concession fees but also financed from funds to find economic entities interested in their construction [49]. When discussing new ecological fuels, it is necessary to build filling stations so that cars using these new fuels can be used at all. Here, it is not opportune to charge a concession fee for an activity that will not be profitable for years, and possibly never, if technological development takes another direction.

In all these cases, it is necessary in the feasibility study to state and justify the public interest. For example, in this last-mentioned case, a hydrogen filling station in Croatia, this is the Croatian hydrogen strategy until 2050 [50].

DISCUSSION

The Concession Directive provides a great opportunity for autonomy in the national regulation of concessions, as stated in recital 6, which notes that member states or public authorities should remain free to define the characteristics of the service to be provided, including any conditions regarding the quality or price of the services, to pursue their public policy objectives.

Each state decides which services it considers public services – and their performance does not always have to be commercial. There may also be activities where direct benefits to the budget in the form of a concession fee payment are not expected. Still, indirect benefits are provided by enabling the strengthening of economic activity.

Passenger terminals on the rivers mentioned in our example are hardly financially viable on their own. The concessionaire cannot expect to be able to pay the concession fee. However, their existence enables the arrival of a larger number of tourists and numerous other activities related to tourism – from the sale of souvenirs to various catering services, the sale of food and drinks, and the accommodation of tourists.

In this instance, and in some other cases that we have mentioned (innovative industries and state-supported activities) [51, 52], it is both possible and justified to grant a concession without charging a concession fee. However, to prevent abuse of this provision, three cumulative conditions must be met.

The first condition is public interest. Public interest must be declared by a legal or similar act or decision of a public law body. As a rule, this should be a decision of a representative body because the issue of determining public interest is fundamentally a political issue, which is then put into practice by executive bodies that conduct the concession awarding process or other bodies such as public institutions, to which the powers to grant concessions have been transferred.

The second condition is that a study on awarding concessions, specifically the financial and economic analysis within that study, determines that there would be no interested concessionaires for a concession with a concession fee payment, or the service could not be provided with satisfactory quality.

The third condition is that exemption from the concession fee must not be a form of transferring part of the operational risk to the concessionaire, as both European and national legal frameworks prohibit such risk transfer.

Awarding a concession without agreeing on a concession fee is possible. Still, of course, it is an exception to the general rule. It must be thoroughly documented within the preparatory documentation in the concession awarding process, which refers to the legal basis by which the subject of the concession is declared to be of public interest.

CONCLUSION

In this article, we investigated the conditions and justifications for awarding concessions without a concession fee, focusing on the implications for smaller ports in Croatia. Our research highlighted the legal and political sensitivities associated with this practice and emphasised the importance of thorough justification and adherence to legal frameworks.

There is limited literature on this topic. The existing literature indicates that in certain locations, implementing a concession fee might not be practical, especially where demand for the service is low. Additionally, even if there is demand, there may be a lack of concessionaires with adequate capital, interest, or willingness to take on the associated risks [53][54]. However, these examples are not related to European practice following the adoption of the Concession Directive. Specifically, a large portion of recent literature dedicated to concessions, particularly in the transport sector, pertains to developed Western European countries where such constraints rarely occur – concessions are generally profitable.

The practical implications of our findings are significant for policymakers and practitioners in public administration. Understanding when and how to award concessions without a fee can help ensure that essential public services are maintained in non-commercial settings, thereby supporting regional development and public interest without compromising legal and economic standards.

The scope of our research was confined to the Croatian context. Thus, the findings may not be directly applicable to other EU member states with different legal and economic environments. Further research is needed to explore the long-term impacts of these concession practices on regional development and public service provision. The planned implementation of fee-free concessions at passenger terminals, which we have justified as an example in this article, can also be the subject of new, more specific research. Additionally, future studies could expand the analysis to include a comparative approach across various EU countries to understand better the broader implications of concession policies without fee obligations.

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IN BOARD WE TRUST: THE ROLE OF SUPERVISORY BOARD IN PUBLIC COMPANIES IN BOSNIA AND HERZEGOVINA

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DOI: 10.7906/indecs.22.4.6
Preliminary report

Received: 4 June 2024.
Accepted: 17 August 2024.

ABSTRACT

The role of supervisory boards in corporate governance has become a focal point of academic and practical scrutiny, especially in the context of public enterprises undergoing a transition in post-socialist countries. Bosnia and Herzegovina, a nation experiencing a protracted and complex transition, presents a unique case for examining how supervisory boards influence the management and operational strategies of public companies. The interplay between corporate governance structures and the broader socio-economic transformation processes provides fertile ground for insights into the effectiveness of governance practices. This article aims to delve into the dynamics of supervisory boards within the public enterprises of Bosnia and Herzegovina, assessing their impact on strategic management and financial performance. The research is motivated by the preposition that robust and active supervisory boards can significantly shape the strategic direction of companies, enhancing their governance and contributing to their success in a competitive and evolving economic landscape. By exploring the composition, roles, and effectiveness of these boards, the study seeks to contribute to the broader discourse on corporate governance in transitional economies, offering implications for policy and practice in similar contexts.

KEY WORDS

corporate governance, public companies, supervisory board, company governance

CLASSIFICATION

JEL: G34, L32, P31

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INTRODUCTION

The role of supervisory boards is a topic of significant debate, with various studies highlighting different challenges and changes. Peij and Bezemer [1] both emphasise the evolving nature of this role, with Peij focusing on the challenges faced by non-executive directors in the Netherlands and Bezemer discussing the increased involvement of board chairmen in both control and service roles. Xiao [2] adds a cross-cultural perspective, identifying four potential roles for supervisory boards in Chinese companies. Zamojska [3] further expands the discussion by examining the role of independent directors in Central and Eastern European countries, underscoring the need for a nuanced understanding of the diverse factors influencing the role of supervisory boards.

The relevance of the topic for transition countries like Bosnia and Herzegovina is underscored by the complex state structure and the need for defence reform [4]. However, the incorporation of socio-economic concerns into transitional justice has been challenging, leading to the marginalisation of these issues [5]. The negotiation process with the EU is crucial for the country's growth and development, particularly in terms of strengthening state institutions and achieving economic convergence [6]. The transformation dynamics in the country have adversely affected economically vulnerable sectors, highlighting the need for a balanced approach to economic transformation [7].

This article explores the role of supervisory boards in corporate governance within Bosnia and Herzegovina – a nation embedded in complex and protracted socio-economic transitions. By examining the composition, roles, and effectiveness of supervisory boards, the study seeks to understand their influence on the management and operational strategies of public companies. As Bosnia and Herzegovina continues to navigate its transition, the relationship between these governance structures and the broader economic transformations offers valuable insights into the dynamics of corporate governance. This research investigates how robust and proactive supervisory boards can potentially enhance strategic management and financial performance, thereby contributing to the overall success of enterprises in a competitive and evolving market. Through this analysis, the article contributes to the broader discourse on the effectiveness of governance practices in transitional economies, with implications for both policy and practice.

LITERATURE REVIEW

Due to its role, the supervisory board is the most important corporate governance body. That is why a balanced and sound supervisory board plays a key role for effective and effective corporate governance [8]. It is very important to point out that the body has the greatest or ultimate responsibility in corporate governance. In order for everything to function at a high level, an adequate structure and size of the supervisory board is required, good communication between the members of the supervisory board, their competence, commitment to work in the board, and the issue of representing the interests of individual members of the supervisory board. Many factors, such as the size of the company, the age of the company, the number of business segments, activity, legal solutions, ownership structure and more, can determine the size and structure of supervisory boards [9].

Kor [8], in his work, proves the existence of a two-way influence of the supervisory board on the composition of the supreme management team. Therefore, this research has shown that there is a two-way relationship between these two key organs of the enterprise. Unlike this research, the authors Schalka and Sarfati [9] proved the influence of management structures on the financial operations of the enterprise. By measuring four variables such as the percentage of independent aliens on the board of directors, separation of CEO and president, adoption of conditional benefits and percentage of institutional investors in the ownership structure, the authors concluded that increasing the formal management structure through external directors

in management and ownership of institutional investors could lead to a worse performance of the company [9]. Therefore, the excessive influence of the supervisory board on management can contribute to companies achieving poorer performance.

Huynhm, Gudergan, and Wilden [10] indicate in their research that the interaction between the supervisory board and management can significantly contribute to the development of the dynamic capacities of the organisation. Specifically, exploring the control and service role of the board of directors as the two main roles that condition the dynamic implementation of capabilities, the authors explain how these two board roles can weaken or strengthen the influence of the top management team on the dynamic implementation of capabilities. Therefore, according to this research, the supervisory board has a strong influence on the decision-making of the highest management. Unlike these studies, author Bremert [11] argues that board composition and board structure only give the board some potential to contribute to the performance of the enterprise but do not guarantee that this potential will be exploited. Therefore, in his research, the author proposes the interaction of the supervisory board and the management as a factor that allows management to realise their problem-solving potential and thus contribute to the results of the company. Based on the theoretical argument, Bremert [11] proposes that boards with the appropriate configuration of composition, structure and interaction can build a “board capability” that would increase an enterprise’s competitive advantage. Therefore, composition, structure and interaction are important factors to pay attention to during research.

A special significance to these factors was given by Tipurić [12] **Error! Reference source not found.**, who, in his research, pays special attention to the composition, structure and scope of work of supervisory boards in Croatian companies, proving the influence of the supervisory board on key management activities of Croatian companies through three key roles: strategic, control, and connecting. Furthermore, some authors believe that the supervisory board individually influences certain elements of the work of the supreme management team. For example, authors Lo and Fu [13] state that the supervisory board and top management dominate business strategy. The results of their research confirm that the interaction of the supervisory board and the top management team can significantly improve the performance of the organisation. This claim is also proved by Mešin [14], who shows in her research that the supervisory board is an important factor in corporate governance and that greater efficiency of its work in performing tasks increases the company’s business performance. Some authors deepen this influence even more.

In their research, Qiao, Yang and Yin [15] aim to differentiate the CEO and other top management team members into two independent groups and explore the types of interactions between them and the impact of these interactions on the company’s results. All this undoubtedly indicates that there is a certain connection between the supervisory board and the management. Suppose we start from the assumption that the basic determinants of the strategic management process are the orientation of the company, which is manifested in the formulation of vision, mission and strategic goals. In that case, it is important to examine the real (essential) role in the business of the company, which stands out as the fundamental determinant of the strategic management process. The management body imposes itself in the process of strategic management. This research sought to obtain data on the extent to which supervisory boards are independent in directing the work of the management of public company owners in formulating mission and vision and independently adopting strategic goals[15].

The importance and significance of strategic management in public companies are more than significant today, especially in a situation where a business faces problems, starting from the unsettled ambient context of the business and ending with unprofessional management.

In companies with a concentrated ownership structure, the majority of owners decide on the composition and size of the supervisory board with mandatory compliance with legal provisions, such as the mandatory participation of workers' representatives in the supervisory board [14]. In general, when the supervisory board is viewed conceptually, it can be said that the number of members, structure, professional qualifications of members of the supervisory board, the election of members and the organisation of work determine it. Unlike the supervisory board, the management of a company is the body that, together with the supervisory board, forms the management structure of the company [15]. The powers of the management are the execution of decisions of the supervisory board, the management of the company's day-to-day affairs and the implementation of the strategy approved by the supervisory board [11].

The research includes an analysis of the role and significance of the Supervisory Board in the strategic management of public companies. The focus is on researching the fundamental importance of the role of supervisory boards in strategic management in public companies in the Federation of Bosnia and Herzegovina. The aim of this article and the accompanying research is to obtain information on the independence of supervisory boards in directing public companies, including shaping mission and vision and setting strategic goals.

THE SUPERVISORY BOARD IN THE LEGISLATION OF THE FEDERATION OF BOSNIA AND HERZEGOVINA

LEGAL FRAMEWORK

The legal system of Bosnia and Herzegovina, which regulates the operations of economic entities, as well as corporate governance itself, is determined by the specifics of the constitutional order. Regarding the legal and state regulation of Bosnia and Herzegovina, the legislative framework of corporate governance in force in Bosnia and Herzegovina is different in the entities, and there is no compliance at the state level. Thus, some laws are unique to the entire territory of Bosnia and Herzegovina, then laws that exist at the level of the Republic of Srpska and the Federation of Bosnia and Herzegovina, and ten special cantons within the Federation of Bosnia and Herzegovina itself. A special feature is the existence of so-called umbrella laws that should be the basis for the adoption of special entity laws that must be harmonised with them. Brcko District is in a separate legal regime, enjoying a special kind of international protection and legal legislation. This status of the Brcko District has led to the fact that it is completely outside the legal system of Bosnia and Herzegovina. The legal matters of corporate governance, establishment, and operations of companies in Bosnia and Herzegovina are within the competence of the entities. In addition, additional specificities are prescribed by special sectoral laws relating to banks, insurance companies, funds and companies with a majority ownership stake in the state.

According to the Law on Companies of the Federation of Bosnia and Herzegovina, "the management, in addition to the directors, consists of executive directors. The Executive Director organises the work, represents the company, and is responsible for the legality of the business and the scope established by the Director's written act. Executive Directors shall be appointed and dismissed by the Supervisory Board on a proposal from the Director for the period to which the Director has been appointed. The salary and other substantive rights of the Executive Director shall be governed by a contract between the Director and the Executive Director, with the prior consent of the Supervisory Board. Members of the management board may be re-elected in accordance with the interests of the company, i.e., if the supervisory board positively evaluates their work and if it considers that they can lead the company.

The management board organises work and conducts business, represents the company, and is responsible for the legality of the business. The board consists of directors and executive directors. The number of members of the management board shall be determined by an act of incorporation, normative acts or a special decision of the supervisory board. The management board is chaired by a director who manages the business, represents the company, and is responsible for its legality. The term of office of the director usually lasts four years. The position, powers, responsibilities, and rights of the director shall be regulated by a contract between the Supervisory Board and the Director (management). For the successful business of the company, the way in which the Supervisory Board and the Management Board cooperate is crucial, with another prominent criterion that the Supervisory Board, as a key corporate body, dimensions and determines the way the management works. Viewed in the above context, the supervisory board should always have the status of a superior body that fully determines the mode of operation and operation of the administration, not allowing the transition of real power from the hands of the supervisory board to the hands of the management, which, however, often happens. A precisely defined managerial contract, signed by the chairman of the supervisory board with board members, can be a good tool for defining the aspects of power delimitation between these two key corporate bodies.

PUBLIC COMPANIES IN THE FEDERATION OF BOSNIA AND HERZEGOVINA

For public companies in the Federation of Bosnia and Herzegovina, we can say that a closed system of corporate governance with a concentrated ownership structure is applied, which in this case is a state which functions in a dual model, i.e. in the management structure two types of boards have been established. One is the supervisory board, whose members have no executive functions, and the other is the management. Members of the Supervisory Board have the task of supervising and monitoring business, i.e. performing a strategic, controlling and connecting role, while members of the management board take on the role of managing and managing the company. Given the separation of ownership and management functions and given that the owner of public companies is the state, it is interesting to see whose interests are represented by the supervisory board elected by the state through the assembly of a public company. The Supervisory Board is the link between the owners of capital and the management, whose main task is the functioning of the enterprise and the creation of the value of the enterprise. According to agency theory, the supervisory board is the agent of the owner, but the principal management also has the role of agent. The basic tasks and responsibilities of the members of the supervisory boards of public companies are defined by the Law on Public Enterprises of the Federation of Bosnia and Herzegovina [16]. However, the law does not define the more detailed roles of the supervisory board and the strategic role of the supervisory board. This is particularly important to point out since a clear strategic commitment should generate a stable and long-term sustainable development of a public company. Corporate governance in state-owned enterprises is a significant challenge in many economies. However, so far, there has been no international benchmark to help governments assess and improve the way these companies, which often make up a significant part of the economy, own. The main challenge is to find a balance between the competence of the state to actively carry out its ownership functions, such as the appointment and election of the administration while refraining from imposing excessive and inappropriate political interference in the operation and management of the enterprise. The Supervisory Board is a body that, with its strategic role of consulting, discussing strategic issues, and approving key strategic decisions, should help management in managing the company's business. The strategic role of the supervisory board should be active and permanent, i.e., the supervisory board would have to participate in the process of strategic planning, risk assessment, defining performance indicators and evaluating the work of the management. As already stated in this article, the supervisory board should not

and should not take on the role of implementing the strategy because this is the task of the management. Still, it should direct the business and control the work of the management, i.e. establish control mechanisms for controlling the work of the management. The positioning of the Supervisory Board in the legislation of Bosnia and Herzegovina requires understanding (i) The position of the Supervisory Board in the legislation of the Federation of Bosnia and Herzegovina and (ii) the position of the Supervisory Board in the legislation of the Republic of Srpska.

SUPERVISORY BOARD IN THE LEGISLATION OF THE FEDERATION OF BOSNIA AND HERZEGOVINA

In the Federation of Bosnia and Herzegovina, as already noted, a continental model of corporate governance was adopted for all joint-stock companies, as well as public enterprises. In this regard, they have a supervisory board and management. According to the Economic Companies Act, the supervisory board consists of the president and at least two members, appointed and dismissed by the assembly, and the number of members of the supervisory board must be odd [16]. Some of the basic duties of the members of the Supervisory Board are supervision of the company's operations and the work of the management board, adoption of management reports on operations per semi-annual and annual calculation with the balance sheet and profit and loss account. as well as audit report, the appointment of board members and members of subcommittees for remuneration and appointments making proposals for profit distribution submitting reports to the meeting on business operations, internal audit and other [16]. There is a clear difference in the work of the Supervisory Board and management in terms of obligations and responsibilities. While the supervisory board is responsible for the selection of board members and the assessment of their work, as well as the business of the company, the management is responsible for the company's operations.

The management organises the work and conducts business, represents the company, and is responsible for the legality of the business. The board shall consist of a director or one or more executive directors, as determined by the statute. The Management Board is chaired by a director who represents and represents the company and is responsible for the legality of the business. A contract between the Supervisory Board and the Director shall govern the responsibilities and rights of the Director. In addition to the directors, the members of the management board are also executive directors who represent the company and are responsible for the legality of business in the affairs and scope established by the written act of the director. Executive Directors shall be appointed and dismissed by the Supervisory Board on a proposal from the Director for the period to which the Director has been appointed. The substantive and other remuneration of executive directors shall be governed by a contract between the Director-General and the Executive Directors, with the prior consent of the Supervisory Board. A joint stock company has a secretary appointed by the supervisory board at the proposal of the director of a joint stock company for the same time to which the director is appointed. The Secretary shall be empowered to enforce the decisions of the Assembly, the Supervisory Board and the Director. The Secretary shall be responsible for the preparation of the meetings and keeping the minutes of the Assembly and the Supervisory Board [16].

An audit committee is formed in a joint-stock company. The chairperson and the member of the audit committee may not be members of the supervisory board and management, employed or have a direct or indirect financial interest in a joint-stock company other than salary based on that function. The Audit Committee shall, at the request of shareholders with at least 10% of voting shares, audit the semi-annual and annual accounts and audit the financial operations of the joint stock company, and submit a report to the general meeting and supervisory board, no later than eight days after the completion of the audit. When it comes to protecting the rights of minority shareholders, the law states that a member or group of members of a company whose shares

make up one-tenth of the share capital can be requested by the court to appoint an external auditor. The court will appoint an auditor if the proponents make it likely that a more serious violation of the law, contract or statute has been committed. The management of public companies is regulated by law, and the management of joint stock companies or limited liability companies that have a supervisory board, i.e., a two-level model of corporate governance, was applied. According to the Public Enterprises Act, the governing bodies of public enterprises are the assembly, the supervisory board, and the administration [16].

SUPERVISORY BOARD IN THE LEGISLATION OF THE REPUBLIC OF SRPSKA

The Republic of Srpska can be said to have a specific model of corporate governance. When it comes to joint-stock companies, the bodies of a joint-stock company established without issuing a public invitation for subscription and payment of shares are the assembly and the director, and the companies established by issuing a public invitation for subscription and payment of shares are the assembly and the board of directors. The tasks of the assembly and the director in a one-member joint stock company are performed by the owner unless otherwise specified by the decision on incorporation [17].

The number of members of the board of directors of an open joint stock company shall be determined by the act of incorporation. In an open joint stock company, the board of directors has at least 3 members and a maximum of 15 members [17]. Members of the board of directors are elected by the owners at the annual general meeting or at any extraordinary meeting convened for that election. The existing board of directors proposes candidates for the election of members of the board of directors, the owners, or the board of directors if it is formed.

Corporations whose shares are listed on the official stock market must have a majority of non-executive members of the board of directors, at least two of whom are independent members. The term of office of the director or members of the management board, including members who have been elected to the vacant posts of members, shall not exceed 5 years with the possibility of re-election but may terminate at each annual meeting if an annual business report is submitted, and it was adopted.

The President of the Management Board shall be elected from among its ranks by a simple majority of the total unless otherwise provided by the memorandum of association or statute. The president of the board of directors is the general director of the company unless otherwise specified by the memorandum of association or the articles of association of the company. The Management Board shall hold at least 4 regular meetings per year, one of which shall be no later than 60 days before the annual general meeting. The following are a few important issues for which the Board of Directors is responsible: (i) managing the development strategy and supervision of executive directors and administration, (ii) establishing or approving a business plan, (iii) selecting and dismissing executive directors, approving the terms of contracts and determining their remuneration, and (iv) determining the amount and date of dividend, the date of payment and the dividend payment process, when the memorandum of association gives it such authorisation [17].

An open joint stock company has a board of directors, and a closed joint stock company may have a director or a board of directors. Open joint stock companies whose shares are listed on the official stock exchange market shall have a majority of non-executive members of the board of directors, of which at least two are independent members. Executive Directors shall be elected from among persons who are members of the Management Board or of other persons. In a joint stock company that has more than two executive directors, an executive board is formed. The scope of the executive board includes the implementation of the decisions of the joint-stock company's board of directors and all issues related to the management and current affairs of the company, except for issues that fall within the competence of the board of directors and a

shareholders' meeting. Members of the executive board may be dismissed by the board of directors of the company at any time, for or without a specific reason, where this is, in the assessment of the board, in the best interests of the company. Here, it is important to note that independent board members cannot be employed in society while the company employs members of the executive board. The Executive Board is obliged to report permanently and comprehensively to the Management Board, while the Steering Committee is obliged and responsible to report to the Assembly. The memorandum of association or the statute of an open joint stock company may determine (and in the case of an open joint stock company whose shares are listed on the official stock market, it must be determined) that the company has an internal audit and an audit committee.

The articles of association or social contract of a closed joint stock company may provide that the company has an internal auditor or audit commission. The audit committee shall have at least 3 members, and their total number shall be odd. The assembly elects members of the audit committee. Some of the most important tasks of the audit committee are reports to the Management Board on the implementation of recommendations based on audit reports, reports to the assembly on accounting and financial operations, and expressing an opinion on the proposal for a decision on the distribution of profits adopted by the assembly. An open joint stock company has an independent auditor whose position and powers are determined by the law governing accounting and auditing. An independent auditor is elected at the ordinary annual meeting of the current year for the audit of the financial statements for the following business year. According to the Law on Public Enterprises of the Republic of Srpska - "the bodies of the public company are the assembly, the supervisory board and the administration." [17]. Thus, public companies, unlike joint stock companies that have a board of directors, have a supervisory board, board and board of directors, i.e., a two-tier model of corporate governance is applied. The Supervisory Board consists of at least three members, and the right to one seat on the Supervisory Board is vested in shareholders or members of the company who have at least 5% of voting rights. According to the same Law [17], the competence of the Supervisory Board is in the domain of election and dismissal of management members, supervision of the work of the management board, adoption of rules of procedure on the work of the Supervisory Board, proposing statutes, code of ethics, other acts of the assembly, making decisions on investments and more.

METHODOLOGY

RESEARCH INSTRUMENT

A questionnaire form created by Tipurić [12] was used in the preparation of the questionnaire. The questionnaire has been modified in a certain part of the question and thus adapted to the requirements of this research, so some questions are omitted or modified to serve the goals and tasks of the research in this article. Survey questionnaires for members of directors of public companies and members of supervisory boards are identical in structure, with some questions slightly adapted to the group that is the subject of the survey, but in a way that the results for both groups of respondents can connect and compare answers. The questionnaire contains a total of 30 questions, of which the largest number of questions is closed type, i.e. with already offered answers within which the respondents have opted. The questions in the questionnaire are divided into general questions that aim to provide basic starting information about respondents to questions that explore the role and scope of work of supervisory boards. The research questions for this work are posed as follows.

RQ₁: What are the distinguishing characteristics of the members of the board of directors and supervisory boards in public enterprises in Bosnia and Herzegovina, and how do these characteristics influence corporate governance?

- RQ₂:** How do stakeholders perceive the impact of the board of directors and supervisory board members on the governance and success of public enterprises?
- RQ₃:** What are the prevalent practices of supervisory board operations in these enterprises, and how do these practices affect their governance and operational efficiency?
- RQ₄:** What are the key problem areas within the jurisdiction of the supervisory board, and how do they prioritise and address these issues?
- RQ₅:** How are the roles of supervisory boards assessed by internal and external stakeholders in terms of their contribution to strategic management and organisational success?
- RQ₆:** In the current economic and transitional context of Bosnia and Herzegovina, how relevant are the supervisory boards to the strategic and operational goals of public enterprises?
- RQ₇:** What are considered the top priorities for supervisory boards in these public enterprises, and how do these priorities align with the broader goals of corporate governance and enterprise success?

DATA COLLECTION

The required data were obtained after the respondent, in the function of a member of the supervisory board and the role of a member of the management board, independently completed the questionnaire in advance. This research procedure, through identical questions for both populations of respondents, formulated questions with the immediate aim of obtaining facts of scientific interest. The survey was conducted in the form of a questionnaire that was distributed to respondents by personal contact, e-mail or mail.

The survey questionnaire has been sent to the 85 public companies, which is about 84% of the total number of public utility companies (a total of 101), regardless of whether they have positive or negative financial statements which are published in publicly available database. Out of 85 surveyed public utility companies, 36 adequately answered the questionnaire, which represents a turnout of about 42% of the total number of registered public companies for research.

Within the surveyed companies analysed in this article, the responses of 36 board members and 108 supervisory board members were analysed. One of the problems of this research is the very poor transparency and availability of public information, status and financial information on the official websites of public utility companies, which has further hampered the research in question.

Significant assistance and contribution to the realisation of this project was given by the Association of Employers of Utility Services in the Federation of BiH, without which this research would practically not be possible. The surveyed public companies are owned by the municipalities of the Federation of Bosnia and Herzegovina and geographically spread throughout the Federation, without special emphasis on individual regions. Given that the Legislation and business practice of public utility companies of the Federation of Bosnia and Herzegovina applies a dual model of corporate governance, i.e. that the supervisory board and the management are two separate bodies of corporate governance, two identical questionnaires have been formulated, one for members of the management board and the other for members of the supervisory board.

RESULTS

CHARACTERISTICS OF THE BOARD OF DIRECTORS AND SUPERVISORY BOARD (RQ₁)

Table 1 shows the comparative characteristics of members of the administrative and supervisory boards of public and utility companies in the Federation of Bosnia and Herzegovina.

Table 1. Characteristics of the members of the board of directors and supervisory board.

Characteristic	Members of the board of directors (<i>n</i> = 108)	Members of the supervisory board (<i>n</i> = 36)	Chi-square (p-value)
Gender			
Male	89.8%	86.1%	0.375 (0.540)
Female	10.2%	13.9%	
Education			
Higher vocational education	0.0%	2.8%	0.819 (0.664)
University degree	74.1%	75.0%	
Master of Science	25.9%	22.2%	
Age			
30-40	4.6%	0.0%	4.721 (0.193)
40-50	17.6%	11.1%	
50-60	65.7%	63.9%	
60-65	12.0%	25.0%	
Term on the board			
The first term	33.3%	19.4%	14.969 (0.005)***
The second term	31.5%	13.9%	
The third term	19.4%	22.2%	
The fourth term	10.2%	25.0%	
The fifth term	5.6%	19.4%	
Positive financial results of the company			
Yes. in the last year	36.1%	36.1%	0.000 (1.000)
Yes. in the last three years	50.0%	50.0%	
No	13.9%	13.9%	

*statistically significant at 10%

**statistically significant at 5%

*** statistically significant at 1%

Table 1 provides a comparative analysis of the characteristics of members of the board of directors and members of the supervisory board in a company, using chi-square tests to determine if there are significant differences in their profiles based on gender, education, age, term on the board, and company performance.

Gender of respondents

The table shows a slight gender variation between the board of directors (89.8% male, 10.2% female) and the supervisory board (86.1% male, 13.9% female). However, the chi-square test indicates that these differences are not statistically significant (chi-square 0.375; p-value 0.540), suggesting a similar gender distribution across both boards.

The data note that the low representation of women on both the board of directors and the supervisory board reflects a broader trend in many corporations where gender disparity at higher levels of management and governance remains prevalent. In this specific instance, women constitute only 10.2% of the board of directors and slightly better at 13.9% on the supervisory board. This underrepresentation raises concerns about diversity and inclusion within the organisation's leadership structure.

The significance of gender diversity on boards has been extensively researched and discussed in corporate governance circles. Diverse boards are often associated with a range of positive outcomes, including better decision-making, increased corporate sustainability, richer innovation, and improved company reputation. The presence of women on boards brings

different perspectives and experiences, which can enhance board dynamics and lead to more balanced and comprehensive governance.

Moreover, various studies suggest that companies with gender-diverse boards tend to outperform those with less diversity in terms of sales, return on invested capital, and other financial metrics. The reasons for underrepresentation might include systemic barriers to women's advancement in the corporate ladder, such as gender biases in selection and promotion processes, lack of mentorship and sponsorship opportunities, and broader societal norms that influence gender roles.

Addressing this gap may involve proactive measures such as setting diversity targets, implementing mentoring programs aimed at preparing women for leadership roles, and ensuring transparent and equitable board selection processes. Additionally, fostering an inclusive corporate culture that actively supports the career advancement of women could help increase their representation in leadership roles over time.

Education

The education levels of the members of both the board of directors and the supervisory board highlight a strong preference for highly educated individuals in governance roles within the organisation. The majority of board members across both boards hold university degrees, with 74.1% of directors and 75% of supervisors having achieved this level of education. Additionally, a significant proportion of both boards—25.9% of directors and 22.2% of supervisors—have advanced their education to obtain a Master of Science degree. The chi-square test results suggest no significant differences in the educational background of the members of both boards (chi-square 0.819; p-value 0.664).

The presence of individuals with higher academic qualifications underlines the emphasis on advanced knowledge and specialised skills in managing and overseeing corporate affairs. This educational background is crucial for understanding complex business environments, making strategic decisions, and fulfilling the responsibilities required for effective governance. However, it is notable that there is a minimal representation of higher vocational education, particularly in the supervisory board, where only 2.8% of members possess such qualifications. This suggests a potential undervaluation of vocational training compared to traditional university education pathways in the recruitment and selection process for these high-level positions.

Age

The age distribution among the members of the board of directors and the supervisory board provides insights into the demographic composition and experience levels within the organisation's leadership. The chi-square result does not suggest statistical significance in age distribution (chi-square 4.721; p-value 0.193), although the younger age group of 30-40 is not represented in supervisory boards.

The bulk of both boards' members fall within the 50-60 age range, with 65.7% of directors and 63.9% of supervisors fitting into this category. This suggests that both boards are predominantly composed of individuals who likely possess a significant amount of professional experience and industry knowledge, which is crucial for effective governance and strategic decision-making.

The data also shows that the supervisory board has a notably higher representation of members in the 60-65 age group, at 25%, compared to 12% on the board of directors. This could indicate a tendency for the supervisory board to retain more senior members, possibly reflecting a preference for seasoned expertise in their oversight roles, which benefit from the long-term industry perspective and wisdom that comes with age.

On the other hand, the younger age bracket, particularly 30-40 years, is minimally represented, with only 4.6% of directors and no members of the supervisory board. This low representation of younger members could suggest potential areas for development in terms of succession planning and bringing in new perspectives or innovative approaches to board activities.

Term on the board

The term lengths on the board provide important insights into the tenure and turnover dynamics of the organisation's governance structures. According to the data, there are noticeable differences in the term lengths between the members of the board of directors and the supervisory board. The chi-square test shows that this difference is statistically significant for the second term (chi-square 14.969; p-value 0.005), highlighting a notable variance in term longevity between the two boards.

For the board of directors, a third (33.3%) are serving their first term, which is notably higher compared to 19.4% of the supervisory board members in their first term. This suggests a higher rate of new member induction on the board of directors, potentially indicating a strategy to infuse fresh perspectives or skills into the board's decision-making process. Conversely, the supervisory board shows a higher proportion of members in longer tenures, particularly those in their fourth (25%) and fifth (19.4%) terms, compared to the board of directors, where only 10.2% and 5.6%, respectively, are in these later terms. This pattern suggests greater continuity and possibly deeper institutional knowledge within the supervisory board, which may contribute to more stable and consistent oversight.

ATTITUDES TOWARDS THE IMPACT OF MEMBERS OF THE BOARD OF DIRECTORS AND SUPERVISORY BOARD (RQ₂)

Table 2 provides a useful insight into the views of the members of the supervisory and management boards on the impact of the supervisory board on the financial performance of public undertakings in the example of a post-transition country. First, we can note that many members of the supervisory board (63.9%) and the board of directors (52.8%) fall into the category of having a major impact on the financial result. This suggests that there is a tendency among members of both boards to perceive the supervisory board as an important factor influencing financial performance.

Table 2. Comparison of the views of supervisory and management board members on the impact of the supervisory board on the financial result.

The impact of the supervisory board on the financial result	Members of the board of directors (n=108)	Members of the supervisory board (n=36)	Chi-square (p-value)
Very strong	5 (4.6%)	2 (5.6%)	6.440 (0.265)
Strong	69 (63.9%)	19 (52.8%)	
Mediocre	18 (16.7%)	9 (25.0%)	
Weak	5 (4.6%)	2 (5.6%)	
Very weak	8 (7.4%)	4 (11.1%)	
Not able to assess	3 (2.8%)	0 (0.0%)	
Total	108 (100%)	36 (100%)	

PRACTICE OF THE SUPERVISORY BOARD OPERATIONS (RQ₃)

Table 3 presents an assessment of supervisory board operations as perceived by members of both the board of directors and the supervisory board. It covers various aspects of supervisory board functionality, ranging from the frequency of meetings to the expertise of its members and the reliability of business reports.

Firstly, the frequency of supervisory board meetings seems consistent across both groups, with the majority having more than four meetings annually, followed by about 28% having four meetings. There is uniform agreement (over 86%) among both groups that the legally defined powers of the Supervisory Board are appropriate, despite a small percentage from the board of directors feeling they are too limited.

Table 3. Assessment of the practice of supervisory board operations from the board of directors and supervisory board.

	Members of the board of directors (n=108)		Members of the supervisory board (n=36)		Chi-square	p-value
	Frequency	Percent	Frequency	Percent		
How often are supervisory board meetings held annually (on average)?						
3 meetings and less	9	8.3%	3	8.3%	0.000	1.000
4 meetings	30	27.8%	10	27.8%		
More than 4 meetings	69	63.9%	23	63.9%		
How do you assess the legally defined powers of the Supervisory Board?						
They are appropriate	93	86.1%	31	86.1%	1.666	0.434
Need to be expanded	4	3.7%	0.0	0.0%		
Do not affect the business	11	10.2%	5	13.9%		
How do you assess the expertise of your Supervisory Board members in reading interpretations and analysis of financial statements and other business analyses submitted by the Management Board?						
A minority of members are sufficiently professional	3	2.8%	3	8.3%	5.672	0.058*
Most of the members are professional enough	84	77.8%	21	58.3%		
All members are sufficiently professional	21	19.4%	12	33.3%		
Are members of the Management Board present at supervisory board meetings?						
Rarely	3	2.8%	3	8.3%	2.098	0.350
Mainly	12	11.1%	4	11.1%		
Always	93	86.1%	29	80.6%		
The work, operation and decision-making of the Supervisory Board is...						
Mostly depending on	9	8.3%	4	11.1%	20.591	0.000***
Mostly independent	52	48.1%	8	22.2%		
Completely independent	44	40.7%	15	41.7%		
It is not possible to estimate	3	2.8%	9	25.0%		
How often does the Supervisory Board assess the work of management board members?						
Per month	24	22.2%	8	22.2%	1.230	0.873
Quarterly	15	13.9%	5	13.9%		
Twice a year	57	52.8%	19	52.8%		
Once a year	9	8.3%	4	11.1%		
Unable to estimate	3	2.8%	0	0.00%		
Is there a formally established system for measuring the success of members of the Management Board?						
There is a	15	13.9%	7	19.4%	0.644	0.422
There is not	93	86.1%	29	80.6%		
How do you assess the reliability of business reports and analyses that the Management Board sends to the Supervisory Board for consideration?						
Satisfying	99	91.7%	36	100%	3.200	0.073*
Not possible to estimate	9	8.3%	0	0.0%		
Is it practice that there are days of strategic planning in the company?						
Yes	21	19.4%	15	41.7%	7.214	0.027**
No	63	58.3%	16	44.4%		
Do not know	24	22.2%	5	13.9%		
What period does the adopted strategic plan relate to?						
One year	18	16.7%	13	36.1%	17.943	0.000***

Three years	33	30.6%	13	36.1%		
Five years or longer	9	8.3%	7	19.4%		
A strategic document as a plan does not exist	48	44.4%	3	8.3%		

*statistically significant at 10%

**statistically significant at 5%

***statistically significant at 1%

Regarding the expertise of Supervisory Board members in understanding financial statements and business analyses, a significant proportion (about 78% from the board of directors and 58% from the supervisory board) believe that most members are professional enough. However, there is a notable perception among the supervisory board (33.3%) that all members are sufficiently professional compared to 19.4% from the board of directors.

The presence of management board members at supervisory board meetings is overwhelmingly frequent, with 86.1% from the board of directors and 80.6% from the supervisory board indicating they are always present. Interestingly, assessments of the Supervisory Board's independence in decision-making reveal significant perceptions of dependency, particularly from the supervisory board members.

Most assessments of management board members occur twice a year, aligning across both groups. However, there is a divergence in views on the reliability of business reports sent for consideration, with 100% of supervisory board members finding them satisfying compared to 91.7% from the board of directors.

Strategic planning days are more common among supervisory board members (41.7%) than among the board of directors (19.4%). When examining the period related to the adopted strategic plan, a substantial difference emerges, with 36.1% of supervisory board members focusing on one and three-year plans, compared to 16.7% and 30.6%, respectively, from the board of directors. This suggests a more short-term focus on strategic planning among supervisory board members compared to their counterparts.

THE IMPORTANCE OF PROBLEM AREAS WITHIN THE COMPETENCE OF THE SUPERVISORY BOARD IN THE WORK OF THE SUPERVISORY BOARD (RQ4)

Table 4 offers an insightful comparison of how members of the board of directors and supervisory board view various problem areas within an organisation, from strategic planning to internal controls and stakeholder relations. This assessment measures relevance on a scale from 1 (not relevant) to 5 (very relevant), revealing nuanced perceptions about different organisational concerns. Strategic enterprise planning is perceived similarly by both groups, with approximately 43% of both boards considering it mediocre and about 35% finding it relevant. A smaller portion, 22.2%, believes it is very relevant, indicating a consistent appreciation of strategic planning's importance across the board.

When it comes to the authorisation of proposed strategic decisions, the views are again closely aligned. Around 20% feel these are only relevant to a small extent, while 25-26% deem them mediocre. Notably, a greater proportion – around 32% from the board of directors and 31% from the supervisory board – consider these decisions very relevant, reflecting a significant recognition of the need for strategic decision-making oversight.

Assessment of the management's work reveals a stark contrast in the minimal perceived irrelevance, with 3.7% from the board of directors and none from the supervisory board finding it minimally relevant. The majority, over 56%, consider this assessment relevant, and about 30% rate it as very relevant, underscoring the critical view both groups hold regarding effective management oversight.

Regarding the internal controls, there is a shared viewpoint, with a third considering it mediocre and over half finding it relevant. This suggests a general agreement on the importance of internal controls, though not necessarily viewed as a critical issue, with only about 11% rating it as very relevant.

Lastly, maintaining and securing important relationships with stakeholders shows a consistent pattern. A little over 20% of both groups see it as minimally relevant, and around 42% find it

Table 4. Assessment of the problem areas by the board of directors and supervisory board (1-not relevant, 5-very relevant).

	Members of the board of directors (n=108)		Members of the supervisory board (n=36)		Chi-square	p-value
	Frequency	Percent	Frequency	Percent		
Strategic enterprise planning						
Mediocre	46	42.6%	15	41.7%	0.012	0.999
Relevant	38	35.2%	13	36.1%		
Very relevant	24	22.2%	8	22.2%		
Authorisation of proposed strategic decisions						
Relevant to a small extent	21	19.4%	8	22.2%	0.141	0.986
Mediocre	28	25.9%	9	25.0%		
Relevant	24	22.2%	8	22.2%		
Very relevant	35	32.4%	11	30.6%		
Assessment of the work of the management						
Relevant to a small extent	4	3.7%	0	0.0%	1.378	0.710
Mediocre	11	10.2%	4	11.1%		
Relevant	61	56.5%	21	58.3%		
Very relevant	32	29.6%	11	30.6%		
Conducting internal control						
Mediocre	37	34.3%	12	33.3%	0.011	0.994
Relevant	59	54.6%	20	55.6%		
Very relevant	12	11.1%	4	11.1%		
Maintaining relationships with stakeholders						
Relevant to a small extent	23	21.3%	8	22.2%	0.038	0.981
Mediocre	47	43.5%	15	41.7%		
Relevant	38	35.2%	13	36.1%		
Securing important relationships with stakeholders						
Relevant to a small extent	22	20.4%	8	22.2%	0.107	0.991
Mediocre	46	42.6%	15	41.7%		
Relevant	26	24.1%	8	22.2%		
Very relevant	14	13.0%	5	13.9%		

mediocre. The perception that maintaining these relationships is relevant or very relevant varies slightly, highlighting an overall recognition of the importance of stakeholder relationships, albeit not uniformly seen as a critical area.

ASSESSMENT OF THE ROLES OF THE SUPERVISORY BOARD (RQ₅)

Table 5 provides an in-depth analysis of the perceptions of the board of directors and the supervisory board members regarding the roles of the supervisory board.

The majority of supervisory board members (61.1%) and a somewhat smaller number from the board of directors (49.1%) consider the task of examining, verifying, and revising significant strategic choices provided by management to be of utmost importance. Nevertheless, there is a significant decrease in the number of those who consider it highly or just important, indicating a

general agreement on the crucial significance of this obligation, but with differing levels of emphasis.

Regarding the responsibility of engaging in strategy development and overseeing its execution, the answers are distributed more fairly. Approximately 20% of both boards see it as the utmost priority, while a significant proportion – more than 45% from the board of directors and 44.4% from the supervisory board – regard it as highly essential. There is a consensus on the significance of this job, but it is considered less crucial in comparison to directly supervising strategic choices.

Perceptions vary substantially when it comes to monitoring and managing the work and results of management. Although 61.1% of the board of directors consider this position to be of utmost importance, just 33.3% of the supervisory board shares the same viewpoint. The disparity in perception in this context may indicate a divergence in the importance placed on direct supervision between the two groups, maybe reflecting distinct experiences or expectations regarding the efficacy of the supervisory board.

When it comes to safeguarding owners against too-cautious managers, the positions are considered less crucial in comparison to other domains. A mere 17.6% of the board of directors and 19.4% of the supervisory board regard it as the utmost priority. At the same time, a significant number perceive it as somewhat essential or of lesser significance. This suggests a reduced emphasis on risk management as the main responsibility of the supervisory board.

Maintaining relationships with major stakeholders and powerful organisations is viewed as highly essential by around 21% of the board of directors and 22.2% of the supervisory board. However, a notable percentage of individuals believe it to be of lesser importance. This variation highlights a subtle perspective on the significance of stakeholder interactions, which may not be perceived as a primary supervisory responsibility by all board members.

Finally, the task of safeguarding the interests and rights of employees and the local community is seen as moderately significant overall, with roughly 9% considering it the most important and around 23% thinking it vital. This position appears to be considered essential but not as a primary function of the supervisory board in comparison to other duties.

Table 5. Assessment of the roles of the supervisory board by the board of directors and supervisory board; 1-not relevant, 5-very relevant (continued on p.472).

	Members of the board of directors (n=108)		Members of the supervisory board (n=36)		Chi- square	p-value
	Frequency	Percent	Frequency	Percent		
The supervisory board evaluates, confirms, and corrects the most important strategic decisions proposed by the management.						
Most important	53	49.1%	22	61.1%	5.858	0.210
Very important	13	12%	0	0.0%		
Important	2	1.9%	0	0.0%		
Moderately important	24	22.2%	9	25.0%		
Less important	16	14.8%	5	13.9%		
The supervisory board, along with the management, participate in the formulation of the strategy and monitor its implementation.						
Most important	22	20.4%	8	22.2%	1.185	0.880
Very important	16	14.8%	5	13.9%		
Important	18	16.7%	7	19.4%		
Moderately important	49	45.4%	16	44.4%		

Less important	3	2.9%	0	0.0%		
The supervisory board monitors and controls the work and results of the management's work						
Most important	66	61.1%	12	33.3%	9.956	0.041**
Very important	21	19.4%	13	36.1%		
Important	13	12%	7	19.4%		

**statistically significant at 5%

Table 5. Assessment of the roles of the supervisory board by the board of directors and supervisory board; 1-not relevant, 5-very relevant (continuation from p.471).

Moderately important	6	5.6%	4	11.1%		
Less important	2	1.9%	0	0.0%		
The supervisory board protects owners from overly risk-averse managers						
Most important	19	17.6%	7	19.4%	0.779	0.941
Very important	37	34.3%	12	33.3%		
Important	3	2.8%	2	5.6%		
Moderately important	11	10.2%	3	8.3%		
Less important	38	35.2%	12	33.3%		
The Supervisory Board maintains formal and informal relations with key stakeholders and influential groups.						
Most important	23	21.3%	8	22.2%	4.055	0.399
Very important	15	13.9%	3	8.3%		
Important	34	31.5%	13	36.1%		
Moderately important	4	3.7%	4	11.1%		
Less important	32	29.6%	8	22.2%		
The supervisory board takes care of the protection of interests and rights of employees and the local community						
Most important	10	9.3%	4	11.1%	0.947	0.917
Very important	21	19.4%	8	22.2%		
Important	25	23.1%	9	25.0%		
Moderately important	19	17.6%	7	19.4%		
Less important	10	9.3%	4	11.1%		

THE RELEVANCY OF THE SUPERVISORY BOARD (RQ₆)

Table 6 provides a detailed assessment of the relevancy of various supervisory board activities as rated by members of both the board of directors and the supervisory board. This table explores the perceived importance of tasks like setting strategic goals, selecting key performance indicators, and forming strategic plans, among others.

In setting strategic goals, both groups largely agree on their relevance, with over 50% from the board of directors and 47.2% from the supervisory board rating this as relevant. However, a smaller segment finds it very relevant, suggesting that while generally acknowledged as an

important function, it may not be considered crucial by all. The selection of key success indicators shows a majority leaning towards moderate relevance, with 53.7% of directors and 52.8% of supervisory members selecting this option. This points to a consensus that while key indicators are useful, they may not be seen as pivotal to the board's functions.

Formation of strategic plans is perceived as highly relevant, with a notable portion from both boards marking it as relevant and a significant 26.9% from the board of directors and 25% from the supervisory board rating it as very relevant. This indicates a strong acknowledgement of the supervisory board's role in shaping strategic direction. The change of key business policies is

Table 6. Assessment of the relevancy of the supervisory board by the board of directors and supervisory board (1 – not relevant, ..., 5 – very relevant).

	Members of the board of directors (n=108)		Members of the supervisory board (n=36)		Chi- square	p-value
	Frequency	Percent	Frequency	Percent		
Setting strategic goals						
Relevant to a small extent	24	22.2%	7	19.4%	0.719	0.868
Medium	21	19.4%	8	22.2%		
Relevant	55	50.9%	17	47.2%		
Very relevant	8	7.4%	4	11.1%		
Selection of key indicators success						
Relevant to a small extent	13	12.0%	4	11.1%	0.055	0.996
Medium	58	53.7%	19	52.8%		
Relevant	26	24.1%	9	25.0%		
Very relevant	11	10.2%	4	11.1%		
Formation of strategic plans						
Relevant to a small extent	12	11.1%	4	11.1%	0.049	0.997
Medium	35	32.4%	12	33.3%		
Relevant	32	29.6%	11	30.6%		
Very relevant	29	26.9%	9	25.0%		
Change of key business policies						
Medium	36	33.3%	13	36.1%	0.155	0.925
Relevant	64	59.3%	20	55.6%		
Very relevant	8	7.4%	3	8.3%		
Entering into a new strategic partnership						
Relevant to a small extent	8	7.4%	3	8.3%	3.761	0.288
Medium	16	14.8%	1	2.8%		
Relevant	52	48.1%	20	55.6%		
Very relevant	32	29.6%	12	33.3%		
Decision on a larger capital investment						
Relevant to a small extent	9	8.3%	2	5.6%	1.419	0.701
Medium	3	2.8%	0	0.0%		
Relevant	60	55.6%	22	61.1%		
Very relevant	36	33.3%	12	33.3%		
Change of the organisational structure						
Relevant to a small extent	14	13.0%	4	11.1%	0.299	0.960
Medium	18	16.7%	7	19.4%		
Relevant	49	45.4%	17	47.2%		
Very relevant	27	25.0%	8	22.2%		
Redundancy of more employees						
Not relevant	12	11.1%	4	11.1%	1.333	0.931
Relevant to a small extent	24	22.2%	8	22.2%		

Medium	3	2.8%	0	0.0%		
Relevant	6	5.6%	3	8.3%		
Very relevant	39	36.1%	13	36.1%		
Not able to assess	24	22.2%	8	22.2%		
Change managers at intermediate levels						
Not relevant	11	10.2%	3	8.3%	0.330	0.987
Relevant to a small extent	20	18.5%	7	19.4%		
Medium	46	42.6%	17	47.2%		
Relevant	9	8.3%	4	11.1%		
Very relevant	13	12.0%	5	13.9%		

mostly considered relevant by both groups, with around 59% from the board of directors and 55.6% from the supervisory board choosing this designation. This suggests that policy oversight is a recognised responsibility of the supervisory board, though not uniformly seen as critically important.

Entering new strategic partnerships is viewed differently. At the same time, a minority considers it of small relevance; a larger percentage, nearly 48.1% of the board of directors and 55.6% of the supervisory board find it relevant. This disparity might reflect different strategic priorities or experiences within the boards. Regarding decisions on larger capital investments, a substantial majority from both groups sees this as relevant or very relevant, underscoring the critical financial oversight role played by the supervisory board in major investment decisions.

When examining changes to the organisational structure, opinions are fairly evenly distributed across the relevance spectrum, with a significant number considering it relevant and very relevant. This reflects a general view that structural adjustments are within the purview of the supervisory board's responsibilities.

The issue of more employees being redundant is rated variably, with a notable 36.1% from both boards considering it very relevant. This might highlight the supervisory board's role in significant personnel decisions during restructuring or downsizing phases. For changes in managers at intermediate levels, the responses are spread out, with a sizeable proportion seeing it as moderately important. This suggests that while it has been recognised as part of the supervisory board's role, it is not deemed as critical as other functions.

THE PRIORITIES OF THE SUPERVISORY BOARD (RQ7)

In examining the prioritisation of different stakeholder interests by the board of directors and supervisory board, our analysis reveals nuanced perceptions regarding the importance of various groups within the organisation (Table 7). Firstly, the interests of the owner are predominantly regarded as critical, with a majority of both boards (45.4% of directors and 50% of supervisory members) classifying these interests as the most important. This underscores a strong alignment across both boards in prioritising the owner's objectives, though there remains a substantial fraction that deems these interests as moderately important.

In terms of worker interests, these are also highly valued, albeit slightly less so than owner interests, with 38.9% of the board of directors and 36.1% of the supervisory board viewing these as the most important. The relatively even distribution of responses across other importance levels suggests a balanced consideration of worker interests within the organisation's priorities.

The assessment of management interests presents a more varied picture. Notably, a significant portion of the board of directors (35.2%) perceives these interests as the least important, in stark contrast to just 8.3% among the supervisory board. Moreover, a higher proportion of supervisory board members (33.3%) see these interests as moderately important, compared to only 5.6% of

directors. This divergence highlights differing views on the significance of management's role and interests within the organisation.

The company's interests, viewed as a holistic system, receive overwhelming consensus as the most important, affirmed by more than 59% from both groups. This strong agreement indicates a shared priority for maintaining the systemic health and functionality of the company above specific group interests. Finally, the general interests of the wider community are regarded with varying levels of importance. A small percentage view these as the most important, while a more significant number find them very important. This distribution reflects a recognition of the organisation's broader social responsibilities, though these are not ranked as the highest priority.

Table 7. Assessment of the priorities of the supervisory board by the board of directors and supervisory board (1 – the least important, ..., 5 - the most important).

	Members of the board of directors (n=108)		Members of the supervisory board (n=36)		Chi-square	p-value
	Frequency	Percent	Frequency	Percent		
The interests of the owner						
The most important	49	45.4%	18	50.0%	2.255	0.689
Very important	6	5.6%	0	0.0%		
Important	20	18.5%	7	19.4%		
Moderately important	31	28.7%	10	27.8%		
The least important	2	1.9%	1	2.8%		
The interests of the workers						
The most important	42	38.9%	13	36.1%	1.405	0.843
Very important	18	16.7%	7	19.4%		
Important	9	8.3%	4	11.1%		
Moderately important	36	33.3%	12	33.3%		
The least important	3	2.8%	0	0.0%		
The interests of the management						
The most important	26	24.1%	8	22.2%	23.809	0.000***
Very important	29	26.9%	9	25.0%		
Important	9	8.3%	4	11.1%		
Moderately important	6	5.6%	12	33.3%		
The least important	38	35.2%	3	8.3%		
The interests of the company as a system						
The most important	64	59.3%	21	58.3%	0.259	0.992
Very important	11	10.2%	4	11.1%		
Important	9	8.3%	3	8.3%		
Moderately important	4	3.7%	1	2.8%		
The least important	20	18.6%	8	22.2%		

General interests of the wider community						
The most important	9	8.3%	4	11.1%	0.327	0.988
Very important	42	38.9%	14	38.9%		
Important	21	19.4%	7	19.4%		
Moderately important	24	22.2%	7	19.4%		
The least important	12	11.1%	4	11.1%		

***statistically significant at 1%

CONCLUSION

This study set out to explore the dynamic role of supervisory boards in the strategic management of public companies within Bosnia and Herzegovina's transitional economy, aiming to assess their impact on both strategic management and financial performance. Through a comprehensive analysis of the composition, roles, and effectiveness of supervisory boards, this article has made several significant contributions to the field of corporate governance in transitional economies.

The research objectives were clearly delineated: to understand the influence of supervisory boards on company management and operations, to evaluate their contribution to the strategic and financial outcomes of public enterprises, and to provide insights that could guide policy and practice in similar transitional contexts. The methodology employed, including a survey of directors and supervisory board members across a representative sample of public utility companies, allowed for a nuanced examination of these objectives.

The findings indicate that supervisory boards play a critical role in shaping the strategic directions of companies, largely perceived as influential in guiding both governance practices and financial performance. The survey results highlighted a consensus among board members on the significant impact of supervisory boards, with notable agreement on their roles in setting strategic goals, overseeing management, and ensuring compliance with governance standards. Moreover, the research identified key areas for improvement, particularly in enhancing the independence and professional development of supervisory board members to boost their effectiveness in oversight functions. The perceptions of board members regarding the adequacy of the powers granted to supervisory boards suggest a need for legislative and regulatory enhancements to strengthen their role in the governance framework.

In conclusion, the study successfully met its objectives by providing empirical evidence on the pivotal functions of supervisory boards in Bosnia and Herzegovina's public companies. It has laid a foundation for further research into how these boards can be optimised to foster better governance and financial stability, thereby contributing to the broader discourse on improving corporate governance structures in transitional economies. This work not only enriches our understanding of the subject but also offers practical recommendations for policymakers, company boards, and stakeholders aiming to refine governance mechanisms in similar contexts.

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CONSUMER ENGAGEMENT WITH SPORTS CLUBS ON SOCIAL MEDIA: IMPACT OF DEMOGRAPHIC FACTORS AND LOYALTY

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DOI: 10.7906/indecs.22.4.7
Preliminary report

Received: 4 June 2024.
Accepted: 17 August 2024.

ABSTRACT

This study investigates whether members of different socio-demographic groups differ significantly in their average results on conceptual variables related to following sports clubs on social networks. Socio-demographic variables such as age, education level, work status, and frequency of attending matches were recoded to compare groups. The findings revealed significant differences between male and female fans in terms of extrinsic motivation and attention. Female fans showed higher scores on extrinsic motivation dimensions, including Integration, Social interaction, Empowerment, and Reward, while male fans scored higher on the Attention dimension. Moreover, younger and older fans differed significantly on eight latent dimensions, including motivators, identification, engagement, and outcome. Younger fans were more motivated by Personal Identity, Rewards, and Information, while older fans were more motivated by Empowerment. Furthermore, individuals with different levels of education differed significantly in terms of the information dimension. Those with lower education levels followed sports clubs on social networks more for informational purposes, while those with higher education levels were less motivated by information. Lastly, employees and students showed significant differences in their average results on motivators, identification, engagement, and outcome. Students were more motivated by Personal Identity, Rewards, and Information, while employees were more satisfied with the social network of the sports club. These findings provide valuable insights into the differences among socio-demographic groups in their motivations, engagement, and outcomes related to following sports clubs on social networks. Understanding these differences can help sports clubs tailor their social media strategies to better engage with their target audience.

KEY WORDS

socio-demographic groups, sports clubs, social networks, motivation, engagement

CLASSIFICATION

JEL: D12, L83, M31, Z13, Z29

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INTRODUCTION

Social networks have revolutionized the way people connect and interact in the digital age. With the rise of platforms like Facebook, Twitter, Instagram, and others, individuals now could engage with a wide range of topics, including their favourite sports clubs. The integration of social networks into the realm of sports has provided fans with unprecedented access to their beloved teams, players, and fellow enthusiasts, creating new opportunities for fan engagement and interaction. Understanding the socio-demographic differences in following sports clubs on social networks is of paramount importance for sports clubs, marketers, and researchers alike. By examining the motivations and engagement levels of different demographic groups, stakeholders can develop tailored strategies to enhance fan experiences, optimize marketing efforts, and increase deeper connections between clubs and their supporters.

This literature review aims to provide a comprehensive overview of previous studies that have investigated the socio-demographic differences in following sports clubs on social networks. By examining the existing body of knowledge, we seek to identify key findings and trends that shed light on the varying behaviours, preferences, and motivations of different demographic groups in the realm of sports fandom. The review will explore several socio-demographic factors, including gender, age, education levels, employment status, and athletic background. Each of these factors has the potential to shape how individuals engage with sports clubs on social networks, influencing the types of content they consume, the level of interaction they seek, and the overall satisfaction they derive from their fan experiences. By synthesising the findings of previous studies, this literature review will provide valuable insights into the diverse ways in which different demographic groups connect with sports clubs on social networks. Moreover, it will highlight the importance of adopting a targeted approach in social media strategies to cater to the unique needs, preferences, and motivations of various fan segments.

Ultimately, the findings of this literature review will contribute to a deeper understanding of the socio-demographic dynamics that underpin sports fandom on social networks. This knowledge can inform the development of effective marketing strategies, the creation of engaging content, and the cultivation of meaningful fan experiences, ultimately strengthening the bond between sports clubs and their supporters in the digital era.

LITERATURE REVIEW

Sports fandom and engagement on social networks have become integral aspects of contemporary sports culture. As such, understanding the factors that contribute to disparities in fan behaviour among different demographic groups is crucial for sports clubs and organisations. This article aims to investigate the statistical significance of differences in average results on 20 conceptual variables across various socio-demographic groups.

IMPACT OF DEMOGRAPHIC FACTORS TO CONSUMER ENGAGEMENT WITH SPORTS CLUBS' SOCIAL MEDIA

Numerous studies have contributed to our understanding of gender disparities in sports fandom and social network engagement. Authors from [1] discovered that women are more inclined to follow sports clubs on social networks for extrinsic motives such as social integration and interaction. Conversely, men tend to display higher levels of engagement and attention towards the sports clubs they follow [2]. These findings underscore the importance of developing gender-specific strategies that cater to the distinct motivations and preferences of male and female fans. Authors from [2] examined biased evaluations of in-group and out-group spectator behaviour at sporting events, considering the influence of gender, team identification, and threats to social identity. Authors from study [3] explored the role of gender in perceptions of

physical contact in professional basketball, shedding light on gender stereotypes and their impact on the interpretation of physicality in sports. The consumption of sports and identification with sports-related activities have also been studied in relation to gender. Koch and Wann [4] delved into the relationship between gender, identity, and sports consumption, investigating how individuals' gender influences their identification with sports and their patterns of consuming sports-related products and media. Furthermore, research by Chang, Schull and Kihl [5] focused on the degree of identification that sports fans have with their teams, considering the influence of gender and its implications for fan behaviour and preferences. Researchers from the study [6] compared the sport consumption motives of female and male sports fans, exploring the differences in motivations for attending and watching sports events and their implications for fan behaviour. Lastly, Prakash and Majumdar [7] examined sports fans' motives for using Twitter as a social media platform, investigating potential gender differences in motivations and their impact on fan engagement and social network behaviour. Recent scientific articles have contributed valuable insights into gender differences in sports fandom, further enriching our understanding of this topic. Pegoraro [8] conducted a study focused on understanding the factors that contribute to the development of sports fandom among women. Their research delved into the influence of parental influence, role models, and socialisation agents, shedding light on the processes involved in the formation of sports fandom among women. Exploring the consumption and identification patterns of female sports fans, Dietz, Bean and Omais [9] conducted research that provides insights into the factors that contribute to female sports fans' engagement and identification with sports-related content. Their work helps to uncover the motivations and preferences of female sports fans in their interactions with sports media and athletes. Sveinson and Hoerber [10] conducted a study specifically focusing on sports fandom on Twitter, which showed a keen interest in gender differences. Their research examined how male and female sports fans engage with sports content on Twitter, highlighting the implications for their fan experiences in the context of social media.

Collectively, these studies provide valuable insights into the gender differences in sports fandom, including motivations, identification with teams, and social network behaviour. The findings highlight the necessity of developing tailored strategies to effectively engage male and female fans while considering their unique preferences and motivations.

Age is a fundamental factor influencing sports engagement and social network behaviour. It has been found that younger fans demonstrate higher levels of absorption in social network engagement, showing greater immersion and a stronger reluctance to disengage [11]. Additionally, they are motivated by personal identity, rewards, and information in following sports clubs on social networks [12]. In contrast, older individuals may display higher identification with the sports club's members and prioritise empowerment as a motivator [2]. It was found that the intensity of sports fandom decreases with age for most adults. The primary reasons for this decline are the need for more time, shifting priorities, and increased maturity, which reduces passion for sports. However, a minority of participants reported an increase in fandom, mainly due to stronger connections to teams and the social opportunities sports provide for spending time with family and friends [13]. Additionally, gender played a role, with most of those whose fandom decreased being male, while most of those whose fandom increased were female. More evidence is needed regarding the age demographics of live TV sports audiences and the decline of fandom with age. According to recent studies, these changes hinge on the intensity of fans' interest. Among avid fans, there appears to be a trend of increasing fandom with age, indicating that mediated sports remain a meaningful and prioritised aspect of their lives as they mature. In contrast, individuals with minimal interest in sports show a decline in fandom over time, potentially shifting their focus towards other activities perceived as more personally fulfilling as they age. These findings underscore the role of avidity levels in shaping the trajectory of sports fandom across different stages of life [14].

By incorporating the findings from these recent scientific articles, we gain valuable insights into age-related differences in sports fandom. These studies explore various aspects, including social media engagement, motivational factors, and generational influences. Understanding the preferences and behaviours of different age groups is essential for developing tailored social media strategies that effectively engage fans across the age spectrum.

IMPACT OF LOYALTY TO THE SPORT CLUB TO THE CONSUMER ENGAGEMENT WITH ESPORTS CLUBS' SOCIAL MEDIA

Social media has revolutionised the way sports clubs engage with their fans, offering a unique platform for interaction and content sharing. To understand the dynamics of consumer engagement on social media platforms, it is essential to examine the various dimensions that motivate fans, drive identification, increase engagement, and influence outcomes. Social media has brought about a transformative shift in the way sports clubs connect with their fanbase, offering an unparalleled platform for interaction and content sharing. To comprehend the intricacies of fan engagement on social media platforms, it is crucial to explore the diverse dimensions that drive fan motivation, increase identification, enhance engagement, and influence the resulting outcomes. In the era of digital transformation and engagement, the relationship between sports clubs and their fans has undergone a profound change. This shift has been facilitated by the widespread use of social media platforms, allowing for real-time and direct interactions [8]. Sports clubs have adopted a variety of strategies to engage their fans effectively. These strategies encompass content creation, live streaming, fan polls, and granting exclusive access to players, all designed to enhance the overall fan experience [15]. Moreover, the emotional connection between fans and their respective sports clubs plays a pivotal role in strengthening fan relationships. This emotional bond influences their level of engagement, willingness to attend matches, and propensity to purchase club merchandise [16, 17]. Social media platforms have revolutionised fan engagement by enabling two-way communication. This interactivity allows fans to interact with sports clubs directly, increasing a deeper sense of involvement and providing clubs with valuable feedback [18, 19]. Online fan communities, often initiated and nurtured by passionate supporters, have evolved into virtual hubs where like-minded individuals come together to share their love for the club. These online communities play a significant role in driving fan engagement [20-22]. The integration of gamification elements and fantasy sports into social media platforms has proven to be a highly effective approach for keeping fans engaged and emotionally invested in their favourite sports clubs [23]. Personalised content recommendations, tailored based on fan preferences and online behaviour, have emerged as a potent tool to boost engagement and maintain fan interest [24]. The involvement of influencers and brand ambassadors who align with the values and identity of the sports club has the potential to amplify engagement significantly. Such individuals can reach a broader audience and add authenticity to club-related content [25]. Fans tend to engage more with sports clubs that demonstrate social responsibility and actively support meaningful causes. This alignment of values increases a stronger emotional connection, further enhancing fan engagement [26]. Highly engaged fans are more likely to develop a deep sense of loyalty to their sports club. This heightened loyalty translates into increased attendance at matches, more merchandise purchases, and word-of-mouth promotion [27]. Engaged fans frequently evolve into passionate brand advocates, going beyond mere support to actively promote the club to their social circles, thus enhancing the overall reputation of the sports club [12]. Effective fan engagement strategies can lead to increased revenue through boosted ticket sales, enhanced merchandise demand, and more attractive sponsorship deals. Clubs that successfully engage fans are better positioned to attract sponsors and investors [28].

In conclusion, fan engagement with sports clubs in the digital age is a multifaceted and dynamic process. Leveraging digital platforms, increasing emotional connections, enabling interactive

strategies, and personalising content are all crucial in building a devoted and committed fan base. Engaged fans, in turn, become valuable advocates and revenue sources for sports clubs, underscoring the importance of understanding the intricacies of fan engagement in the modern era.

The theory of motivation stands as a contemporary approach to comprehending why consumers are driven to use social networks and media in a broader sense [29, 30]. Consumer motivation often arises from the perception that investing time and effort will lead to expected benefits [6]. When consumers view their engagement as a self-fulfilling objective, this reflects intrinsic value. Conversely, extrinsic motivation is characterised by the desire for additional incentives [31]. The values that consumers attain through their engagement can significantly impact various essential marketing outcomes. Notably, motivation theory has also been found to be applicable in research within the sports industry [32]. Therefore, this study delves into how socio-demographic variables influence consumer's intrinsic and extrinsic motivation.

Comprehending the identification process holds a significant role in shaping strategic decisions concerning the effective allocation of resources aimed at nurturing consumer identification with either the brand, the virtual community, or both. Through a comprehensive analysis of various facets of identification, it becomes feasible to motivate consumers better to share positive recommendations and engage in activities beneficial to companies and their products [22, 33]. Additionally, delineating and gauging the influence of the identification effect underscores the need to situate it within a conceptual framework. It's crucial to recognise that consumers tend to identify with more precisely defined objects of identification. Hence, when examining the socio-demographic variances among fans, it is imperative to encompass both facets of consumer identification. This entails scrutinising distinct consumer identification objectives within the virtual community of the sports club brand and appraising consumer identification with fellow consumers within the virtual social community associated with the sports club.

By incorporating the findings from these recent scientific articles, we gain updated insights into the relationship between athletic background and sports fandom. These studies delve into various aspects, including motivations, engagement, emotional connection, and loyalty among different athletic groups. Understanding the unique needs and preferences of individuals with varying athletic backgrounds is essential for sports clubs to tailor their strategies and effectively engage fans across different levels of athletic involvement.

By exploring the statistical significance of differences in average results on 20 conceptual variables across various socio-demographic groups, this study contributes to the understanding of how these factors influence sports fandom and social network engagement. The findings can assist sports clubs and organisations in developing tailored strategies to enhance fan experiences and strengthen their engagement with diverse demographic groups. Consumer engagement in this article is presented as a multidimensional concept that includes relevant cognitive (engagement), sensory component (affective engagement) and behavioural dimensions (behavioural engagement). The established multidimensionality of consumer engagement determines the necessary integration of seven sub-dimensions of consumer engagement: enthusiasm, enjoyment, attention, absorption, sharing, learning, and acceptance [34]. Consumer engagement is reflected through various forms of behaviour that consequently result in a stronger and stronger consumer relationship with the sports club, which goes beyond traditional consumer loyalty metrics, such as frequency of visits, shopping behaviour, and future consumer intentions [32].

RESEARCH METHODS

DATA COLLECTION

In the empirical phase of the study, a survey was conducted among consumers and fans of basketball, football, and handball sports clubs. These particular team sports were selected based

on their popularity, societal significance, and the size of their social media followings. The data collection took place from June to December 2019 and was executed through a written questionnaire and an online form distributed via <http://www.1ka.si>.

RESEARCH INSTRUMENT

Certain socio-demographic variables have been adjusted to determine if there are statistically significant differences in the average scores on the 20 conceptual variables among individuals from various socio-demographic groups. These 20 conceptual variables encompass (i) dimensions of consumer motivations for engaging with sports clubs' social media, such as Entertainment, Personal Identity, Reward, Empowerment, Information, Integration and Social Interaction, and Brand Affection [32], (ii) two dimensions of consumer identification – Identification with club members [35] and Brand identification [36], (iii) six dimensions of consumer engagement on sports clubs' social media, such as Enthusiasm, Enjoyment, Attention, Absorption, Sharing, Approval [34], and (iv) three dimensions of engagement outcomes, such as Trust [37], Satisfaction [38] and Brand Loyalty [39].

The following research instrument was used, as shown in Figure 1, based on the study of the relevant literature.

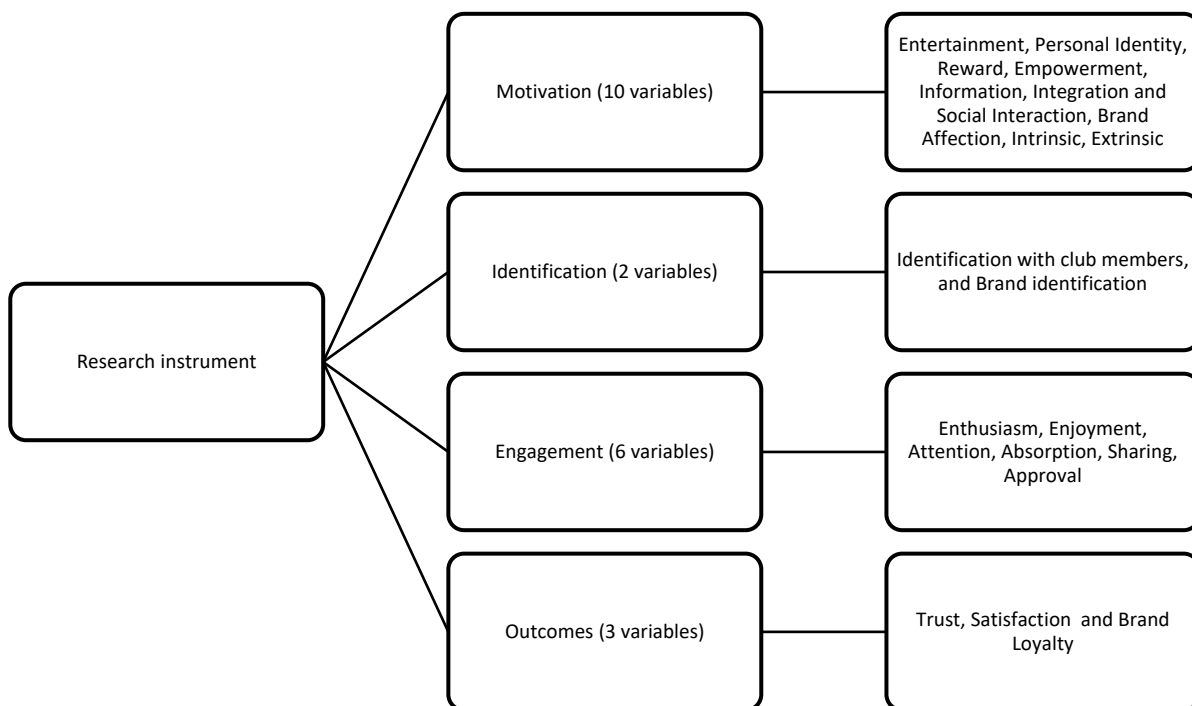


Figure 1. Research instrument.

The questionnaire included 14 questions designed to assess socio-demographic variables. It included closed-ended, dichotomous, multiple-choice, and Likert-type questions on a seven-point scale (ranging from “1 – strongly disagree” to “7 – strongly agree”).

STATISTICAL ANALYSIS

Statistical analysis was performed using IBM SPSS version 20 and the R statistical program.

With regard to age, the respondents were divided into two groups: younger consumers and fans of sports clubs who follow sports clubs on social networks (up to 34 years of age) and older

consumers and fans of sports clubs who follow sports clubs on social networks (35 and older years of age).

Considering the highest completed level of education, the respondents were classified into two categories: the lower level of education category, which includes respondents who have an elementary or high school level of education, and the higher level of education category, which includes respondents who have higher levels of education (undergraduate, graduate, postgraduate degree).

Considering work status, only employees and students were taken into account in the upcoming analyses because the number of members of the other groups was insufficient.

Considering the frequency of going to the matches of the sports club they follow on social networks, the respondents were classified into three groups: those who never go to the matches of the sports club they follow on social networks, those who do it once a year or less often, and those who go to the matches of the sports club they follow on social networks. They go to the club they follow on social media several times a year or a month.

Below, depending on the number of categories of socio-demographic variables, the statistical significance of the differences in the average results of members of different socio-demographic groups on 20 conceptual variables was tested using the t-test for two independent samples or analysis of variance for more than two independent samples.

RESULTS

DEMOGRAPHIC FACTORS

Gender

Male and female fans differ statistically significantly on the dimension of Motivation and on the dimension of Attention, as one of the dimensions of the structure of consumer engagement on social networks of sports clubs, Table 1. Women are more likely to follow the social networks of sports clubs motivated by extrinsic motives; while they are in the Attention dimension, a higher average score was achieved by male persons for Attention. In other words, male fans, to a greater extent than female fans, spend a lot of time thinking about the sports club they follow on social networks and always find time to think about the sports club.

Table 1. The result of testing the statistical significance of the difference in average scores on the Attention dimension between male and female fans who follow sports clubs on social networks.

Dimension	Levene's test	T-test	Variable	Variable categories	
Gender				Male (<i>n</i> = 166)	Female (<i>n</i> = 156)
Motivation – Extrinsic	F = 0.037	$t_{(304)} = -2.177^*$	M ± SD	-0.061 ± 0.515	0.066 ± 0.500
Engagement – Attention	F = 0.009	$t_{(307)} = 2.037^*$	M ± SD	0.106 ± 0.945	-0.110 ± 0.916

*statistically significant difference with a risk level of 5%

Age

Considering the motivators for following sports clubs' social networks, younger people (up to 34 years of age) are motivated to follow social networks to a greater extent by the indicators of Personal Identity, Rewards and Information dimensions and to a lesser extent by the indicators of the Empowerment dimension, while older people age group (35 and older) follow social networks to a greater extent for the indicators of the Empowerment dimension, and to a lesser extent for the indicators of the Personal Identity, Rewards and Information dimensions, Table 2.

Considering the dimensions of identification, members of the sports club’s social network are identified to a greater extent by older persons (35 and over) and, to a lesser extent, by younger persons. In comparison, younger persons are identified to a greater extent by the sports club’s social network brand, age (up to 34 years of age) and to a lesser extent by elderly people.

Considering the structure of engagement on social networks of sports clubs, members of different age groups differ statistically significantly in the absorption dimension, which is one of the cognitive components of consumer engagement on social networks of sports clubs. At the same time, younger people agree to a greater extent with the indicators of the Absorption dimension. In other words, when engaging in the social networks of sports clubs, people of a younger age get carried away to a greater extent and forget about everything around them. Time flies for them when they are interacting with sports club social networks, and to a greater extent, they are reluctant to stop interacting with a sports club on social networks.

Considering the results of consumer engagement on the social networks of sports clubs, younger and older people differ statistically significantly in the dimension of trust. Younger respondents express a higher level of trust towards the brand of the sports club’s social network, while older respondents express a lower level of trust towards the brand of the sports club’s social network.

Table 2. The result of the t-tests between younger and older fans who follow sports clubs on social networks.

Dimension	Levene’s test	T-test	Variable	Variable categories	
				Up to 34 years old (n=200)	35 and older (n=120)
Age					
Motivation – Personal identity	F = 2.157	$t_{(302)} = 3.761^{**}$	M ± SD	0.150 ± 0.923	-0.251 ± 0.863
Motivation – Reward	F = 1.646	$t_{(302)} = 3.335^{**}$	M ± SD	0.134 ± 0.885	-0.223 ± 0.936
Motivation – Empowerment	F = 6.512*	$t_{(221)} = -3.037^{**}$	M ± SD	-0.123 ± 0.878	0.216 ± 0.980
Motivation – Information	F = 8.458**	$t_{(185)} = 2.397^*$	M ± SD	0.096 ± 0.725	-0.163 ± 1.011
Identification – with members	F = 0.240	$t_{(315)} = -2.007^*$	M ± SD	-0.088 ± 0.924	0.129 ± 0.953
Identification – with brand	F = 7.273**	$t_{(288)} = 2.277^*$	M ± SD	0.082 ± 0.984	-0.150 ± 0.811
Engagement – Absorption	F = 12.036**	$t_{(285)} = 4.265^{**}$	M ± SD	0.175 ± 1.013	-0.276 ± 0.823
Outcome – Trust	F = 2.362	$t_{(312)} = 2.072^*$	M ± SD	0.080 ± 0.905	-0.149 ± 1.023

*statistically significant difference with a risk level of 5%

**statistically significant difference with a risk level of 1%

Education

By testing whether members of different educational groups differ statistically significantly in the average results on 20 conceptual variables, it was determined that people of different levels of education differ statistically significantly on the Information dimension as one of the motivators for consumers to follow social networks of sports clubs. In contrast, people with lower levels of higher education follow the social networks of sports clubs to a greater extent because of the information dimension indicator. In comparison, people with higher levels of education follow the social networks of sports clubs to a lesser extent because of the information dimension indicator. The result of testing the statistical significance of the difference in average scores on the Information dimension between people of different levels of education is shown in Table 3.

Table 3. The result of testing the statistical significance of the difference in average scores on the *Information dimension* between people with different levels of education who follow sports clubs on social networks.

Dimension	Levene's test	T-test	Variable	Variable categories	
Education				NSS/SSS	VŠS/VSC
				(n = 164)	(n = 157)
Motivation – Information	F = 13.687**	$t_{(269)} = 2.022^*$	M ± SD	0.095 ± 0.697	-0.102 ± 0.978

*statistically significant difference with a risk level of 5%

Employment

Considering the motivators for following social networks of sports clubs and the identification of consumers with the members of the social network of the sports club, in accordance with the previously detected differences between younger and older people, students are motivated to follow social networks to a greater extent by the indicators of the dimensions Personal identity, Awards and Information, and to a lesser extent indicators of the Empowerment dimension.

Considering the structure of engagement on the social networks of sports clubs, students and employees differ statistically significantly in the average scores on the Sharing and Absorption dimensions. Students achieved a lower average score on the Sharing dimension, while on the Absorption dimension, they achieved a higher average score.

Considering the results of consumer engagement on the social networks of sports clubs, a statistically significant difference between the average results of students and employees was determined on the Satisfaction dimension, where students are less satisfied with the social network of the sports club. In contrast, employees are more satisfied with the social network of the sports club. The result of testing the statistical significance of the differences between employed persons and students, along with the presentation of the average values of the analysed groups on the conceptual variables on which a statistically significant difference was determined, is shown in Table 4.

Table 4. The result of testing the statistical significance of the differences between employed persons and students who follow sports clubs on social networks.

Dimension	Levene's test	T-test	Variable	Variable categories	
Working status				employees (n = 200)	Students (n = 120)
Motivation – Personal identity	F = 0.465	$t_{(287)} = -2.867^{**}$	M ± SD	-0.148 ± 0.905	0.157 ± 0.903
Motivation – Reward	F = 2.436	$t_{(287)} = -2.263^*$	M ± SD	-0.095 ± 0.938	0.147 ± 0.880
Motivation – Empowerment	F = 3.436	$t_{(287)} = 2.110^*$	M ± SD	0.105 ± 0.953	-0.124 ± 0.885
Motivation – Information	F = 12.856**	$t_{(252)} = -3.053^*$	M ± SD	-0.140 ± 0.965	0.158 ± 0.667
Identification – with members	F = 0.425	$t_{(298)} = 2.422^*$	M ± SD	0.141 ± 0.953	-0.120 ± 0.916
Engagement – Sharing	F = 3.663	$t_{(289)} = 2.174^*$	M ± SD	0.117 ± 0.984	-0.124 ± 0.909
Engagement – Absorption	F = 7.040**	$t_{(283)} = -4.368^{**}$	M ± SD	-0.238 ± 0.847	0.236 ± 1.000
Outcome – Satisfaction	F = 10.873**	$t_{(284)} = 2.122^*$	M ± SD	0.121 ± 0.841	-0.114 ± 1.064

*statistically significant difference with a risk level of 5%

**statistically significant difference with a risk level of 1%

LOYALTY TO THE SPORTS CLUB

Sports engagement

By testing whether recreational athletes, professional athletes, amateur athletes and those inactive in sports differ statistically significantly in the average results on 20 conceptual variables, it was determined that the members of the mentioned groups differ statistically significantly in the average results on six conceptual variables, namely on the dimension of intrinsic motivations for following social networks of sports clubs, two dimensions of (intrinsic) consumer motivators for following social networks of sports clubs, one dimension of consumer engagement on social networks of sports clubs, and two dimensions of the outcome of consumer engagement on social networks of sports clubs.

Considering the results of consumer engagement on the social networks of sports clubs, the mentioned groups differ statistically significantly in the average results on the dimensions of Satisfaction and Trust, with professional athletes statistically significantly different from recreational athletes and those inactive in sports on both dimensions, with recreational athletes and those inactive in sports are less satisfied with the social network of the sports club and show less trust in the social network of the sports club. In contrast, professional athletes are more satisfied with the social network of the sports club and show a higher level of trust in the social network of the sports club. The result of testing the statistical significance of the differences between recreational athletes, professional athletes, amateur athletes, and those inactive in sports, along with the presentation of the average values of the analysed groups on the conceptual variables on which a statistically significant difference was determined, is shown in Table 5.

Table 5. The result of testing the statistical significance of differences in conceptual variables between recreational athletes, professional athletes, amateur athletes and those inactive in sports who follow sports clubs on social networks.

Dimension	Levene's test	Anova		Recreational (n = 159)	Professionals (n = 30)	Amateurs (n = 56)	Inactive (n = 75)
Intrinsic motivation	F _(3,300) = 0.670	F _(3,300) = 4.276**	M	0.043	0.246	0.016	-0.203
			SD	0.644	0.651	0.569	0.580
			Difference	M ₄ < M ₂			
Motivation – Information	F _(3,300) = 2.571	F _(3,300) = 4.166**	M	-0.037	0.420	0.126	-0.195
			SD	0.876	0.667	0.687	0.929
			Difference	M ₄ < M ₂			
Motivation – Brand affection	F _(3,300) = 0.500	F _(3,300) = 2.810*	M	0.025	0.367	-0.005	-0.203
			SD	0.920	0.827	0.964	0.832
			Difference	M ₄ < M ₂			
Engagement – Enthusiasm	F _(3,303) = 0.981	F _(3,303) = 2.865*	M	-0.066	0.401	0.130	-0.119
			SD	0.982	0.891	0.926	0.818
			Difference	M ₄ < M ₂			
Outcome – Satisfaction	F _(3,310) = 4.206**	F _(3,310) = 5.121**	M	-0.055	0.468	0.225	-0.248
			SD	0.999	0.489	0.862	1,073
			Difference	M ₁ , M ₄ < M ₂			
Outcome – Trust	F _(3,310) = 1.223	F _(3,310) = 4.346**	M	-0.085	0.564	0.073	-0.113
			SD	0.956	0.804	0.910	0.987
			Difference	M ₁ , M ₄ < M ₂			

*statistically significant difference with a risk level of 5%

**statistically significant difference with a risk level of 1%

Membership in the fan group of the sports club

By testing whether fans who are also members of the fan group of the sports club they follow on social networks differ statistically significantly in the average results on 20 conceptual variables from those fans who are not, it was determined that the members of the groups above differ statistically significantly in the average results on 18 latent variables, Table 6.

Table 6. The result of testing the statistical significance of the differences between fans who are also members of the fan group of the sports club they follow on social networks and those who are not.

Dimension	Levene's test	T-test	Variable	Variable categories	
				That (n = 73)	Not (n = 247)
Fan group membership					
Intrinsic motivation	F = 0.091	t ₍₃₀₂₎ = 3.882**	M ± SD	0.256 ± 0.592	-0.072 ± 0.620
Extrinsic motivation	F = 0.470	t ₍₃₀₂₎ = -2.181*	M ± SD	-0.121 ± 0.560	0.032 ± 0.491
Motivation – Entertainment	F = 0.001	t ₍₃₀₂₎ = 3.902**	M ± SD	0.363 ± 0.868	-0.101 ± 0.865
Motivation – Reward	F = 0.444	t ₍₃₀₂₎ = 2.196*	M ± SD	0.217 ± 0.953	-0.061 ± 0.908
Motivation – Empowerment	F = 0.009	t ₍₃₀₂₎ = -2.697**	M ± SD	-0.268 ± 0.926	0.074 ± 0.920
Motivation – Integration and social interaction	F = 0.734	t ₍₃₀₂₎ = -3.180**	M ± SD	-0.310 ± 0.856	0.082 ± 0.907
Motivation – Brand affection	F = 6.370*	t ₍₁₃₄₎ = 5.265**	M ± SD	0.438 ± 0.732	-0.125 ± 0.917
Identification – with members	F = 0.007	t ₍₃₁₅₎ = 6.855**	M ± SD	0.624 ± 0.879	-0.182 ± 0.877
Identification – with brand	F = 7.890**	t ₍₁₀₁₎ = 4.924**	M ± SD	0.501 ± 1.021	-0.148 ± 0.846
Engagement – Enjoyment	F = 1.493	t ₍₃₀₅₎ = 3.817**	M ± SD	0.359 ± 0.855	-0.102 ± 0.896
Engagement – Enthusiasm	F = 2.030	t ₍₃₀₅₎ = 2.862**	M ± SD	0.280 ± 0.851	-0.080 ± 0.947
Engagement – Sharing	F = 2.150	t ₍₃₀₅₎ = 6.064**	M ± SD	0.578 ± 0.986	-0.170 ± 0.882
Engagement – Attention	F = 6.949**	t ₍₁₀₁₎ = 4.633**	M ± SD	0.477 ± 1.009	-0.140 ± 0.866
Engagement – Approval	F = 17.203**	t ₍₁₃₀₎ = -8.494**	M ± SD	-0.696 ± 0.750	0.207 ± 0.881
Engagement – Absorption	F = 7.454**	t ₍₉₈₎ = 4.659**	M ± SD	0.505 ± 1.069	-0.148 ± 0.884
Outcome – Satisfaction	F = 8.274**	t ₍₁₅₃₎ = 3.980**	M ± SD	0.337 ± 0.763	-0.105 ± 1.014
Outcome – Trust	F = 4.343*	t ₍₁₃₁₎ = 3.822**	M ± SD	0.343 ± 0.848	-0.107 ± 0.966
Outcome – Loyalty	F = 1.553	t ₍₃₁₂₎ = 5.908**	M ± SD	0.530 ± 0.812	-0.157 ± 0.880

*statistically significant difference with a risk level of 5%

**statistically significant difference with a risk level of 1%

Attendance of matches of the sports club

By testing whether fans who differ from each other in the frequency of going to the matches of the sports club they follow on social networks differ statistically significantly in the average results on 20 conceptual variables, it was determined that the members of three different groups differ statistically significantly in the average results on 16 latent dimensions, Table 7.

Table 7. The result of testing the statistical significance of the differences between fans who differ from each other in the frequency of going to the matches of the sports club they follow on social networks.

Dimension	Levene's test	Anova		Never (n=74)	Once a year or less often (n=56)	Several times a year/month (n=190)
Intrinsic motivation	$F_{(2,301)} = 1.328$	$F_{(2,301)} = 6.715^{**}$	M	-0.154	-0.158	0.109
			SD	0.673	0.622	0.591
			Difference	$M_1, M_2 < M_3$		
Extrinsic motivation	$F_{(2,301)} = 0.188$	$F_{(2,301)} = 5.596^{**}$	M	0.118	0.109	-0.082
			SD	0.489	0.496	0.510
			Difference	$M_3 < M_1, M_2$		
Motivation - Entertainment	$F_{(2,301)} = 1.934$	$F_{(2,301)} = 8.372^{**}$	M	-0.291	-0.168	0.167
			SD	0.946	0.766	0.858
			Difference	$M_1, M_2 < M_3$		
Motivation - Integration and social interaction	$F_{(2,301)} = 0.354$	$F_{(2,301)} = 4.652^{**}$	M	0.149	0.228	-0.134
			SD	0.902	0.945	0.883
			Difference	$M_3 < M_2$		
Motivation – Brand affection	$F_{(2,301)} = 5.214^{**}$	$F_{(2,301)} = 24.351^{**}$	M	-0.430	-0.382	0.280
			SD	0.907	1,038	0.755
			Difference	$M_1, M_2 < M_3$		
Identification - with members	$F_{(2,314)} = 1.602$	$F_{(2,314)} = 23.724^{**}$	M	-0.478	-0.309	0.277
			SD	0.810	0.831	0.916
			Difference	$M_1, M_2 < M_3$		
Identification - with brand	$F_{(2,314)} = 6.504^{**}$	$F_{(2,314)} = 6.381^{**}$	M	-0.293	-0.097	0.141
			SD	0.816	0.764	0.984
			Difference	$M_1 < M_3$		
Engagement - Enjoyment	$F_{(2,304)} = 0.937$	$F_{(2,304)} = 4.076^*$	M	-0.264	0.041	0.094
			SD	0.829	0.850	0.934
			Difference	$M_1 < M_3$		
Engagement - Enthusiasm	$F_{(2,304)} = 7.912^{**}$	$F_{(2,304)} = 9.171^{**}$	M	-0.223	-0.333	0.181
			SD	0.926	1,213	0.804
			Difference	$M_1, M_2 < M_3$		
Engagement - Sharing	$F_{(2,304)} = 5.917^{**}$	$F_{(2,304)} = 14.242^{**}$	M	-0.456	-0.143	0.214
			SD	0.795	0.940	0.956
			Difference	$M_1 < M_3$		
Engagement - Attention	$F_{(2,304)} = 2.077$	$F_{(2,304)} = 4.905^{**}$	M	-0.271	-0.076	0.125
			SD	0.847	0.925	0.950
			Difference	$M_1 < M_3$		
Engagement - Approval	$F_{(2,304)} = 1.516$	$F_{(2,304)} = 26.805^{**}$	M	0.526	0.318	-0.287
			SD	0.837	0.942	0.849
			Difference	$M_1, M_2 < M_3$		
Engagement - Absorption	$F_{(2,304)} = 3.825^*$	$F_{(2,304)} = 3.046^*$	M	-0.227	-0.048	0.101
			SD	0.849	0.970	0.997
			Difference	$M_1 < M_3$		
Outcome - Satisfaction	$F_{(2,311)} = 26.898^{**}$	$F_{(2,311)} = 27.693^{**}$	M	-0.510	-0.398	0.308
			SD	1,102	1,226	0.686
			Difference	$M1, M2 < M3$		
Outcome - Trust	$F_{(2,311)} = 1.520$	$F_{(2,311)} = 7.228^{**}$	M	-0.250	-0.247	0.162
			SD	0.978	1,047	0.891
			Difference	$M1, M2 < M3$		
Outcome - Loyalty	$F_{(2,311)} = 3.199^*$	$F_{(2,311)} = 34.261^{**}$	M	-0.596	-0.250	0.306
			SD	0.778	0.981	0.797
			Difference	$M_1 < M_3$		

*statistically significant difference with a risk level of 5%

**statistically significant difference with a risk level of 1%

Considering the structure of engagement on social networks of sports clubs, those fans who most often go to the matches of the sports club they follow on social networks agree to a greater extent with the indicators of the dimensions of Enjoyment, Enthusiasm, Sharing, Attention and Absorption. In comparison, they agree to a lesser extent with the indicators of the Approval dimension; while considering the outcomes of consumer engagement on the social networks of sports clubs, they show higher levels of Satisfaction, Trust and Loyalty towards the brand of the social network of the sports club.

DISCUSSION

The findings of this study shed light on the differences among various socio-demographic groups in terms of their motivations, engagement, and outcomes in following sports clubs on social networks. These distinctions hold significant implications for sports clubs looking to optimise their social media strategies and better connect with their diverse fan base.

DEMOGRAPHIC FACTORS

Table 8 summarises the differences in consumer engagement with sports clubs on social media based on various demographic factors, including gender, age, education, and employment status, categorised into motivation, identification, engagement, and outcomes.

Table 8. Summary of differences between consumer engagement with sports clubs on social media according to demographic factors.

	Gender	Age	Education	Employment
Motivation				
Entertainment	∅	∅	∅	∅
Personal Identity	∅	✓ (1%)	∅	✓ (1%)
Reward	∅	✓ (1%)	∅	✓ (5%)
Empowerment	∅	✓ (1%)	∅	✓ (5%)
Information	∅	✓ (5%)	✓ (5%)	✓ (5%)
Integration and Social Interaction	∅	∅	∅	∅
Brand Affection	∅	∅	∅	∅
Intrinsic	∅	∅	∅	∅
Extrinsic	✓ (5%)	∅	∅	∅
Identification				
Identification with club members	∅	✓ (5%)	∅	∅
Brand identification	∅	✓ (5%)	∅	∅
Engagement				
Enthusiasm	∅	∅	∅	∅
Enjoyment	∅	∅	∅	∅
Attention	✓ (5%)	∅	∅	∅
Absorption	∅	✓ (1%)	∅	✓ (1%)
Sharing	∅	∅	∅	✓ (5%)
Approval	∅	∅	∅	∅
Outcomes				
Trust	∅	✓ (5%)	∅	∅
Satisfaction	∅	∅	∅	✓ (5%)
Brand Loyalty	∅	∅	∅	∅

First and foremost, gender-based disparities were observed, indicating that male and female fans exhibit distinct patterns in their motivations and attention on social media. Female fans demonstrated higher scores in extrinsic motivation dimensions, such as Integration, Social Interaction, Empowerment, and Reward. On the other hand, male fans scored notably higher on the Attention dimension. These findings suggest that female fans may engage with sports clubs on social media for social and empowerment reasons, whereas male fans may gravitate towards content that captures their attention. Sports clubs should consider tailoring their content to resonate with the specific motivational factors of each gender.

Age-based differences were also prominent, with younger and older fans showing significant variations in eight latent dimensions. Younger fans displayed greater motivation in Personal Identity, Rewards, and Information, whereas older fans leaned more towards Empowerment. In terms of engagement, younger fans exhibited a higher level of Absorption, indicating a deeper immersion in the content and a greater amount of time spent on social networks. Furthermore, younger fans expressed higher trust levels in the brand of the social network compared to their older counterparts. These insights highlight the need for sports clubs to adopt a more age-specific approach in their social media strategies, recognising the varying motivations and preferences of different age groups.

Education levels also play a role in fans' motivations, particularly in the information dimension. Fans with lower levels of education were more inclined to follow sports clubs on social networks for informational purposes. In comparison, the need for information drove those with higher education levels less. Sports clubs should consider the educational backgrounds of their fans when crafting content and tailor it accordingly.

Finally, fans' employment status also influenced their motivations, identification, engagement, and outcomes. Students exhibited a higher motivation in Personal Identity, Rewards, and Information, while employees expressed greater satisfaction with the sports club's social network. This suggests that students are more driven by personal identity and information-seeking. At the same time, employees may have different expectations or needs related to their engagement with the sports club on social media.

LOYALTY FACTORS

Table 9 summarises the differences in consumer engagement with sports clubs on social media based on loyalty factors, specifically sports engagement, membership in a fan club, and attendance at matches.

In the motivation category, significant differences were observed in the entertainment dimension for fan club membership and match attendance (both at the 1% level). In contrast, the information dimension showed significance only for sports engagement (1%). Personal identity did not show significant differences across any loyalty factors. The reward and empowerment dimensions were significant for fan club membership at the 5% and 1% levels, respectively, but not for the other loyalty factors. Integration and social interaction were significantly different for both fan club membership and match attendance (1%). Brand affection and intrinsic motivation showed significance across all three loyalty factors, with intrinsic motivation being significant at the 1% level for each. Extrinsic motivation was significant for fan club membership and match attendance but not for sports engagement.

In terms of identification, both identification with club members and brand identification showed significant differences for fan club membership and match attendance, with significance at the 1% level. For engagement, enthusiasm was significant across all three loyalty factors, with significance at the 5% level for sports engagement and 1% for the other two factors. Enjoyment,

Table 9. Summary of differences between consumer engagement with sports clubs on social media according to loyalty to the club factors.

	Sports engagement	Membership of the fan club	Attendance of the matches
Motivation			
Entertainment	∅	✓ (1%)	✓ (1%)
Personal Identity	∅	∅	∅
Reward	∅	✓ (5%)	∅
Empowerment	∅	✓ (1%)	∅
Information	✓ (1%)	∅	∅
Integration and Social Interaction	∅	✓ (1%)	✓ (1%)
Brand Affection	✓ (5%)	✓ (5%)	✓ (1%)
Intrinsic	✓ (1%)	✓ (1%)	✓ (1%)
Extrinsic	∅	✓ (5%)	✓ (1%)
Identification			
Identification with club members	∅	✓ (1%)	✓ (1%)
Brand identification	∅	✓ (1%)	✓ (1%)
Engagement			
Enthusiasm	✓ (5%)	✓ (1%)	✓ (1%)
Enjoyment	∅	✓ (1%)	✓ (1%)
Attention	∅	✓ (1%)	✓ (1%)
Absorption	∅	✓ (1%)	✓ (1%)
Sharing	∅	✓ (1%)	✓ (1%)
Approval	∅	✓ (1%)	✓ (1%)
Outcomes			
Trust	✓ (1%)	✓ (1%)	✓ (1%)
Satisfaction	✓ (1%)	✓ (1%)	✓ (1%)
Brand Loyalty	∅	✓ (1%)	✓ (1%)

attention, absorption, sharing, and approval were all significant for fan club membership and match attendance, with each at the 1% level. Lastly, in the outcomes category, trust and satisfaction were significant across all three loyalty factors at the 1% level. In contrast, brand loyalty was significant only for fan club membership and match attendance at the 1% level.

COMPARISON OF DEMOGRAPHIC AND LOYALTY FACTORS

The conclusion drawn from the comparison of Tables 8 and 9 suggests that loyalty to the club has a more significant and consistent impact on consumer engagement with sports clubs on social media compared to demographic factors.

While demographic factors such as age, gender, education, and employment influence certain aspects of motivation, engagement, and outcomes, the influence is more variable and often limited to specific dimensions (e.g., extrinsic motivation by gender, information by age, and education). In contrast, loyalty factors such as sports engagement, fan club membership, and match attendance show a broader and more consistent influence across multiple dimensions of consumer engagement, including motivation (like brand affection and intrinsic motivation), identification, and outcomes (like trust and satisfaction).

This suggests that while demographics do play a role, the depth of a fan’s loyalty – reflected in their level of engagement with the club (through activities like joining fan clubs and attending matches) – is a stronger and more pervasive driver of how they engage with the club on social media. Therefore, for sports clubs looking to enhance social media engagement, strategies that foster and leverage fan loyalty might be more effective than those targeting specific demographic groups.

CONCLUSIONS

This research has revealed significant disparities among socio-demographic groups in their motivations, engagement, and outcomes when following sports clubs on social networks. The knowledge gained from this study has practical implications for sports clubs seeking to enhance their digital presence and connect more effectively with their diverse fan base. To maximise fan engagement, sports clubs should consider tailoring their content and strategies to align with the specific motivations and preferences of different socio-demographic groups. Recognising that gender, age, education, and employment status play a crucial role in shaping fan behaviour on social media, clubs can develop more targeted and personalised approaches to increase deeper connections with their fans. This tailored approach can lead to increased fan satisfaction, loyalty, and a stronger online presence for sports clubs in the digital age.

This study offers valuable insights into the impact of socio-demographic factors on fan engagement in sports clubs' social media. However, it has certain limitations. The study's sample primarily consists of fans of basketball, football, and handball clubs, potentially limiting the generalizability of the findings to other sports or regions. Data collection was carried out through written surveys and online forms via a specific platform, possibly introducing selection bias, as participants might differ from non-participants. The data rely on self-reports from participants, raising the potential for response bias and the likelihood that actual behaviours and motivations may only sometimes be accurately reflected. The data collection period occurred from June to December 2019, and given the ever-evolving nature of socio-demographic trends and social media behaviours, the results may only partially represent the current landscape. The categorisation of socio-demographic variables, such as education and employment status, may only partially capture the diversity within these groups, potentially concealing further insights. The study does not extensively consider cross-cultural variations in how socio-demographic factors influence fan behaviour on social media, despite the significant role that cultural differences can play in motivation and engagement. Despite these limitations, this study serves as a valuable foundation for understanding the interplay between socio-demographics and fan engagement in the sports industry on social media. Future research can build upon these findings while considering these limitations to refine our understanding of this dynamic field.

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DATA ENVELOPMENT ANALYSIS FOR ASSESSING EFFICIENCY IN PUBLIC UTILITIES WITH A FOCUS ON WATER AND SEWERAGE SERVICES

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DOI: 10.7906/indecs.22.4.8
Regular article

Received: 6 February 2024.
Accepted: 6 August 2024.

ABSTRACT

This article aims to demonstrate that the Data Envelopment Analysis method can be employed to evaluate the operational efficiency of public utility enterprises under state ownership or local government jurisdiction, such as cities and municipalities. These enterprises are tasked with delivering high-quality public services to citizens at affordable prices. Achieving this goal necessitates efficient management and judicious use of public resources. The research evaluated the efficiency of public water utility enterprises in the Federation of Bosnia and Herzegovina using the Data Envelopment Analysis method. Three indicators were used as inputs in the model: asset value, number of employees, and total expenses. The output indicator was total revenue, which reflects the number of users under relatively uniform service tariffs. The findings reveal that 92.31% of these public utilities exhibit technical efficiency levels above 90%. Additionally, 53.85% demonstrate 100% technical efficiency in input utilisation. The results highlight enterprises that inefficiently use assets incur above-average costs or employ more workers than necessary. The study concludes that the Data Envelopment Analysis model effectively identifies state-owned public utility enterprises that consume above-average resources to deliver the same scope and quality of services.

KEY WORDS

data envelopment analysis, resource efficiency measurement, public utility companies, public water supply and sanitation companies

CLASSIFICATION

JEL: M40, M48

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INTRODUCTION

Public utility companies are public organisations that provide services for the public good in the field of communal services, such as water supply, sewage, waste management, public lighting, etc. Local governments or the state often own them, and their goals usually include providing public services efficiently and affordably. Hence, efficiency is imperative in their operations. Efficiency is defined as the ratio of results achieved to resources used to achieve those results. In other words, efficiency refers to the ability to perform a task with as few resources as possible while achieving desired results. Efficiency in business means that resources, such as time, money, labour, etc., are used in the best possible way to achieve desired results.

Public utility enterprises are frequently criticised for their inefficiency, lack of transparency, insufficient accountability of management for inefficient governance, lack of oversight from founders, and political interference in their operations. This is particularly evident in countries undergoing transition, such as Bosnia and Herzegovina. The issue is especially pronounced in public utility enterprises responsible for water supply and sanitation. Due to the outdated water supply network, lack of infrastructure maintenance and numerous illegal connections, the loss in the water supply network in FBiH is estimated at over 59%, and in some cases reaches a value of 70% [1]. The percentage of lost water is high compared to the fact that water losses worldwide are reported to be a maximum of 15% and up to 7% in some EU countries.

According to Transparency International's research [2], most companies with majority state capital are characterised by significant political influence in the appointment of management and supervisory boards and similar methods of company management. This negatively affects their business operations because management and supervisory boards appointed in this way completely shift all responsibility for poor performance onto the relevant ministries and governments. Additionally, although the law defines the obligation of the audit committee to submit a report at each annual meeting, these reports are usually superficial and lack significant consideration of risk studies that detail risky areas and contracts concluded between public enterprises and related parties. Another limiting factor for the efficiency of public enterprises is the high risk of corruption [3].

This article aims to demonstrate that the Data Envelopment Analysis (DEA) method can be employed to evaluate the operational efficiency of public utility enterprises under state ownership or local government jurisdiction, such as cities and municipalities. Efficiency testing of public water utility enterprises from the Federation of Bosnia and Herzegovina (FBiH) was conducted using the DEA method. Three indicators were employed as model inputs: the value of assets, the number of employees, and the total expenses of the company. The total revenue indicator was utilised as the output, as it reflects the number of users under conditions of relatively uniform service tariffs. The research results indicate that the DEA model is an effective means of detecting public utility enterprises under state ownership that consume an above-average quantity of resources for the same scope and quality of services provided. It is recommended to use the scaled efficiency measure, representing the ratio of the Banker-Charnes-Cooper (BCC) model to the Charnes-Cooper-Rhodes (CCR) model. The findings suggest that DEA analysis can also serve as a valuable tool in the planning and control of resource consumption within public utility enterprises.

The article structure is as follows. After the introduction, a review of previous research on the possibilities of using the DEA model to detect inefficiencies in public utility enterprises is provided. The research methodology is explained, with a clarification of the DEA techniques used, followed by the presentation and explanation of the research results. Finally, conclusions and recommendations for future research are provided.

EFFICIENCY OF PUBLIC UTILITY ENTERPRISES

A range of studies have explored the issue of efficiency in public utility companies. Krajewski & Thompson [4] and Courville [5] both highlight the potential for inefficiency in these companies, with Krajewski and Thompson specifically noting the trade-offs between employment costs and service. Public utilities are often criticised for their low efficiency in providing their services, which can lead to low service quality, low profitability, and high costs for users [6-9]. Nagasawa [10] highlights the struggle of local public enterprises to balance public interest and efficiency, which can lead to potential cost inefficiencies. Miranti [11] reveals significant inefficiency among regional public utility water companies, with positive technological adjustment not translating into efficiency improvements. Article [12] suggests that public monopolies may have greater incentives for cost-reducing investment, but this may not always translate to improved efficiency. Molinos-Senante & Maziotis [13] Have demonstrated that in England and Wales, public waste management utilities are more efficient than public water utilities. They also showed that, on average, a water company can increase its technical efficiency by operating in more densely populated areas and by investing in technology to reduce bursts in water mains. In a study conducted by Molinos-Senante & Maziotis [14], the results indicated that the water industry demonstrated high levels of cost efficiency. Based on average results, it appeared that the public water companies performed slightly better than private ones, with full private water companies being more efficient than concessionary. However, the analysis of the trend in companies' efficiency revealed that full private water companies' efficiency increased over the years 2010-2018, whereas the opposite was true for public water companies. It has also been found that environmental variables might have a higher impact on public water company costs and inefficiency than private ones.

Several studies have found no significant difference in efficiency between public and private utilities. Cullmann et al. [15] and Hall & Lobina [16] both found no systematic difference in efficiency, with Cullmann attributing this to changes in the energy sector and Hall highlighting the need for balanced policies. Lambert, Dichev, & Raffiee [17] even found that publicly-owned water utilities were more efficient overall. Souza, Faria & Moreira [18] also found no significant difference in efficiency between Brazilian public and private water utilities. Atkinson & Halvorsen [19] further complicates the picture, suggesting that both types of firms are equally cost-efficient.

A range of methods have been proposed to measure cost inefficiency in public companies. Merewitz [20] suggests using statistical cost functions to compare observed costs with those of efficient properties. Liu [21] introduces a dual approach that considers both technical and allocative inefficiency, using the duality between production and cost functions. Kumbhakar [22] uses a translog cost function to incorporate technical and allocative inefficiencies and develops a maximum likelihood method to measure these costs. Farsi and Filippini [23, 24] focused on the application of panel data models to measure cost efficiency in electricity distribution and multi-utility companies in Switzerland. They found that these models were effective in predicting inefficiency and that considering unobserved firm-specific effects led to lower inefficiency estimates. Kumbhakar [25] applied a panel data model to estimate cost efficiency in electricity production by investor-owned utilities in Texas, finding evidence for both permanent and residual cost inefficiencies.

Many studies have explored the use of data envelope analysis to analyse resource inefficiency. Finkler & Wirtschafter [26] applied DEA to medical care decision-making, identifying cost-effectiveness frontiers. Friesner, Mittelhammer & Rosenman [27] developed a Bayesian approach to infer industry inefficiency from DEA estimates, accounting for mismeasurement. Banker, Chang & Natarajan [28] addressed the use of aggregate cost or revenue data in DEA evaluation, identifying significant allocative inefficiency in the public accounting industry.

Husain, Abdullah & Kuman [29] analysed the efficiency of transportation in Malaysia using the DEA model. Serano-Cinca, Fuertes-Callen & Mar-Molinero [30] employed the DEA model to measure the efficiency of internet companies. Zi [31] presented an integrated model utilizing DEA and rough set to assess government efficiency. Lannier & Porcher [32] used a data envelopment analysis and a stochastic frontier analysis (SFA) to assess the relative technical efficiency of decision-making units in the French water supply sector.

Numerous studies have applied the DEA model in analysing efficiency in various sectors, including logistics companies [33], Islamic banks [34], commercial banks [35], hotel sector [36], construction companies [37], healthcare sector [38], and so forth.

Scientific research indicates that the DEA model can effectively assess the efficiency of input utilisation or outcome achievement across various sectors. However, there is a notable lack of research regarding the potential application of the DEA model in determining the efficiency of resource utilisation in public utility enterprises.

METHODOLOGY

ANALYTICAL APPROACH

The DEA method will be used to measure the efficiency of public utility companies in terms of water supply and sewage in FBiH. DEA analysis is a nonparametric linear programming technique used to evaluate the relative efficiency of decision-making units (DMUs) that have the same inputs and outputs but differ in the level of resources they have and the level of activity within the transformation process [39]. Each DMU uses one or more inputs to produce one or more outputs. Data on selected inputs and outputs are included for all analysed DMUs in a linear program that represents the selected DEA model. DEA is a method for determining the best DMU among different and comparable DMUs.

Unlike parametric methods that estimate the performance of an entity in relation to average performance, DEA is a method that calculates the maximum performance measures for each unit included in the analysis, assigning optimal weights to each indicator. More efficient units are those that provide a higher output for a given amount of input. Inputs and outputs should be selected to cover all resources and all relevant activities or outcomes for a particular efficiency analysis. Among them, those that best represent the process being evaluated and provide a true picture of overall performance should be identified. In addition, the relationship between the number of input and output variables and the number of DMUs analysed should be considered to make the analysis results as close to reality as possible. Apart from the choice of the model, this is almost the only element of subjectivity in DEA. If the goal is to minimise inputs while achieving (at least) a given level of output, an input-oriented model is used. In contrast, an output-oriented model is chosen to maximise output while using (at most) a given amount of input.

The DEA models used in our research are the CCR and BCC models. The main difference between the models lies in the assumed transformation of inputs into outputs. The CCR model is the most commonly used and well-known DEA model, which is based on the assumption of constant returns. The CCR model for input oriented DMUs can be mathematically represented as:

$$\min_{\theta, \lambda} \theta, \tag{1}$$

subject to

$$\theta x_o \geq X\lambda, Y\lambda \geq y_o \text{ and } \lambda \geq 0.$$

The optimal solution to this program-characterizing a technology with constant returns to scale, CCR, is denoted by θ_{CCR}^* . The constraints require the observation $(\theta_{CCR}^* x_o, y_o)$ to belong to P_{CCR} ,

while the objective seeks the minimum θ_{CCR} that reduces the input vector x_0 radially to $\theta_{CCR}x_0$ while remaining in P_{CCR} . Those observations associated λ multipliers are greater than zero define the enveloping hyperplane. A feasible solution signalling radial efficiency is $\theta_{CCR}^* = 1$. Therefore if $\theta_{CCR}^* < 1$ the observation is radially inefficient and $(\lambda X, \lambda Y)$ outperforms (x_0, y_0) .

The measurement of technical efficiency assuming variable returns to scale (VRS), as introduced by Banker [40] – known as BCC model considers the following production possibility set

$$PVRS = \{(x, y) | x = X\lambda, y = Y\lambda, e\lambda = 1, \lambda \geq 0\}. \quad (2)$$

Therefore, the only difference with the CCR model is the adjunction of the condition $\sum_{j=1}^n \lambda_j = 1$.

The drawbacks of DEA are its sensitivity to data errors and the fact that it evaluates relatively (comparing each entity only with the best one in the observed set) rather than absolutely. The basic DEA model cannot perform analysis with negative numbers, and it is desirable to have strictly positive data (without zero values). This is defined as the model's 'positivity requirement.'

DATA

The research includes 13 public utility companies for water supply and sewage in the Federation of Bosnia and Herzegovina (FBiH), covering the entire population of these companies in FBiH.

All data used in the analysis are publicly available on the website of the Financial Information Agency FIA [41]. The model's inputs are total asset value, total expenses, and the number of employees, and the output is total revenue. We could not take business results as the output because a certain number of companies operate at a loss. Given that the price of water per m³ is relatively uniform, the revenue amount primarily depends on the number of service users.

The data used in the analysis are given in Table 1, with the following information: Name of DMU, Input 1 (total asset), Input 2 (number of employees), Input 3 (total expenses), and Output (total revenue).

RESULTS

DESCRIPTIVE STATISTICS

Table 2 gives descriptive statistics values for the observed inputs: asset value, number of employees, total expenses, and output total revenue.

The results show that there are significant variations in the value of assets, number of employees, total expenses, and achieved revenues, which primarily depend on the size of the canton or area covered by the public utility company for water supply and sewage. All input values are strongly positively correlated with output values.

SELECTION OF DEA MODEL

The CCR model assumes constant returns to scale. It is suitable when all firms operate at optimal scale. However, note that this is an ambitious assumption. If the DMUs operate under optimal conditions, they have developed in perfectly matching circumstances. The BCC model (corresponding to the BCC model) assumes variable returns to scale. This is appropriate when firms do not operate at optimal scale. This is usually the case when DMUs face imperfect competition, and different regulations.

Table 1. Inputs and outputs of the model (PUC – Public Utility Company).

No. DMU	Name of DMU	Input 1 (total assets)	Input 2 (number of employees)	Input 3 (total expenses)	Output (total revenue)
DMU1	PUC Water Supply and Sewage Ltd. Tuzla	48.647.539	206	1.5043.446	15.329.080
DMU2	PUC Water Supply and Sewage Ltd. Sarajevo	832.178.330	852	66.786.459	53.496.522
DMU3	PUC Water Supply and Sewage Zenica	4.9781.213	174	7.334.610	7.628.019
DMU4	Water Supply Ltd. Mostar	46.337.068	240	12.606.968	12.661.262
DMU5	PUC Water Supply and Sewerage Ltd. Velika Kladuša	22.755.992	52	2.579.534	2.639.697
DMU6	PUC Water Supply Ltd. Posušje	22.074.664	54	3.813.801	3.895.790
DMU7	PUC Vodokom Ltd. Kakanj	15.750.544	129	4.552.475	4.573.333
DMU8	PUC Water Supply Ltd. Cazin	15.466.197	79	4.611.439	4.377.890
DMU9	PUC Water Supply Ltd. Bihać	9.987.182	129	5.052.554	5.053.411
DMU10	PUC Water Supply and Sewerage Ltd. Sanski Most	9.558.933	40	1.806.572	1.808.285
DMU11	PUC Water Supply and Sewerage Ltd. Bugojno	5.047.379	40	1.571.368	1.135.828
DMU12	PUC Vitkom Ltd. Vitez	4.814.761	78	2.707.350	2.856.065
DMU13	PUC Vodokom Ltd. Domaljevac	2.476	1	12.610	300

Table 2. Descriptive statistics indicators for the inputs and outputs of the model

Indicator	Input 1 (total assets)	Input 2 (number of employees)	Input 3 (total expenses)	Output (total revenue)
MEAN	83261713.69	159.54	9883014.31	8881190.92
Std. Deviation	225669774.30	219.80	17633981.07	14113974.03
Coef. of Variation	2.71	1.37	1.78	1.58
Std. Error	62589534.04	60.96	4890786.38	3914512.08
Skewness	3.57	2.98	3.25	3.04
Excess Kurtosis	12.81	9.74	11.06	9.90
Media	15750544.00	79	4552475.00	4377890.00

Comparing the two models shows the source of inefficiency. The technical efficiency of the CCR model corresponds to the global measure of DMU performance. Let us compare the efficiency results of the two DEA models (CCR and BCC) and calculate the resulting 'scale' efficiency. Scale efficiency is obtained as (Formula 3 and Table 3):

$$SE = \frac{\theta_{CCR}}{\theta_{BCC}}. \quad (3)$$

Different models yield significant differences among efficiency values. Since the BCC model (variable returns to scale) tightly envelopes the data because of the additional constraint $e\lambda=1$, its efficiency values are higher than those of its CCR counterparts. Table 4 presents the determination of the reasons for inefficiency for each input.

Table 3. Results of CCR and BCC models and calculation of scale efficiency.

No. DMU	Name of DMU	CCR model	BCC model	Scaleeff
DMU1	PUC Water Supply and Sewage Ltd. Tuzla	1	1	1
DMU2	PUC Water Supply and Sewage Ltd. Sarajevo	0.8438	1	0.8438
DMU3	PUC Water Supply and Sewage Zenica	0.9968	1	0.9968
DMU4	Water Supply Ltd. Mostar	0.9730	0.9824	0.9904
DMU5	PUC Water Supply and Sewerage Ltd. Velika Kladuša	0.9885	0.9897	0.9988
DMU6	PUC Water Supply Ltd. Posušje	1	1	1
DMU7	PUC Vodokom Ltd. Kakanj	0.9533	0.9647	0.9882
DMU8	PUC Water Supply Ltd. Cazin	0.9240	0.9249	0.9990
DMU9	PUC Water Supply Ltd. Bihać	0.9789	1	0.9789
DMU10	PUC Water Supply and Sewerage Ltd. Sanski Most	0.9627	0.9661	0.9965
DMU11	PUC Water Supply and Sewerage Ltd. Bugojno	0.6902	0.6957	0.9921
DMU12	PUC Vitkom Ltd. Vitez	1	1	1
DMU13	PUC Vodokom Ltd. Domaljevac	0.2043	1	0.2043

Table 4. Calculation of inefficiency ratios for DMUs (KM – the currency unit).

No. DMU	Name of DMU	Theta BCC	slackX1	slackX2
DMU1	PUC Water Supply and Sewage Ltd. Tuzla	1	0	0
DMU2	PUC Water Supply and Sewage Ltd. Sarajevo	1	0	0
DMU3	PUC Water Supply and Sewage Zenica	1	0	0
DMU4	Water Supply Ltd. Mostar	0.9824	0	46.7224
DMU5	PUC Water Supply and Sewerage Ltd. Velika Kladuša	0.9897	11902929.8464	0
DMU6	PUC Water Supply Ltd. Posušje	1	0	0
DMU7	PUC Vodokom Ltd. Kakanj	0.9647	0	21.5714
DMU8	PUC Water Supply Ltd. Cazin	0.9249	0	0
DMU9	PUC Water Supply Ltd. Bihać	1	0	0
DMU10	PUC Water Supply and Sewerage Ltd. Sanski Most	0.9661	2877007.3741	0
DMU11	PUC Water Supply and Sewerage Ltd. Bugojno	0.6957	466561.0276	0
DMU12	PUC Vitkom Ltd. Vitez	1	0	0
DMU13	PUC Vodokom Ltd. Domaljevac	1	NaN	NaN

Theta represents pure technical efficiency obtained by the VRS (BCC) model, and we can see that 7 DMUs, or 53.846%, are efficient with $\theta=1$. The technical efficiency of 12 DMUs exceeds 90%. The lowest efficiency is observed for DMU11 (Public Utility Company Water Supply and Sewerage Ltd. Bugojno) with $\theta=69.57\%$. Regarding input and output slacks obtained without radial reductions and enlargements, it is noticeable that the first input (total asset value) is overused, with values greater than zero for three DMUs (DMU5, DMU10, and DMU11 corresponding to Public Utility Company Water Supply and Sewerage Ltd. Velika Kladuša, Public Utility Company Water Supply and Sewerage Ltd. Sanski Most, and Public Utility Company Water Supply and Sewerage Ltd. Bugojno, respectively), as well as an excessive number of employees for two DMUs (Water Supply Ltd. Mostar and Public Utility Company Vodokom Ltd. Kakanj). DMUs with high values of used assets should pay attention to the proper evaluation of balance sheet positions, primarily by correctly assessing the value of receivables and testing the recoverable value of fixed assets. The slack vectors of DMU13 have NaN values due to the inability to compare that DMU with others of a similar business range.

OPTIMAL VALUES FOR ACHIEVING EFFICIENCY

One of the DEA's advantages is that projections can be calculated to improve efficiency. We calculated projections for each inefficient DMU without taking into account the slack vectors. The projection values are calculated as a linear combination of DMU variables from the reference set.

Table 5. Optimal values for inefficient DMUs to achieve efficiency.

DMU	Efficiency	Projection input 1	Difference, %	Projection input 2	Difference, %	Projection input 3	Difference, %
DMU4	0.9824	45519140.6	-1.76	189.0	-21.25	12384825.8	-1.76
DMU5	0.9897	10619160.3	-53.33	51.5	-1.02	2553036.6	-1.03
DMU7	0.9647	15193730.9	-3.54	102.9	-20.26	4391261.52	-3.54
DMU8	0.9249	14306900.5	-7.50	73.1	-7.50	4265669.5	-7.50
DMU10	0.9661	6358482.4	-33.48	38.6	-3.39	1745329.2	-3.39
DMU11	0.6957	3044835.9	-39.67	27.8	-30.43	1093200.7	-30.43

Therefore, DMU4 (Water Supply Ltd. Mostar) can achieve efficiency by utilising the calculated coefficients or by reducing its inputs radially in relation to theta. DMU4 would be efficient if it had the following input variable values:

- Input 1 = $0.9824 * 46337068 = 45521535.6$ (reduce the value of total assets / check the accuracy of reporting balance sheet items)
- Input 2 = $0.9824 * 240 = 235.8$ (reduce the number of employees from 240 to 236)
- Input 3 = $0.9824 * 12606968 = 12385085.4$ (reduce total expenses by 221,883 KM)

RANKING DMUS BASED ON THE DEGREE OF EFFICIENCY

As we have previously established that there are differences in efficiency even among efficient DMUs, a super-efficiency model was used to rank them. The model enables discrimination among technical efficiencies. The super-efficiency score allows for discrimination among them by calculating individual scores that differ at observation. These scores are obtained by individual solving for each observation of any of the previous models but exclude the DMU from the reference dataset. The magnitude of the super-efficiency score determines the importance of the efficiency of each DMU in the entire dataset, Table 6.

Table 6. Ranking of DMU efficiency.

DMU	Name of DMU	Theta	Rang
DMU1	PUC Water Supply and Sewage Ltd. Tuzla	2.00	2.
DMU2	PUC Water Supply and Sewage Ltd. Sarajevo	NaN	
DMU3	PUC Water Supply and Sewage Zenica	1.01	5.
DMU4	Water Supply Ltd. Mostar	0.98	
DMU5	PUC Water Supply and Sewerage Ltd. Velika Kladuša	0.99	
DMU6	PUC Water Supply Ltd. Posušje	1.00	6.
DMU7	PUC Vodokom Ltd. Kakanj	0.96	
DMU8	PUC Water Supply Ltd. Cazin	0.92	
DMU9	PUC Water Supply Ltd. Bihać	1.25	3.
DMU10	PUC Water Supply and Sewerage Ltd. Sanski Most	0.96	
DMU11	PUC Water Supply and Sewerage Ltd. Bugojno	0.69	
DMU12	PUC Vitkom Ltd. Vitez	1.17	4.
DMU13	PUC Vodokom Ltd. Domaljevac	1944	1.

Public Utility Company Vodokom Ltd. Domaljevac, Public Utility Company Water Supply and Sewage Ltd. Tuzla, and Public Utility Company Water Supply Ltd. Bihać stand out with their efficiency, respectively.

The study has shown that the DEA method can be used to calculate the projection of inefficient public utilities by input types, and our research is consistent with the results of other studies. Unlike other studies, we propose using both DEA models, CCR and BCC, which can then be employed for a comprehensive assessment. The calculated Scale Efficiency can provide insights into the overall efficiency of these entities. Additionally, the DEA model can be used as a tool in planning and controlling the quantity of necessary resources to meet organisational goals.

The research results show that out of 13 observed public utilities for water supply and sewage systems in FBiH, 7 (53.85%) are efficient in using assets, workforce, and total expenditures. In terms of efficiency ranking, these seven utilities are Public Utility Company Vodokom Ltd. Domaljevac, Public Utility Company Water Supply and Sewage Ltd. Tuzla, Public Utility Company Water Supply Ltd. Bihać, Public Utility Company Vitkom Ltd. Vitez, Public Utility Company Water Supply and Sewage Ltd. Zenica, Public Utility Company Water Supply Ltd. Posušje, and Cantonal Public Utility Company Water Supply and Sewage Ltd. Sarajevo, respectively. The least efficient is Public Utility Company Water Supply and Sewage Ltd. Bugojno, with a technical efficiency of 69.75%. Three utilities: Public Utility Company Water Supply and Sewage Ltd. Velika Kladuša, Public Utility Company Water Supply and Sewage Ltd. Sanski Most, and Public Utility Company Water Supply and Sewage Ltd. Bugojno, respectively, have a higher value of assets used to provide water supply and sewage services than others. The assets are not efficiently used, meaning that they have a high value of assets. This problem may have been contributed to by inadequate accounting valuation of balance sheet items (the value of fixed assets and receivables from customers). This could have led to an overestimated value of business assets that contain impairment losses. Two utilities, Water Supply Ltd. Mostar and Public Utility Company Vodokom Ltd. Kakanj, have a noticeable excess of employees compared to the optimum. The study has shown that the DEA method can be used to calculate the projection of inefficient utilities by input types.

In general, many public utilities for water supply and sewage systems in Bosnia and Herzegovina face challenges such as ageing infrastructure, inadequate funding, and limited capacity to modernise and improve their operations. These challenges can impact the efficiency of the utilities, making it difficult for them to provide reliable and cost-effective services to their customers. The efficiency of operations in public utilities for water supply and sewage systems in Bosnia and Herzegovina may vary depending on several factors, including the level of investment in infrastructure, technology, business volume, the availability of qualified personnel, capacity for growth, and the regulatory environment. However, there have been some efforts in recent years to improve the efficiency of public utilities for water supply and sewage systems in Bosnia and Herzegovina. For example, the introduction of cost-reflective tariffs, which set the price of water and sewage services based on the actual cost of providing these services, can help to improve the efficiency of these utilities. Additionally, investment in modern technology and equipment, reduction of water waste, and improvements to water and sewage treatment processes can help to increase efficiency and reduce costs. Based on all the above, a recommendation for future research is to measure the efficiency of public utilities for water supply and sewage systems in FBiH, comparing them with utilities of the same activity from some of the more developed EU countries.

CONCLUSION

The study aimed to demonstrate that the Data Envelopment Analysis (DEA) method can be used to evaluate the operational efficiency of public utility enterprises under state ownership or local government jurisdiction. Efficient management of public resources is crucial, and the DEA model served as a tool for identifying enterprises that consume above-average quantities of resources and detecting potential inefficiencies in resource allocation.

The research results show that out of 13 observed public utilities for water supply and sewage systems in FBiH, 7 (53.85%) are efficient in using assets, workforce, and total expenditures. The least efficient is Public Utility Company Water Supply and Sewage Ltd. Bugojno, with a technical efficiency of 69.75%. Three utilities have a higher value of assets used to provide water supply and sewage services than others. The research results indicate that the DEA model is an effective means of detecting public utility enterprises under state ownership that consume an above-average quantity of resources for the same scope and quality of services provided. It is recommended to use the scaled efficiency measure, representing the ratio of the Banker-Charnes-Cooper (BCC) model to the Charnes-Cooper-Rhodes (CCR) model. The findings suggest that DEA analysis can also serve as a valuable tool in the planning and control of resource consumption within public utility enterprises.

A recommendation for future research is to measure the efficiency of public utilities for water supply and sewage systems in FBiH and compare them with utilities of the same activity from some of the more developed EU countries. This would overcome the main limitation of the research, which is the essence of the DEA model itself, which calculates efficiency only among units within the sample.

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