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

In cooperation with:
Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat, Morocco
Faculty of Management University of Warsaw, Poland
Ecole Nationale de Commerce et de Gestion de Tanger - Abdelmalek Essaadi University, Morocco
GOVCOPP - University of Aveiro, Portugal

Book of Proceedings

134th esd Cakovec 2026

Social Responsibility and Sustainable Development: Challenges and Opportunities

Editors:
Magdalena Zeko, Tibor Rodiger, Humberto Ribeiro, Mladen Konecki

ISBN 978-953-6125-44-9

9 789536 125449 >

May, 2026

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

In cooperation with:
Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat, Morocco
Faculty of Management University of Warsaw, Poland
Ecole Nationale de Commerce et de Gestion de Tanger - Abdelmalek Essaadi University, Morocco
GOVCOPP - University of Aveiro, Portugal

Book of Proceedings

134th esd Cakovec 2026

Social Responsibility and Sustainable Development: Challenges and Opportunities

Editors:
Magdalena Zeko, Medimurje University of Applied Sciences in Cakovec, Croatia
Tibor Rodiger, Medimurje University of Applied Sciences in Cakovec, Croatia
Humberto Ribeiro, University of Aveiro, Portugal
Mladen Konecki, University of Zagreb, Croatia

May, 2026

Title ■ Social Responsibility and Sustainable Development: Challenges and Opportunities - (Book of Proceedings)

Editors ■ Magdalena Zeko, Tibor Rodiger, Humberto Ribeiro, Mladen Konecki

Publishing Editor ■ Domagoj Cingula

Publisher ■ **Design** ■ Varazdin Development and Entrepreneurship Agency / Medimurje University of Applied Sciences in Cakovec, Croatia / Faculty of Management University of Warsaw, Poland / GOVCOPP - University of Aveiro, Portugal / Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat, Morocco / Ecole Nationale de Commerce et de Gestion de Tanger - Abdelmalek Essaadi University, Morocco.

Printing ■ Online Edition

ISBN 978-953-6125-44-9

The Book is open access and double-blind peer reviewed.
Our Books are available for download in a PDF format from the Economic and Social Development Conference website: http://www.esd-conference.com

CONTENTS

IMPORT OF LABOUR IN TOURISM AND LEGAL CHALLENGES

Vedran Lukman
Međimursko veleučilište u Čakovcu, Croatia
vedran.lukman@mev.hr

Jana Ziskovic
Međimursko veleučilište u Čakovcu, Croatia
jana.ziskovic@student.mev.hr

Iris Kralj
Međimursko veleučilište u Čakovcu, Croatia
iris.kralj@student.mev.hr

ABSTRACT

In recent years, the tourism sector in the Republic of Croatia has been facing a significant labour shortage, particularly in seasonal and operational occupations. As a response to this issue, employers increasingly rely on the employment of foreign workers. The aim of this paper is to analyse the role of labour importation in the tourism sector and to present the legal and administrative challenges related to their employment. The paper examines the legislative framework, including the Aliens Act, the labour market test, and the system of issuing residence and work permits, as well as statistical indicators for 2024 and 2025. It is concluded that the import of labour has become essential for maintaining the stability of the tourism sector, but it requires further improvement of administrative procedures and integration measures.
Keywords**:** *tourism, foreign workers, labour importation, labour market, residence and work permits*

1. INTRODUCTION

Tourism represents one of the most significant economic sectors and sources of revenue in the Republic of Croatia, with a pronounced impact on employment, regional development, and overall economic indicators. However, as tourism demand continues to grow, the Croatian labor market is increasingly facing a shortage of workforce. This problem is particularly evident in seasonal and operational occupations. In response to this issue, employers in the tourism sector are increasingly relying on the import of labor from other countries. The import of labor in tourism brings numerous advantages, such as ensuring business continuity and maintaining the quality of services, but on the negative side, it also raises a number of legal, administrative, and social issues. Regulating the residence and work of foreign nationals requires compliance with national legislation as well as with the legal framework of the European Union. In practice, this often presents a challenge for both employers and competent authorities. The particular complexity of this issue arises from the seasonal nature of tourism, which makes the employment procedures for foreign workers time-sensitive and administratively demanding. Additional challenges emerge in the area of protecting labor rights, monitoring the legality of employment, and integrating foreign workers into the working and social environment. The aim of this paper is to analyze the role of labor import in the tourism sector and to highlight the key legal challenges associated with the employment of foreign workers. The paper is based on an analysis of relevant legal regulations, available literature, and practical examples, with a particular focus on the Croatian context. In this way, it seeks to contribute to a better understanding of current issues and to offer guidelines for improving the existing system.

2. SPECIFIC CHARACTERISTICS OF THE TOURISM LABOR MARKET

The labor market in the tourism sector differs from other economic sectors in a number of specific features that significantly affect the availability, stability, and structure of the workforce. The most prominent characteristic is the seasonality of operations, which causes large fluctuations in the demand for employees throughout the year. During the peak tourist season, there is a sharp increase in the need for workers in accommodation, hospitality, and tourism services, while outside the season the number of employees decreases. Such dynamics make long-term employment more difficult and reduce job security, which negatively affects the interest of the domestic workforce. Statistical data confirm both the importance and variability of employment in tourism within the overall labor market. According to employment and unemployment data for 2025, approximately 1.7 million people are employed in the Republic of Croatia, with the majority working in legal entities[1]. Activities related to accommodation and food service represent a significant segment of total employment, but their share varies considerably depending on the season, further highlighting the instability of employment in the tourism sector1. This employment structure indicates that tourism plays an important role in the national economy, but at the same time remains highly sensitive to seasonal and market changes. Wage levels also significantly influence employment decisions in tourism. Data from the Croatian Bureau of Statistics show that average net and gross wages in Croatia increased during 2025, indicating a general improvement in material conditions in the labor market[2]. However, despite this trend, wages in the tourism sector—especially in seasonal and auxiliary occupations—often lag behind the national average. Combined with the previously mentioned working conditions, lower income levels further reduce the motivation of the domestic workforce to seek employment in tourism. Additional pressure on the tourism labor market is created by unfavorable demographic trends, such as a decline in the working-age population, youth emigration, and population aging2. All these factors result in a labor shortage in the tourism sector, which continues to worsen year after year.

3. IMPORT OF LABOR AS A RESPONSE TO WORKFORCE SHORTAGES

Statistical data from the Ministry of the Interior of the Republic of Croatia for 2025 indicate a clear and pronounced dynamic in the import of labor through the issuance of residence and work permits for foreign nationals[3]. According to the official statistical report, in the period from January 1 to December 31, 2025, a total of 170,723 permits3 were issued for residence and work in the Republic of Croatia. This figure represents the cumulative outcome of comprehensive administrative processes related to the employment of foreign workers, including various types of contracts and durations of employment (Ministry of the Interior of the Republic of Croatia, 2026). An analysis of the structure of issued permits reveals that the tourism and hospitality sector stands out among those employing foreign workers.In this sector, 52,858 permits3 were issued, slightly exceeding the construction sector, where 52,776 permits3 were issued. Industry, transport, and trade recorded a smaller number of permits3. Such a distribution confirms the central role of the tourism sector in the demand for foreign labor, especially when considering the seasonality of services and the high fluctuation of the workforce during the peak tourist season3. The data show that the issued permits cover various types of employment, including new employment of foreign workers, extensions of existing permits, and seasonal employment3.

[1] Croatian Bureau of Statistics (2025). *Employment and unemployment in 2025*. Available at: https://podaci.dzs.hr (accessed: March 1, 2026).

[2] Croatian Bureau of Statistics (2025b). Average monthly net and gross earnings of employees in 2025. Available at: https://podaci.dzs.hr

[3] Ministry of the Interior of the Republic of Croatia, Statistics – residence and work permits of foreign nationals, available at: https://mup.gov.hr/gradjani-281562/moji-dokumenti-281563/stranci-333

This indicates that labor import is not exclusively linked to short-term seasonal needs but also includes long-term forms of employment that ensure continuity in positions that the domestic labor market cannot fill3. The structure of permits by nationality also provides important insights into geographic migration trends. The largest number of permits was issued to citizens of Bosnia and Herzegovina, Nepal, and Serbia, followed by citizens of the Philippines, India, North Macedonia, and other countries such as Kosovo, Uzbekistan, Egypt, and Bangladesh3. This geographic pattern reflects a combination of regional mobility from neighboring countries and a significant share of workers from Asian countries coming to Croatia to work in tourism and other sectors3. It is also important to highlight the regional distribution of issued permits within Croatia. Data from the Ministry of the Interior show that the highest number of permits was issued in the Zagreb Police Administration (43,113), which is expected given Zagreb's status as the largest urban and economic center. However, a significant number of permits were also issued in tourist-oriented counties such as Istria, Split-Dalmatia, and Primorje-Gorski Kotar, further confirming that tourism strongly drives labor mobility within the country3. These statistical trends for 2025 clearly indicate that the import of labor is becoming an integral part of the functioning of the Croatian labor market, particularly in tourism and service sectors. In a situation where the domestic labor market cannot meet the demand for workers due to seasonality, demographic challenges, and working conditions, foreign workers ensure business continuity while simultaneously raising important questions regarding the legal framework, integration, protection of labor rights, and the long-term socio-economic implications of this practice.

4. ACT ON AMENDMENTS TO THE FOREIGNERS ACT

The fundamental legal regulation governing the employment of third-country nationals in the Republic of Croatia is the Act on Amendments to the Foreigners Act (Official Gazette No. 133/20, 114/22, 151/22)[4]. This Act regulates the conditions of entry, residence, and work of foreign nationals, as well as the competences of state administration bodies in the process of issuing permits4. According to the provisions of the Act, a third-country national who intends to work in the Republic of Croatia must obtain a residence and work permit (Article 95)[5]. This is a single permit that simultaneously regulates both the right of residence and the right to work, thereby simplifying the system compared to previously separate procedures. The application is submitted to the competent police administration or police station of the Ministry of the Interior and may be filed either by the employer or the foreign worker3. One of the key stages of the procedure is the labor market test (Article 98), conducted by the Croatian Employment Service. The purpose of the test is to determine whether there is an unemployed domestic worker registered who meets the requirements for the specific job position. However, the Act provides exceptions, i.e., situations in which the labor market test is not conducted4. Many occupations in tourism, such as cooks, waiters, and kitchen assistants, are often classified as shortage occupations, which accelerates the process of employing foreign workers. The Act further stipulates that the employer must meet certain conditions in order to be approved to employ a foreign worker. In accordance with Article 99, the employer must have a registered business activity, must not have any outstanding debts to the state, and must demonstrate that working conditions comply with labor regulations[6]. The salary of a foreign worker must not be lower than the salary prescribed for the same position in the Republic of Croatia, thereby aiming to prevent market distortion and protect domestic workers from unfair competition.

[4] Aliens Act, Official Gazette Nos. 133/20, 114/22, 151/22. Available at: https://www.zakon.hr/z/142/Zakon-o-strancima
[5] Aliens Act, Article 95. Available at: https://www.zakon.hr/z/142/Zakon-o-strancima
[6] Aliens Act, Article 99. Available at: https://www.zakon.hr/z/142/Zakon-o-strancima

The Act also regulates the duration and extension of permits (Article 101), as well as the possibility of changing employers under certain conditions[7]. If the employment relationship is terminated, the foreign worker is granted a limited period to find a new employer, ensuring a certain level of legal security while maintaining control over the legality of residence4. Particular importance is also given to provisions on supervision and sanctions. The Act provides for fines for employers who employ foreign nationals without a valid permit or contrary to the conditions specified in the permit[8]. This ensures the legality of the system, protects the labor rights of foreign nationals, and maintains the stability of the domestic labor market4. In the context of the tourism sector, the application of the Act on Amendments to the Foreigners Act has direct operational implications. Given the pronounced seasonal nature of tourism, the timely issuance of permits and clearly defined employment conditions are crucial for the functioning of hotels, restaurants, and other tourism entities. At the same time, the Act must maintain a balance between the flexibility required by the labor market and the protection of the social and labor rights of foreign workers.

5. COMPARISON OF STATISTICAL TRENDS OF FOREIGN WORKERS IN 2025 COMPARED TO 2024

An analysis of statistical data on the employment of foreign workers in the Republic of Croatia for 2025 compared to 2024 indicates significant changes in the dynamics of permit issuance and in the structure of the labor market. According to official data from the Ministry of the Interior, a total of 170,723 residence and work permits were issued to foreign nationals in 2025, representing a decrease of approximately 17% compared to the 206,529 permits issued in 2024[9]. This decline suggests a slowdown in the intensity of labor import, influenced by changes in the legal framework and adjustments to market needs. Changes are also evident across sectors employing foreign workers. In 2024, the largest share of permits was allocated to construction and to tourism and hospitality, with construction leading at around 75,000 issued permits, followed by tourism with approximately 56,0009. In 2025, a shift occurred: tourism and hospitality became the primary sector employing foreign labor, with around 52,858 issued permits, while construction followed closely with 52,776 permits3. This trend reflects the strong dependence of the tourism sector on foreign workers, particularly due to seasonal demand. Amendments to the Foreigners Act introduced stricter conditions and extended the duration of permits up to three years, which also affected the structure of permit issuance. In 2025, an almost equal number of permits referred to new employment and the extension of existing permits, indicating increasing stability in the employment of foreign workers in Croatia, while the number of seasonal permits increased compared to the previous year9. In 2025, the highest number of permits was issued to citizens of Bosnia and Herzegovina, followed by Nepal, Serbia, the Philippines, India, North Macedonia, Kosovo, Egypt, Uzbekistan, and Bangladesh. This distribution indicates a significant share of workers from the Western Balkan region, as well as from countries in South and Southeast Asia9. In 2024, the distribution was similar but with higher overall figures—the largest number of permits was issued to citizens of Bosnia and Herzegovina (around 38,100), Nepal (35,635), Serbia (27,988), India (20,502), and the Philippines (14,680)3. A comparison of regional trends also reveals differences between 2024 and 2025.

---

[7] Aliens Act, Article 101. Available at: https://www.zakon.hr/z/142/Zakon-o-strancima

[8] Aliens Act – Misdemeanor provisions. Available at: https://www.zakon.hr/z/142/Zakon-o-strancima

[9] Lider Media (2026). *In 2025 nearly 36 thousand fewer permits for foreign workers.* Available at: https://en.lider.media/2026/01/12/in-2025-nearly-36-thousand-fewer-permits-for-foreign-workers/

In 2025, the highest number of foreign workers was registered in the Zagreb region, while significant figures were also recorded in Split-Dalmatia, Primorje-Gorski Kotar, and Istria counties, confirming the link between demand for foreign labor and tourism and economic activity3. Data indicate a decline in the number of foreign workers in continental counties, while tourist regions maintained or increased their shares. These changes show that the Croatian labor market is gradually adapting to the new legal framework and economic developments, with a clear trend toward consolidation in the share of foreign workers. While 2024 was marked by strong growth in labor import, 2025 reflects stabilization and a reallocation of resources toward sectors with the highest demand, particularly tourism and hospitality.

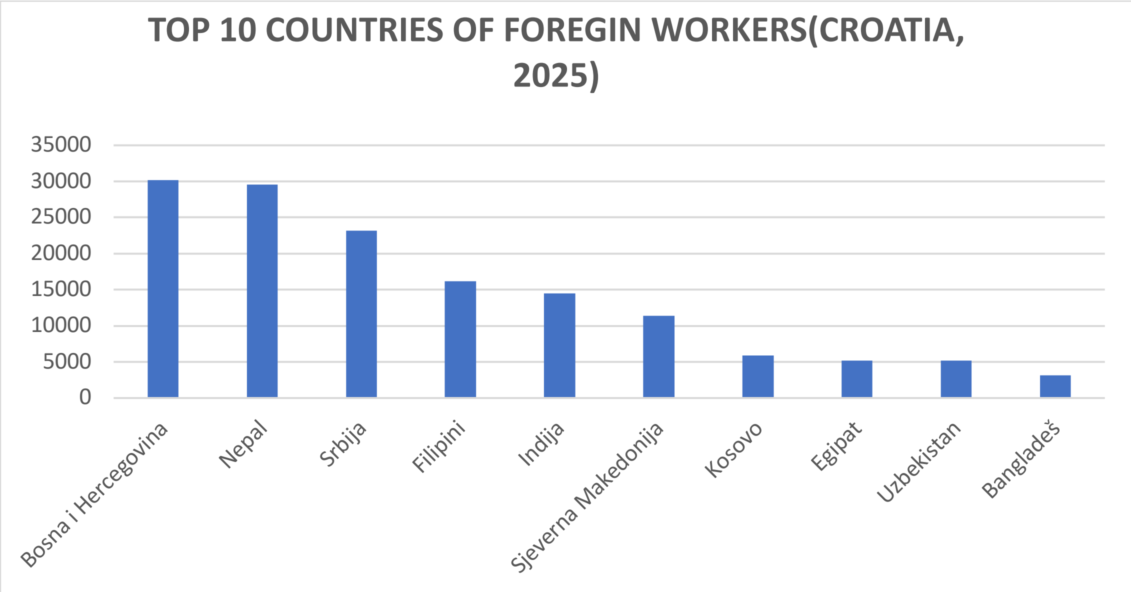


Figure 1. Top 10 Countries of Origin of Foreign Workers (Croatia, 2025)

*Source: Author's own compilation based on data from the Ministry of the Interior, 2025.*3

6. ADMINISTRATIVE BURDENS AND DURATION OF PROCEDURES

One of the most common challenges in the practical employment of foreign workers in the tourism sector relates to administrative procedures and the time required to issue residence and work permits[10]. Although the legal framework is designed to facilitate and provide employers with a clear procedure for regulating the employment of third- country nationals, its practical implementation is often more complex and results in additional administrative burdens for both employers and workers. According to information from the Ministry of the Interior, applications for residence and work permits are submitted to the competent police administrations or police stations, and procedures may vary depending on the type of permit and the applicant's status10. For certain categories, such as seasonal workers in tourism, it is prescribed that applications can be submitted directly without conducting extensive labor market tests when employment lasts up to 90 days per year4. On the other hand, permits that require a labor market test and an opinion from the Croatian Employment Service involve additional steps and may take longer before a permit is issued4. In practice, employers in the tourism sector are often faced with the need to coordinate with several institutions—first with the Croatian Employment Service to determine the shortage of domestic labor, and then with the Ministry of the Interior for the issuance of the permit itself3.

[10] Ministry of the Interior of the Republic of Croatia, Foreign nationals – regulation of residence and work, available at: https://mup.gov.hr/gradjani-281562/moji-dokumenti-281563/stranci-333

Although this model is aligned with legal requirements, it can lead to extended timeframes and increased administrative bureaucracy, especially during periods when the number of applications rises significantly, such as before the start of the tourist season. Furthermore, although certain facilitations exist for specific categories of workers, such as seasonal workers in hospitality and tourism who are not required to undergo a labor market test for short-term engagements, employers must carefully monitor procedural differences for various types of permits and meet specific requirements for each3. This represents an additional administrative barrier that requires time, resources, and expertise in preparing documentation, as well as coordination with competent authorities. All of the above can result in situations where the issuance of permits takes longer than is operationally feasible for planning tourism business activities, particularly during peak seasonal months. As a consequence, employers face uncertainty regarding the timely arrival of workers, which can affect the organization of business processes and the quality of services provided. In some cases, the administrative complexity of the system forces employers to plan employment well in advance, often months before the start of the season, thereby placing additional strain on their capacities and resources.

7. LABOR MARKET TEST

One of the fundamental mechanisms for regulating the employment system of third-country nationals in the Republic of Croatia is the labor market test. The labor market test is used as a tool to verify the availability of domestic labor before approving the employment of a foreign worker. It has been applied in Croatia since 2021 and is formally aligned with practices in most European Union Member States, which also implement some form of labor market testing (European Migration Network, 2021). According to the summary of an Ad-Hoc query by the European Migration Network, the test is conducted by the Croatian Employment Service, acting as an intermediary between the employer and potential workers already available on the domestic labor market[11]. During the procedure, it is assessed whether there is a candidate in the register of unemployed persons who meets the requirements for the job position. This includes citizens of the Republic of Croatia, citizens of other EU Member States, and third-country nationals who already have the right to work in Croatia11. If it is determined that no suitable candidate exists, the employer may proceed with submitting an application for a residence and work permit for a third-country national4. Although the labor market test differs in certain procedural aspects among EU Member States, in most cases it is based on the employer's obligation to notify the competent authority of a vacant position. In Croatia, as in most Member States, public employment services search their internal databases and, if suitable candidates are found, refer them to the employer11. There are also certain exceptions or facilitations for specific categories of workers. One such exception applies in cases of urgent labor market needs, where the labor market test is either not conducted or is carried out in a simplified form. The tourism sector is particularly notable in this regard, as seasonal demands often require a rapid response and temporary employment of workers4. An important function of the labor market test is the protection of domestic workers' rights; however, its practical application can create certain difficulties11. Longer administrative timeframes and the obligation to advertise job vacancies may slow down the employment process, which is especially pronounced in the tourism sector characterized by seasonal demand11. Nevertheless, the labor market test remains a key element of the system for employing third-country nationals in Croatia, as it seeks to balance the protection of the domestic workforce with the flexibility of the labor market.

[11] European Migration Network (2021). *Ad-Hoc query on labour market test in Croatia.*

8. PROTECTION OF WORKERS' RIGHTS AND LABOR INSPECTION

In accordance with the Foreigners Act, the employment of third-country nationals is permitted exclusively on the basis of a valid residence and work permit, while supervision over the legality of their employment is carried out by the competent state authorities4. The Ministry of the Interior, in line with legal provisions, is responsible for oversight and is authorized to verify the legality of the residence and work of foreign nationals, the validity of issued permits, compliance of work with the approved purpose of residence, and adherence to the conditions under which the permit was issued4. It is essential that a foreign worker does not perform tasks that are not specified in the permit, nor work for an employer who is not listed in the decision approving residence and employment. It is also important to highlight the role of the labor inspection authority, which, within the framework of inspections, verifies the conclusion of employment contracts, payment of wages, working hours, the exercise of the right to rest, and the application of occupational safety regulations[12]. Through such monitoring, foreign workers are ensured the same level of protection as domestic workers, in accordance with the principle of equal treatment prescribed by law4. The Foreigners Act also provides for misdemeanor provisions for employers who employ third-country nationals without a valid permit or contrary to the conditions specified in the permit12. The importance of labor inspection is particularly evident in the tourism sector, where the demand for workers is most pronounced during the peak season. Seasonal work involves a high volume of employment within a short period, increasing the risk of errors and irregularities. In this context, inspection supervision is crucial for maintaining legality and protecting workers, who are often in a vulnerable position due to language and cultural barriers. It is also important to emphasize the preventive role of the inspection system, which is reflected in informing employers about the proper application of regulations and encouraging lawful and responsible business practices12. In the long term, inspection supervision contributes to the stability of the labor market and the sustainability of the tourism sector. Labor inspection and oversight of the employment of foreign workers are designed to ensure legality, protect workers' rights, and provide equal working conditions for all.

9. SOCIAL ISSUES OF FOREIGN WORKERS

Due to the shortage of domestic labor, Croatia increasingly relies on the import of foreign workers, which brings a number of social challenges. The most common issues include language barriers, integration into the social and working environment, and a vulnerable social position[13]. One of the most prominent social problems faced by foreign workers is the language barrier. The Croatian language represents a challenge for individuals coming from linguistically different backgrounds. It is important to emphasize that communication with guests is essential in the tourism sector for ensuring service quality; therefore, a lack of language proficiency can create significant difficulties, leading to misunderstandings and additional pressure in the workplace. To address this issue, the Croatian Employment Service provides vouchers that enable individuals to acquire Croatian language skills free of charge13. This program is designed to help individuals develop the language competencies necessary for easier integration into social and professional life13. While this initiative represents an important step forward, its effectiveness depends on accessibility, the motivation of the workers themselves, and the support of employers. In addition to language barriers, foreign workers often face cultural differences that affect their sense of belonging within the community.

[12] State Inspectorate of the Republic of Croatia (2026). Labour Inspection – supervision of employment relationships and the employment of foreign workers, available at: https://dirh.gov.hr/

[13] Croatian Employment Service (2024). *Voucher system for education and learning the Croatian language.* Zagreb: CES

Differences in behavior, work environment, and communication styles can lead to feelings of uncertainty or isolation. This issue is particularly evident in areas where the majority of the population speaks local dialects and maintains specific cultural values, making it more difficult for foreign workers to integrate into the broader social environment. Another significant issue relates to housing conditions and the living standards of foreign workers. Due to relatively low wages, workers often reside in shared accommodations organized by employers. These living conditions are not always optimal and may negatively affect workers' health and overall well-being. Although the legal framework guarantees equal rights, in practice there may still be instances of discrimination based on nationality, ethnicity, or language. A perceived lack of equality among foreign workers can have long-term consequences for their motivation, productivity, and overall perception of society. The challenges faced by foreign workers—ranging from language barriers and cultural adaptation to inadequate housing conditions—require comprehensive support. This includes integration programs and an active role of employers and local communities. Initiatives such as vouchers for learning the Croatian language represent an important step toward facilitating adaptation, but they are only one part of a broader approach that must also include professional, social, and cultural support measures13.

10. PRACTICAL EXPERIENCE – EMPLOYMENT OF FOREIGN WORKERS IN THE COMPANY KEČKEŠ D.O.O., PRELOG

I completed my professional internship at the company Kečkeš d.o.o. in Prelog, where I had the opportunity to directly participate in administrative and organizational procedures related to the employment and integration of foreign workers. This experience provided me with insight into the actual implementation of legal procedures previously analyzed in the theoretical part of this paper. One of the first notable aspects I observed during my internship, which demonstrates how the company cares for its employees, relates to the process of worker adaptation upon arrival in the Republic of Croatia. The company emphasizes personal responsibility and tidiness, encouraging workers to maintain the cleanliness of their accommodation. Since workers come from different cultural backgrounds, a certain period of adjustment is necessary to adapt to the working and living standards applied in Croatia. It was particularly valuable for me to witness this process firsthand, as I became aware of how important it is for workers arriving from different parts of the world to feel supported by their employers, especially given the differences in lifestyles and cultural norms. Additionally, workers are directed to attend Croatian language courses, primarily focused on basic terminology related to their profession and everyday workplace communication. The goal of these courses is not full language mastery, but rather to facilitate communication with supervisors and colleagues and to reduce the possibility of misunderstandings at work. A particularly interesting part of my internship involved the procedure for obtaining and extending work permits. At the time of my internship, work permits could be extended for a period of one year, whereas recent legislative amendments now allow permits to be issued for up to three years. Despite this change, the process of a worker's initial arrival in the Republic of Croatia still takes a relatively long time, often between two and three months. This is due to the fact that the initial entry requires several administrative steps related to visa procedures and security checks. Only after all necessary approvals are granted can workers begin employment. To apply for the initial permit, specific documentation must be submitted, including a preliminary employment contract, a valid passport, and a certificate of no criminal record. The documentation is submitted to the competent police administration along with the completion of Form 1A. During my internship, I participated in the preparation and verification of this documentation, which allowed me to better understand the complexity of the administrative procedure. Regarding the extension of work permits, the application must be submitted no later than 30 days before the expiration of the existing permit.

The required documentation includes Form 2A, a copy of a valid identification document, and an employment contract. The extension process typically takes around 30 days. I was also involved in the administrative preparation of these documents, which provided me with practical experience in handling prescribed forms and deadlines. An additional administrative procedure concerns the recognition of foreign driving licenses. Workers who wish to drive in the Republic of Croatia must possess a valid driving license from their country of origin, a medical certificate issued by a general practitioner, and proof of a completed medical examination. The procedure begins with the submission of documentation to the police administration, where the authenticity of the driving license is verified. After approximately two weeks, if the documentation is complete and there are no doubts regarding its authenticity, the process continues with further administrative processing. During my internship, I learned how the entire process of employing foreign workers functions—from the initial administrative steps to their full integration into the working environment. I found it particularly interesting to observe how complex and time-consuming the process actually is. Although it may appear in theory as a clearly defined procedure, in practice it requires coordination between multiple institutions, adherence to precise deadlines, and the submission of complete documentation. This experience enabled me to better understand the challenges faced by both employers and foreign workers, while providing me with concrete insight into the administrative aspects of employment.

11. CONCLUSION

The employment of foreign workers in the Republic of Croatia, particularly in the tourism sector, has in recent years become a necessity due to the shortage of domestic labor. An analysis of the legislative framework shows that the system is clearly defined through the Foreigners Act and aligned with the legal standards of the European Union. The introduction of a single residence and work permit, as well as the labor market test system, aims to achieve a balance between protecting the domestic workforce and meeting the needs of the economy. Among the positive aspects of the system are the existence of a clear legal framework, the possibility of extending work permits for longer periods, and the established mechanism of inspection supervision, which protects workers' rights and ensures the legality of employment. Additionally, programs such as Croatian language courses and institutional support provided by the Croatian Employment Service represent important steps toward better integration of foreign workers into the working and social environment. On the other hand, a number of challenges are evident in practice. Administrative procedures, especially during the initial entry into the Republic of Croatia, are often lengthy and may take several months due to visa procedures and security checks. The labor market test, although a protective mechanism, can sometimes slow down the employment process in sectors such as tourism. Social issues, including language barriers and cultural adaptation, further complicate the full integration of foreign workers. Based on both the theoretical analysis and personal experience gained during the internship, it can be concluded that the system is functional but administratively complex and demanding. Practical experience at the company Kečkeš d.o.o. clearly demonstrated how detailed the procedures for obtaining and extending work permits are, how much documentation is required, and how much coordination between different institutions is necessary. Although the legislative framework is clearly established, its implementation in practice requires time, organization, and legal precision. To improve the system, further digitalization of procedures is recommended, along with the acceleration of administrative processes—especially in seasonal sectors—and the expansion of integration programs that include more intensive language education and intercultural support. Additionally, further education of employers regarding their legal obligations could help reduce procedural errors and increase legal certainty.

Overall, it can be concluded that the import of labor represents a necessary and long-term important component of the Croatian economy. However, its sustainability depends on balancing economic needs with legal certainty and the social integration of workers. Only a system that simultaneously protects the labor market, respects the rights of foreign workers, and enables efficient administrative implementation can ensure the stable and sustainable development of the tourism sector in the future.

LITERATURE:

1. Croatia Week (2026). Foreign workers in Croatia: statistics and labour trends. Available at: https://www.croatiaweek.com (accessed: March 1, 2026).
2. State Inspectorate of the Republic of Croatia (2026). Labour Inspection – supervision of employment relationships and employment of foreign workers. Available at: https://dirh.gov.hr (accessed: March 1, 2026).
3. Croatian Bureau of Statistics (2025a). Employment and unemployment in the Republic of Croatia. Zagreb: CBS. Available at: https://dzs.gov.hr (accessed: March 1, 2026).
4. Croatian Bureau of Statistics (2025b). Average salaries in the Republic of Croatia. Zagreb: CBS. Available at: https://dzs.gov.hr (accessed: March 1, 2026).
5. European Migration Network (2021). Ad-Hoc Query on Labour Market Test in Croatia. Brussels: EMN. Available at: https://emn.gov.hr (accessed: March 1, 2026).
6. Croatian Employment Service (2024). Voucher system for education and learning the Croatian language. Zagreb: CES. Available at: https://www.hzz.hr (accessed: March 1, 2026).
7. Lider Media (2026). In 2025 nearly 36 thousand fewer permits for foreign workers. Available at: https://lider.media (accessed: March 1, 2026).
8. Ministry of the Interior of the Republic of Croatia (2026). Statistics – residence and work permits for foreign nationals. Available at: https://mup.gov.hr (accessed: March 1, 2026).
9. Ministry of Tourism and Sport of the Republic of Croatia (2024). Tourism in figures – statistical overview. Zagreb. Available at: https://mint.gov.hr (accessed: March 1, 2026).
10. Aliens Act, Official Gazette No. 133/20, 114/22, 151/22. Available at: https://www.zakon.hr/z/142/Zakon-o-strancima (accessed: March 1, 2026).

ANALYSIS OF THE CORE STAKEHOLDERS IN THE HUMANITARIAN SUPPLY CHAINS IN THE CONTEXT OF DIGITAL TRANSFORMATION

Dora Naletina
Faculty of Economics and Business, University of Zagreb, Croatia
dvuletic@net.efzg.hr

ABSTRACT*
Humanitarian supply chains are characterized by high levels of uncertainty, shifting dynamics and the need for a swift coordination of many different actors during crises. A high number of stakeholders operating in the chain, including international organizations, governmental institutions, non-governmental organizations, logistics partners, volunteering groups and sponsors, that often engage in such activities for different reasons, with different priorities and available resources, represent a significant challenge. Lack of coordination and timely exchange of information can result in inefficiency, unnecessary duplication of activities, delays in distribution of aid and loss of resources. In urgent situations, all available transportation and operational capacities are usually deployed which often leads to communication failures and poorly managed logistics. Application of digital technologies enables a more effective exchange of information among stakeholders, better tracking of resources and faster decision-making during crisis intervention. Despite the growing interest for the digitalization of humanitarian logistics, the existing literature still does not pay enough attention to the role of individual stakeholders and their interrelations in the process of digital transformation. The goal of this paper is to analyse the core stakeholders in the humanitarian supply chains and demonstrate their roles, mutual connections and the prospects of digital integration.
Keywords: *humanitarian supply chain, coordination of the stakeholders, digital transformation*

1. INTRODUCTION

Humanitarian supply chains have been gaining on importance over the last decades because there have been more and more natural disasters, pandemics, conflicts and other unpredictable crisis situations that require quick and efficient distribution of aid supplies (Sentia et al., 2026). Humanitarian supply chains represent complex systems directed at delivering basic goods and services to the population facing a crisis, where key role is played by governmental institutions, non-government organizations and those stakeholders operating internationally (Balcik et al., 2010). In complex humanitarian operations that involve many stakeholders, efficient interorganizational cooperation and coordination are crucial prerequisites for the successful management of humanitarian activities and timely responses to the needs of the affected population (Freeman et al., 2021). The exchange of information and coordination among the organizations enable better understanding of those involved in the process, leading to more efficient decision-making and adjusting of logistical and supply processes to different humanitarian requirements. Here, digital technologies play an important role because they help achieve better communication, data exchange and coordination among the stakeholders in the humanitarian supply chains which leads to better efficiency and transparency of humanitarian operations (Mutebi et al., 2025). Modern-day crisis situations additionally accentuate the need for better coordination, exchange of information and inclusion of digital technologies in humanitarian operations (Dubey et al., 2019; Ruesch et al., 2022; Sentia et al., 2026). In particular, the COVID-19 pandemic has demonstrated the importance of establishing more resilient and technologically supported humanitarian supply chains that should facilitate better transparency, faster decision-making and more efficient resource management (Kovács & Sigala, 2021; Choi, 2021).

The development of digital technologies and virtual cooperation are becoming one of the key prerequisites for adapting humanitarian supply chains and timely response to crisis emergencies (Xu et al., 2023). For these reasons, different digital tools, such as blockchain tehnology, artificial intelligence and the Internet of Things, have recently been applied with the aim of enhancing transparency of the supply chains and improving supply management and coordination among the stakeholders (Kumar & Singh, 2022). Therefore, the goal of this paper is to analyse the core stakeholders in the humanitarian supply chains and showcase their roles, interconnectedness and the possibilities of digital integration in the context of digital transformation of humanitarian operations. The paper consists of five chapters and it is based on the analysis of secondary data resources. The introduction into the research problem is followed by the second chapter that displays the characteristics of the humanitarian supply chains and the basic differences between the humanitarian and commercial supply chains. The second part of the same chapter focuses on the analysis of the core stakeholders in the humanitarian supply chains and the specifications of the roles and responsibilities of all the actors involved. Stakeholder coordination and information exchange are further investigated in the third chapter and the fourth chapter explains the possibilities of digital transformations within humanitarian supply chains. Conclusions are presented in chapter five.

2. HUMANITARIAN SUPPLY CHAINS AND CORE STAKEHOLDERS

Humanitarian supply chains should be so designed as to be adjustable to all the environments they operate in (Tomasini & Van Wassenhove, 2009). Unlike the commercial supply chains, it is expected that the humanitarian supply chains provide value for the end user from the affected communities, not the traditional buyer (Sabri, 2018).

2.1. Characteristics of humanitarian supply chains

Humanitarian supply chains often include complex networks of interconnected global organizations that operate in difficult and precarious conditions caused by natural disasters as well as those that are a result of human errors (Day et al., 2012). If commercial (business) logistics is defined as a process of managing goods, information and finances from the source to the end user, then humanitarian logstics can be similarly defined, for humanitarian logistics implies a process of managing the flows of goods, information and finances, but from the donors to the population in need (Ernst, 2003). Humanitarian logistics, same as business logistics, encompasses a string of activities, including preparation, planning, supply, transport, storage, monitoring and free-of-charge customs clearance (Thomas & Kopczak, 2005). In line with that, it can be concluded that the same basic principles of managing the flows of goods, information and finances apply to humanitarian logistics (Kovacs & Spens, 2007). Despite significant contextual differences between commercial and humanitarian supply chains, in humanitarian operations maximization of profits, wich is the main goal of commercial supply chains, is replaced with timely and appropriate supply of aid to the users (Javadian et al., 2017). However, it is important to note that the humanitarian supply chains are the most dynamic supply chains that exist. So, in times of urgency, all available transportation ready to help is deployed and there are often transportation vehicles circling the affected area without clear guidance about their destination (Kovacs & Spens, 2007). Unlike the supply in commercial logistics, humanitarian organizations sometimes receive unwanted donations (e.g. expired medication, winter clothes not suitable for people in warmer climates etc.) (Dignan, 2005). Due to many donations that are not suitable or needed at that point, humanitarian organizations lose limited storage capacities or have to pay for them to be cleared (Murray, 2005). The humanitarian supply chain is a type of supply chain, but with different settings because it has a different purpose. A key difference also lies in the fact that there is no buyer in the humanitarian supply chain. Instead, there are those affected by the crisis in the specific area.

In the commercial supply chain the flow of material (the physical flow) is the flow from the supplier to the buyer, while the humanitarian supply chain implies the flow forward and a downward flow starting with the donor. The comparison of the commercial and the humanitarian supply chain is presented in Table 1.

	COMMERCIAL SUPPLY CHAIN	HUMANITARIAN SUPPLY CHAIN
SUPPLY PATTERNS	Relatively stable, predictible supply patterns. Demand comes from fixed locations in defined amounts.	Demand is generated by random events that are unpredictable regarding time, location, type and scale. Demand requirements are evaluated after the need for them emerges, based on the assessment of the characteristics of the crisis.
TIME OF EXECUTION	Time required for the delivery is set by the supplier-manufacturer-distributor-dealer chain.	Real time needed for the delivery is still set by the flow of material chain.
CONFIGURA TION OF THE DISTRIBUTI ON NETWORK	Cleraly defined methods for determining the number and locations of distribution centres.	Challenging due to the many unknowns (location, type and scale of the event, policies and culture), but also the consideration of "last mile".
STOC K CONT ROL	Uses well-defined methods for establishing stock levels based on the time of delivery, demand and the targeted levels of services for the users.	Stock control is challenging due to major variations in delivery time, demand and locations.
INFORMATI ON SYSTEMS	Generally, incorporated very well, using mostly advanced technologies.	Information flows are often unreliable, incomplete or even non-existant.
STRATEGIC GOALS	The goal is to manufacture high-end products at low cost to maximize profits and secure highly satisfied customers.	To reduce loss of life and relieve suffering.
PERFORMANC E MEASURING SYSTEM	The focus is on traditional measures of efficiency, like profit maximization and minimization of cost.	The primary focus is placed on efficiency measures, like the time needed to respond to the chatastrophic event or the ability to meet the needs of those affected by the event.
WHAT IS THE OBJECT OF DEMAND?	**PRODUCTS**	**RELIEF SUPPLIES AND HUMAN RESOURCES**

Table 1: Comparison of the commercial and the humanitarian supply chain (Source: author-compiled according to Maspero, E.L., Ittmann, H.W. (2008). The rise of humanitarian logistics. Proceedings of the 27th Southern African Transport Conferences (SATC 2008), p. 178)

The implementation of certain policies and strategies in the commercial supply chain management is usually easier that in the case of the humanitarian supply chains because of political issues and the conflicts of interest involved in the humanitarian sector. Progress could be achieved if humanitarian organizations would recognize how the use of a dynamic system model can help them understand their issues and improve their operations, not simply professing the lack of transparency or efficiency in their processes (Sankaranarayanan et al., 2018).

2.2. Core stakeholders in humanitarian supply chains

All stakeholders hold important positions and perform valuable tasks to ensure successful carrying out of the planned activities of humanitarian logistics at minimal costs (Daud et al., 2016). The core stakeholders in the humanitarian supply chains analysed in this paper were taken from the division suggested by Kovács and Spens (2007), and they are: the government, the military, donors, humanitarian organizations, other non-government organizations and logistics service providers as the main actors in the humanitarian operations (see Figure 1).

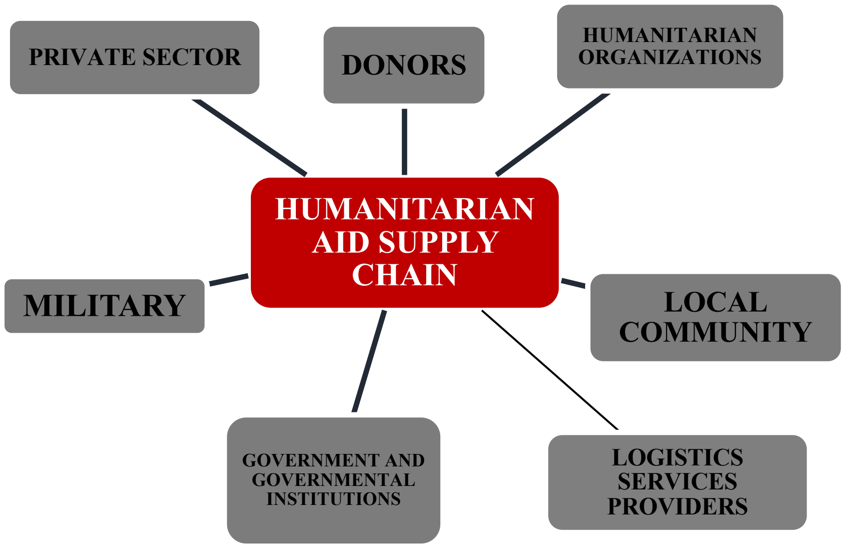


Figure 1: Core stakeholders in the humanitariana aid supply chain
(Source: author-compiled according to Kovács, G., Spens, K. M. (2007). Humanitarian logistics in disaster relief operations. International journal of physical distribution & logistics management, 37(2), p. 106)

Donors are key stakeholders because they provide most of the financial aid for the main humanitarian activities. Moreover, besides the funds specific to the particular parts of the world (e.g. the USA and the EU), over the recent years, foundations, individual donors and private sector have become an important source of financing for humanitarian organizations. The term donors refers to all those who support humanitarian operations, with financial aid, but also with products that are not the result of their businesses' operations, by donating such resources (Cozzolino, 2012). The double role of donors as both clients and suppliers brings a marketing element into the logistics for humanitarian purposes (McLachlin et al., 2010). A good relationship with the donors is crucial for continual existence of humanitarian organizations (Chandes & Pache, 2010). Donors can also direct the types of possible operations with their financial behaviour. Financing preparedness is the key challenge for humaniratian logistics (Sandwell, 2011). Literature clearly shows that donors posses the three features – power, urgency and legality. Demand is evaluated via humanitarian organizations (Long & Wood, 1995) and it is for that particular reason they are considered the core stakeholders through which governments direct their aid to relive suffering caused by natural od human-error disasters. Tha largest humanitarian organizations operate globally, but there are also many regional and purpose-specific humanitarian organizations (Thomas & Kopczak, 2005).

The private sector has been increasingly present in many strategic infrastructural sectors among countries, and such a situation requires intervention by the government that will regulate conflicts that arise from the gap between the social role of the government in ensuring crucial services to the population and business services of the private sector directed at minimizing costs and maximizing profit (Palm, 2008). The private sector can contribute to operations in case of a disaster in many different ways. The variety is noticed when, for example, a stakeholder donates its products/services that are a result of its manufacturing processes or even when it makes an effort to reestablish its own operations (Cozzolino, 2012). It is necessary to mention the military, local governments and the governments of the neighbouring countries, and the logistics service providers (Kaatrud et al., 2003). The military often plays a critical role because military personnel is called up to provide help (Ozdamar et al., 2004). For example, it was the military who brought communication, logistics and planning resources key for the humanitarian operations after the Hurricane Katrina. The ability of the military to respond quickly in times of crises has attached more importance to the military during the initial phase of the operations, while their involvement is reduced as the situation stabilizes (Banomyong & Sopadang, 2010). Especially in humanitarian logistics, the military can operate as a point of reference and a valuable partner for cooperation (Carroll & Neu, 2009). Local governments represent the core stakeholders because they control the assets such as storages and gas stations. Logistics service providers are also valuable actors because they can facilitate or limit operational efficiency of humanitarian logistics activities. Extra-regional logistics service providers play an important role in the supply prosess as well (e.g. DHL contributed with its international efforts to deliver humanitarian aid to the communities affected by the earthquake in South Asia). Many organizations have their own political motives for offering help (Long & Wood, 1995). Political issues can have negative effects on humanitarian operations, and even disrupt the supply to certain regions. In some critical areas, such as war zones, rebel groups can block the arrival of such help (Murray, 2005). Plunder can also follow natural disasters and transportation vehicles often get stopped or redirected from their routes (Cassidy, 27.10.2003). Lack of safety in these operations is evident. Removing political control over humanitarian operations is therefore a very difficult, but important subject to consider (Tomasini & van Wassenhove, 2004).

3. STAKEHOLDER COORDINATION AND INFORMATION EXCHANGE

For humanitarian activities to be successful, i.e. in order for the available resources to be allocated as efficiently as possible, it is important that all the stakeholders are well-coordinated. Since humanitarian organizations generally operate in areas affected by some type of crisis, it is usual that many institutions and organizations are involved, such as non-government organizations (e.g. The Red Cross), local governments, religious organizations, and private companies ready to help (Yáñez-Sandivari et al., 2021). Organizing humanitarian help for the areas affected by a disater is complex due to many different organizations that participate in the activities which adds even more pressure to the coordination of those involved (Dubey and Altay, 2018). The humanitarian supply chain is extremely complicated because there are many stakeholders included in the activities: humanitarian organizations, governments, donors, logistics service providers, the military, media, volunteers and humanitarian aid users. Due to different interests, goals and power levels that exist among the stakeholders, the coordination of information represents one of the biggest challenges of humanitarian logistics (Mutebi et al., 2025). The coordination of the stakeholders is key for sustaining the humanitarian supply chain because it enables more efficiency in saving lives, easing the pain and suffering and better allocation of resources (Li et al., 2019). The coordination in humanitarian logistics implies the relations and interactions among different stakeholders involved in the activities (Dubey and Altay, 2018).

The coordination in the humanitarian supply chains can be vertical and horizontal. Horizontal coordination refers to the scope in which the crown organization coordinates its partners at the same level in the chain. Vertical coordination refers to the traditional control of the structures used for connecting with the partners in the chain (Dubey and Altay, 2018). Governmental organizations and military forces follow vertical coordination, while horizontal coordination is preferred by non-government organizations. Esatblishing coordination is often made difficult by different interests and expectations from humanitarian oprganizations and the private sector. The decision about the cooperation largely depends on the relation between the benefit and the cost of the coordination, i.e organizations will be more ready to coordinate activities if the expected benefits, such as better results, reputation or long-term partnerships surpass the costs od the cooperation. Mutual trust is a particularly important factor. It enhances the readiness of organizations to share information, resources and mutual operations, especially in times of insecurities and catastrophic events. Coordination is developed gradually through previous experiences of cooperation, where successful partnerships enhance the prossibility of future coordination and the creation of stable relations among the stakeholders (Li et al., 2019). Mutebi et al. (2025) accentuate the importance of simple and user-friendly systems of information exchange because the systems that are too complicated can make cooperation difficult and remove some stakeholders from the process of coordination. Donors and head organizations are the most influential stakeholders due to their power and control over resources, while humanitarian aid users and field personnel, although they have high legitimacy and urgency, often do not exercise any influence over the flow of information and decision-making (Mutebi et al., 2025). To adequately share information, humanitarian organizations need to invest in information and communication technologies. The systems have to be tested via routine checks and regular meetings. Lack of coordination often leads to difficulties in the "last mile" (Murray, 2005). The coordination of many different stakeholders (humanitarian agencies, suppliers and local and regional actors), out of which many have their own particular modes of operating and structuring, can be very challenging (Long and Wood, 1995). It is imperative to understand the nature of the issue, mutual relations and the hierarchy of the many stakeholders, and strive to achieve the balance of many different goals based on the various dimensions of the basic humanitarian goal. All the included stakeholders should strive to provide humanitarian aid in as effective, efficient and eco-friendly way as possible (European Commission, January 2022). According to Jahre et al. (2015), improved integration and information exchange among humanitarian organizations are necessary for more effective disaster response. Efficient coordination of information requires balancing the interests of all those involved, developing mutual trust and continual communication among the organizations to help humaniatrian operations run smoother, and be more transparent and efficient (Mutebi et al., 2025).

4. DIGITAL TRANSFORMATION IN HUMANITARIAN SUPPLY CHAINS

Humanitarian logistics, unlike commercial logistics, continually faces high levels of insecurity regarding supply and demand (Van Wassenhove, 2006), but also the lack of coordination (Jahre et al., 2015). In line with that, it is expected that humanitarian logistics follows the application of a different approach to problem-solving. Thousands of donations are usually directed towards areas affected by a disaster. However, those donations are not necessarily efficient, i.e. they possibly do not meet the need and expectations of the population in the affected areas. That is why it is necessary to work on improving the integration (Christopher & Tatham, 2014). Recently, there has been a growing need to consider solutions based on digital technologies and the possibilities of digital transformation of the humanitarian supply chains. The development of technologies such as big data analytics, blockchain, artificial intelligence and digital platforms can contribute to better visibility of aid flows, more efficient exchange of information and coordination of the stakeholders participating in humanitarian activities.

Jayadi (2025) points out that it is the digitalization of the humanitarian supply chains that has been developing as one of the key areas of humanitarian logistics in the last years, especially because of the rising need for faster decision-making, better coordination of the stakeholders and more efficient resource management in highly precarious conditions. Digital platforms and tools provide better coordination of humanitarian organizations, efficient exchange of information, quicker response to disasters, cooperation among governments, NGOs and logistics partners (Shrivastav & Bag, 2024). Artificial intelligence (AI), Internet of Things (IoT), blockchain technology, Big Data Analytics, cloud computing and various information-communication systems stand out as some of the most important digital tools in humanitarian supply chains. These technologies enable collecting, processing and exchanging data in real time which improves the visibility of humanitarian operations and efficiency of decision-making during crises (Jayadi, 2025; Rodríguez-Espíndola et al., 2020). Big Data Analytics and systems for the exchange of information in real time play especially important roles since they provide more efficient resource management, aid distribution optimization and better anticipation of the needs of the population dealing with the crisis (Dubey et al., 2019). Furthermore, blockchain technology is linked to better transparency and traceability of aid flows, while the Internet of Things enables tracking of the shipments, vehicles and resources during humanitarian operations (Rodríguez-Espíndola et al., 2020). Dubey et al. (2019) claim that the application of big data analytics has a positive effect on the cooperation and coordination inside the humanitarian supply chains, especially in times of high insecurities and the need for a fast exchange of information. Technologies like the blockchain, artificial intelligence and 3D printing hold significant potential for enhancing transparency, traceability and flow of the humanitarian supply chains (Rodríguez-Espíndola et al., 2020). Singh (2025) analyses the role of the digital twin technology – DTT, i.e. the virtual digital display of physical logistics processes, resources and operations in real time, in enhancing the speed and resilience of humanitarian supply chains. Singh (2025) points out that the digital twin technology faciliates continual monitoring of logistics processes, collecting data in real time, predictive analytics, simulation of possible scenarios, faster and better decision-making during humanitarian operations. The author gives special importance to real-time sensing, predictive analytics and the process of alignment, because those elements enable humanitarian organizations to better adjust to crisis situations and more efficient management of the discrepancies in the supply chain. According to Jayadi (2025), digital tools like artificial intelligence, blockchain, Internet of Things and big data analytics have significant potential for boosting efficiency and coordination of the humanitarian supply chains. However, their practical implementation still remains limited due to the fragmentation of the system, the lack of standardization and insufficient connectedness of research and operational application. Digital tools contribute to smoother flow and resilience of the humanitarian supply chains and improve coordination of humanitarian organizations, logistics partners, donors and local communities. This makes the digital platform an important prerequisite for the development of more efficient and resilient humanitarian operations. Technology alone is not enough for digital transformation of the humanitarian supply chains. Singh (2025) concludes that significant intermediary role is played by the stakeholder collaboration, i.e. the coordination of humanitarian organizations, logistics partners and other stakeholders in the supply chain. It is a combination of advanced digital technologies and good inter-institutional cooperation that enables the development of the smooth-running, more resilient humanitarian supply chains. Digital transformation of the humanitarian supply chains can contribute to more favourable inter-institutional coordination and axchange of information among the stakeholders. Digital platforms and integrated information systems lead to more efficient collaboration of donors, humanitarian organizations and local communities which results in faster response to catastrophic events and better aid allocation.

For this reason, digital technologies have been increasingly considered vital tools for improving coordination, visibility and adaptability of the humanitarian supply chains (Dubey et al., 2019; Rodríguez-Espíndola et al., 2020). Shrivastav and Bag (2024) emphasize how digital technologies in the humanitarian supply chains not only contribute to more efficient information management and logistics processes, but also to strengthening cooperation, reslilience, sustainability and transparency of humanitarian operations.

5. CONCLUSION

Digitalization of the humanitarian supply chains has gained more focus over the last years due to the need for a quicker, more efficient and better coordinated response to humanitarian crises and catastrophes. Special significance in the humanitarian supply chains is given to the core stakeholders such as humanitarian organizations, logistics partners, government institutions, donors, local communities and international organizations whose mutual coordination is crucial for timely and efficient aid distribution. Lack of coordination and limited exchange of information among the stakeholders can often lead to delays, inefficient resource allocation and escalating operational costs. In this context, digital technologies play crucial roles because they enable data exchange in real time, better visibility of the process, more careful planning of activities and faster decision-making. The application of digital platforms, big data analytics and systems for monitoring logistics operations can contribute to strengthening cooperation among the stakeholders, increasing transparency of humanitarian operations and developing more efficient management of the humanitarian supply chains. The conducted analysis of the existing academic papers leads to the conclusion that digital tools, like artificial intelligence, big data analytics, blockchain technology, Internet of Things and digital twin system have significant potential to boost adaptability, resilience, transparency and efficiency of humanitarian supply chains. At the same time, research suggests that the implementation of digital solutions in practice is still limited due to the lack of standardization, financial resources, interoperability of the system and digital competencies, due to which digital transformation of the humanitarian supply chains remains a valuable field for future research and development.

ACKNOWLEDGEMENT: *This article was funded by the European Union – NextGenerationEU under Call IIP-581-2025 and was prepared as part of the institutional research project "Mitigating vulnerability through the digital transformation of humanitarian supply chains in the Republic of Croatia (D-HELP HR)".*

LITERATURE:

1. Balcik, B., Beamon, B. M., Krejci, C. C., Muramatsu, K. M., Ramirez, M. (2010). Coordination in humanitarian relief chains: Practices, challenges and opportunities, *International Journal of Production Economics*, 126(1), 22-34.
2. Banomyong, R., Sopadang, A. (2010). Using Monte Carlo simulation to refine emergency logistics response models: a case study, *International Journal of Physical Distribution & Logistics Management*, 40(8-9), 709-721.
3. Carroll, A., Neu, J. (2009). Volatility, unpredictability and asymmetry: an organising framework for humanitarian logistics operations?, *Management Research News*, 32(11), 1024-1037.
4. Cassidy, W. B. (27.10.2003). A logistics lifeline, *Traffic World*.
5. Chandes, J., Pache, G. (2010). Investigating Humanitarian Logistics Issues: From Operations Management to Strategic Action, *Journal of Manufacturing Technology Management*, 21(3), 320-340.

6. Choi, T. M. (2021). Risk analysis in logistics systems: A research agenda during and after the COVID-19 pandemic, *Transportation Research Part E: Logistics and Transportation Review*, 145, 10219.
7. Christopher, M., Tatham, P. (Eds.). (2014). *Humanitarian logistics: Meeting the challenge of preparing for and responding to disasters* (2nd edition). London: Kogan Page Publishers.
8. Cozzolino, A. (2012). Humanitarian logistics and supply chain management. In: Cozzolino, A. (ed.) *Humanitarian Logistics: Cross-Sector Cooperation in Disaster Relief Management* (pp. 5-16), Berlin & Heidelberg: Springer.
9. Daud, M. S. M., Hussein, M. Z. S. M., Nasir, M. E., Abdullah, R., Kassim, R., Suliman, M. S., Salu-Din, M. R. (2016). Humanitarian logistics and its challenges: The literature review, *International Journal of Supply Chain Management*, 5(3), 107-110.
10. Day, J. M., Melnyk, S. A., Larson, P. D., Davis, E. W., Whybark, D. C. (2012). Humanitarian and disaster relief supply chains: A matter of life and death, *Journal of Supply Chain Management*, 48(2), 21-36.
11. Dignan, L. (2005). Tricky currents; tsunami relief is a challenge when supply chains are blocked by cows and roads don't exist. *Baseline,* 1(39), 30.
12. Dubey, R., Altay, N. (2018.). Drivers of coordination in humanitarian relief supply chains. In: Kovács, G., Spens, K., Moshtari, M. (Eds.) *The Palgrave handbook of humanitarian logistics and supply chain management* (pp. 297-325), London: Palgrave Macmillan.
13. Dubey, R., Bryde, D. J., Foropon, C., Graham, G., Giannakis, M., Mishra, D. B. (2022). Agility in humanitarian supply chain: An organizational information processing perspective and relational view, *Annals of Operations Research*, 319(1), 559-579.
14. Dubey, R., Gunasekaran, A., Childe, S. J., Roubaud, D., Wamba, S. F., Giannakis, M., Foropon, C. (2019). Big data analytics and organizational culture as complements to swift trust and collaborative performance in the humanitarian supply chain, *International Journal of Production Economics*, 210, 120-136.
15. Ernst, R. (2003). The academic side of commercial logistics and the importance of this special issue, *Forced Migration Review*, 18(1), 5-8.
16. European Commission (January 2022). *DG ECHO Thematic Policy Document. Humanitarian Logistics Policy*, Luxembourg: Publications Office of the European Union.
17. Freeman, R. E., Dmytriyev, S. D., Phillips, R. A. (2021). Stakeholder theory and the resource-based view of the firm, *Journal of Management*, 47(7), 1757-1770.
18. Jahre, M., Ergun, O., Goentzel, J. (2015). One size fits all? Using standard global tools in humanitarian logistics, *Procedia Engineering,* 107, 18-26.
19. Jahre, M., Fabbe-Costes, N. (2015). How standards and modularity can improve humanitarian supply chain responsiveness: The case of emergency response units, *Journal of Humanitarian Logistics and Supply Chain Management*, 5(3), 348-386.
20. Javadian, N., Modares, S., Bozorgi, A. (2017). A bi-objective stochastic optimization model for humanitarian relief chain by using evolutionary algorithms, *International Journal of Engineering,* 30(10), 1526-1537.
21. Jayadi, E. L. (2025). The digitalization of the humanitarian supply chain performance management: literature and practice, *Journal of Humanitarian Logistics and Supply Chain Management*, 15(2), 175-196.
22. Kaatrud, D. B., Samii, R., van Wassenhove, L. N. (2003). UN joint logistics centre: a coordinated response to common humanitarian logistics concerns, *Forced Migration Review*, 18, 11-14.
23. Kovács, G., Sigala, I. F. (2021). Lessons learned from humanitarian logistics to manage supply chain disruptions, *Journal of Supply Chain Management*, 57(1), 41-49.
24. Kovács, G., Spens, K. M. (2007). Humanitarian logistics in disaster relief operations, *International Journal of Physical Distribution & Logistics Management*, 37(2), 99-114.

25. Kumar, P., Singh, R. K. (2022). Application of Industry 4.0 technologies for effective coordination in humanitarian supply chains: a strategic approach, *Annals of Operations Research*, 319(1), 379-411.
26. Li, C., Zhang, F., Cao, C., Liu, Y., Qu, T. (2019). Organizational coordination in sustainable humanitarian supply chain: An evolutionary game approach, *Journal of cleaner production*, 219, 291-303.
27. Long, D. C., Wood, D. F. (1995). The logistics of famine relief, *International Logistics*, 325-338.
28. Maspero, E. L., Ittmann, H. W. (2008). The rise of humanitarian logistics. *Proceedings of the 27th Southern African Transport Conference (SATC 2008)* (pp. 175-184), Pretoria: Document Transformation Technologies cc.
29. McLachlin, R., Larson, P. D., Khan, S. (2009). Not-for-profit supply chains in interrupted environments: the case of a faith-based humanitarian relief organisation, *Management Research News*, 32(11), 1050-1064.
30. Murray, S. (2005). How to deliver on the promises: supply chain logistics: humanitarian agencies are learning lessons from business in bringing essential supplies to regions hit by the tsunami, *Financial Times*.
31. Mutebi, H., Aryatwijuka, W., Rukundo, A., Twongyirwe, R., Tumwebembeire, N., Tugiramasiko, M. (2025). Stakeholder expectations, inter-organizational coordination and procurement practices among humanitarian organizations, *Journal of Business and Socio-economic Development*, 5(3), 259-276.
32. Ozdamar, L., Ekinci, E., Küçükyazici, B. (2004). Emergency logistics planning in natural disasters, *Annals of Operations Research*, 129, pp. 217-245.
33. Palm, J. (2008). Emergency management in the Swedish electricity market: The need to challenge the responsibility gap, *Energy Policy*, 36(1), 843-849.
34. Rodríguez-Espíndola, O., Chowdhury, S., Beltagui, A., Albores, P. (2020). The potential of emergent disruptive technologies for humanitarian supply chains: the integration of blockchain, artificial intelligence and 3D printing, *International Journal of Production Research*, 58(15), 4610-4630.
35. Ruesch, L., Tarakci, M., Besiou, M., Van Quaquebeke, N. (2022). Orchestrating coordination among humanitarian organizations, *Production and Operations Management*, 31(5), 1977-1996.
36. Sabri, Y. (2018.). Deploying collaborative management research approaches in humanitarian supply chains: an overview and research agenda. In: Kovács, G., Spens, K., Moshtari, M. (Eds.) *The Palgrave handbook of humanitarian logistics and supply chain management* (pp. 25-42), London: Palgrave Macmillan.
37. Sandwell, C. (2011). A Qualitative Study Exploring the Challenges of Humanitarian Organisations, *Journal of Humanitarian Logistics & Supply Chain Management*, 1(2), 132-150.
38. Sankaranarayanan, K., Castañeda, J. A., Villa, S. (2017). Future research in humanitarian operations: A behavioral operations perspective. In: Kovacs, G., Spens, K., Moshtari, M. (Eds.) *The Palgrave handbook of humanitarian logistics and supply chain management* (pp. 71-117), London: Palgrave Macmillan UK.
39. Sentia, P. D., Abdul Shukor, S., Abdul Wahab, A., Mukhtar, M. (2026). Exploring trends and issues in information technology and information systems for humanitarian supply chain: the crossbreed literature review, *Journal of Humanitarian Logistics and Supply Chain Management*, 16(1), 1-14.
40. Shrivastav, S. K., Bag, S. (2024). Humanitarian supply chain management in the digital age: a hybrid review using published literature and social media data, *Benchmarking: An International Journal*, 31(7), 2267-2301.

41. Singh, R. K. (2025). Transforming humanitarian supply chains with digital twin technology: a study on resilience and agility, *The International Journal of Logistics Management*, 36(4), 1119-1135.
42. Thomas, A. S., Kopczak, L. R. (2005). From logistics to supply chain management: the path forward in the humanitarian sector, *Fritz Institute*, 15(1), 1-15.
43. Tomasini, R. M., van Wassenhove, L. N. (2004). Pan-American health organization's humanitarian supply management system: de-politicization of the humanitarian supply chain by creating accountability, *Journal of Public Procurement*, 4(3), 437-449.
44. Tomasini, R., Van Wassenhove, L. (2009). *Humanitarian logistics,* London: Palgrave Macmillan.
45. Van Wassenhove, L. N. (2006). Blackett Memorial Lecture. Humanitarian Aid Logistics: Supply Chain Management in High Gear, *Journal of the Operational Research Society*, 57(5), 475-489.
46. Xu, X., Sethi, S. P., Chung, S. H., Choi, T. M. (2023). Reforming global supply chain management under pandemics: The GREAT-3Rs framework, *Production and Operations Management*, 32(2), 524-546.
47. Yáñez-Sandivari, L., Cortés, C. E., Rey, P. A. (2021). Humanitarian logistics and emergencies management: New perspectives to a sociotechnical problem and its optimization approach management, *International Journal of Disaster Risk Reduction*, 52, 101952.

THE BUDGET OF THE LOCAL UNIT IN THE FINANCING OF MUNICIPAL ACTIVITIES AND THE INFLUENCE OF THE AUDIT ON IMPROVING THE USE OF RECEIVED FUNDS

Dubravka Mahacek
Faculty of Dental Medicine and Healthcare in Osijek
dmahacek@fdmz.hr

ABSTRACT

In accordance with legal provisions, local units are obliged to organize, finance and supervise the construction and maintenance of communal infrastructure and to maintain communal order in their area. The State Audit Office is responsible for auditing local and regional self-government units. With the audit for 2022, individual reports were compiled for each local unit (city, municipality) for which the audit was performed. The source of data on which the research in this work is based are the reports on the conducted financial audit, published on websites, and available scientific literature. The performance of communal activities is important for citizens. The aim of the work is to investigate the performance of municipal activities in cities, which implies the legal determination, size and structure of realized revenues, dedicated revenues, and the size and structure of realized revenues from communal fees and communal contributions, and to conclude on the possibilities of action for purpose of improving the performance of communal activities. The assumption is that cities differ significantly in terms of the size of the generated revenues and their structure, dedicated revenues, revenues from communal fees and communal contributions, and consequently also the possibilities of implementing programs by which the collected revenues are distributed by purpose. The local unit should use funds collected from municipal fees and contributions for the intended purpose, for carrying out activities, and any spending contrary to regulations is not permitted. The paper applies methods of analysis, synthesis and comparison. The work confirmed the assumption that the possibilities of meeting the needs of the municipal economy depend on the revenues generated from municipal fees and contributions, their significance and size within the budget. The audit gave the cities orders and recommendations in the field of communal activities, the implementation of which would affect the more rational use of budget funds, and thus increase the possibilities of securing and meeting the needs that are necessary and a prerequisite for living and working in a certain area.

Keywords: *Revenue, Utility Fee, Utility Contribution, City, Audit, Order*

1. INTRODUCTION

The city, as a unit of local self-government, applies regulations on budget accounting (the Budget Act, Article 5). The provisions of the aforementioned Act regulate the planning, preparation, adoption and execution of the budget, management of assets and liabilities, management of general budget debt, borrowing and guarantees of the Republic of Croatia and local and regional self-government units, accounting, budget control and other issues related to the management of public finances. The subject of this paper is to investigate the operations of local units, cities, in relation to the realized income and the income related to the communal fee and communal contribution, to analyse the data and to conclude about the amount of the realized mentioned income, because the assumption is that they differ significantly. As a result, the provision of basic living and working conditions in each of the cities is significantly different. The basis for the research are individual reports on the performed financial audit for the city as a unit of local self-government and a collective report on the performed audit.

2. METHOD OF PERFORMING AND FINANCING MUNICIPAL ECONOMY

Legal provisions (Law on Municipal Economy, Article 21) regulate the performance of municipal services. The provisions of the aforementioned Law regulate the principles of municipal economy, the performance and financing of municipal services, the construction and maintenance of municipal infrastructure, the payment of municipal contributions and municipal fees, the maintenance of municipal order and other issues important for the municipal economy. Revenues from the municipal fee are collected from legal entities for business premises and from natural persons, i.e. citizens. They are realized on the basis of a decision on the municipal fee adopted by the city council.

The decision on the municipal fee establishes the criteria and conditions for the payment of the municipal fee, the areas of zones in the city in which the municipal fee is charged, the zone coefficient for individual zones, the purpose coefficient for real estate for which the municipal fee is paid, the payment deadline, payers and obligations to pay the municipal fee, real estate important for the city for which the exemption from paying the municipal fee is fully or partially implemented, general conditions and reasons for which a full or partial exemption from paying the municipal fee is approved in individual cases, and other issues related to the procedure for determining the municipal fee.

The decision on the value of the utility fee point determines the value of the point for calculating the amount and obligation to pay the utility fee. The value of the point is determined per m^2 of usable area of the residential space. The Administrative Department for the Communal System and Communal Security issues a decision on the payment of the utility fee. The purpose of the revenue from the utility fee is for the maintenance, construction and modernization of the utility infrastructure. In order to improve collection, all available collection measures must be taken. Revenue from the utility contribution is generated on the basis of the decision on the utility contribution adopted by the city council. The decision on the utility contribution determines the zones for payment of the utility contribution, the unit value of the utility contribution, the procedure for determining the obligation, the method and deadlines for payment, the general conditions and reasons for which partial or complete exemption from paying the utility contribution may be granted in individual cases, record-keeping and supervision of the administrative body's actions regarding the utility contribution, and other issues related to the procedure for determining the utility contribution.

The unit value of the utility contribution for construction in individual zones per m^2 of the building is determined. The decision on the utility contribution is made by the administrative department for the utility system and utility policing. The utility contribution is paid on behalf of the city, and is intended to finance the construction and maintenance of utility infrastructure. The utility contribution is paid by the owner of the land on which a building is being built or a legalized building is located or by the investor if the obligation to pay the utility contribution has been transferred to him by a written contract. The performance of utility activities is organized and performed in the territory of a local self-government unit.

Several units in the territory of the same or different counties may organize the performance of utility activities jointly. The decision on this is made by the representative bodies of local self-government units, and mutual rights and obligations in the case of joint performance of utility activities are regulated by a written contract.

A local self-government unit that cannot independently or jointly ensure the performance of utility activities may, by decision of the representative body, entrust the performance of such activities to another local self-government unit in the territory of the same or another county, if its representative body agrees to this, whereby mutual rights and obligations are also regulated by a written contract. Utility services may be performed by a company and a public institution established by a local government unit or several local government units together and having the status of a public supplier managing utility infrastructure, a service or own facility established by a local government unit, which in that case has the status of a public supplier managing utility infrastructure because its own facility does not have the status of a legal entity, and a legal or natural person on the basis of a concession contract or a contract for the performance of utility services.

2.1. Realized income from communal fees and contributions

Within the framework of revenues from administrative and administrative fees, fees under special regulations and fees, local and regional self-government units record the revenues generated from utility fees and contributions (Regulations on Budget Accounting and the Chart of Accounts, Article 83). An integral part of the aforementioned Regulations is the Accounting Plan, which establishes the numerical codes and names of individual accounts according to which those obliged to apply budget accounting are obliged to report assets, liabilities and sources of ownership, as well as revenues/receipts and expenditures/expenditures. The aim of the paper is to observe the size of the realization of these earmarked revenues by cities, to perform an analysis and comparison, and to conclude on the possibilities of performing legally prescribed tasks in the field of utility management.

2.1.1. Income from communal fees and contributions

In the following, we present the total realized revenues and receipts, total dedicated revenues and revenues from communal fees and contributions for the local units that are the subject of research in this paper. Irregularities determined in the audit procedures related to the mentioned revenues are investigated and an overview of the irregularities is given. The paper covers the cities that were the subject of the financial audit for 2022 (Report on the work of the State Audit Office for 2023). In the paper, the data on the operations of twelve (12) cities were investigated, for which total income and receipts, total dedicated income, income from communal fees and income from communal contributions are presented in absolute amounts. The share of realized dedicated revenues, revenues from communal fees and revenues from communal contributions in the total revenues of each city is given.

Likewise, the share of dedicated revenues from communal fees in total dedicated revenues is given, as well as the share of communal contributions in total dedicated revenues. Of the revenues, that we can single out for which there is no prescribed purpose by law, tax revenues are those that local units can direct according to their needs. The designated revenues include revenues from utility fees and utility contributions, which are the subject of research in this paper.

City	Total income and receipts	Total earmarked income	Income from communal fees	Income from communal contribution
1	2	3	4	5
Dubrovnik	490,850,328	130,117,121	39,061,946	22,273,928
Gospić	82,477,312	42,045,278	7,970,988	3,110,199
Kaštela	189,095,195	66,090,193	26,533,484	15,730,006
Krapina	56,497,879	19,315,926	4,627,202	128,133
Metković	66,886,767	21,550,107	5,357,660	2,505,858
Pazin	105,240,255	74,340,018	6,010,754	5,204,012
Slavonski Brod	244,966,027	192,849,633	19,941,648	4,313,382
Šibenik	285,160,563	140,446,063	39,948,956	12,189,000
Vinkovci	207,372,892	91,561,623	11,764,889	1,854,710
Vodnjan	55,981,440	26,770,445	5,622,192	12,526,717
Vukovar	194,663,457	106,964,425	8,806,521	98,122
Zabok	71,699,200	49,130,427	9,424,312	450,911
Total	2,050,891,315	961,181,259	185,070,552	80,384,978

Table 1: Realization of total income and receipts, total dedicated income, income from communal fees and income from communal contribution (in HRK) for 2022 (State Audit Office, twelve individual audit reports for 2022)

In the reports on the financial audit performed, all data is in the kuna, which was the means of payment, and the fixed conversion rate is 7.5345 kuna for 1.00 euro. Table 1 shows the realization of total revenues and receipts of cities, total earmarked revenues, revenues from utility fees and revenues from utility contributions in absolute amounts. From the trends in the realization of total revenues and receipts at the level of all cities, we note that in absolute amounts the cities of Dubrovnik, Šibenik and Slavonski Brod have the highest revenues and receipts, while Vodnjan has the lowest. The cities of Šibenik, Dubrovnik, Kaštela have the highest revenues from utility fees, followed by Slavonski Brod, while Krapina has the lowest. The cities of Dubrovnik, Kaštela and Vodnjan have the highest revenues from utility contributions, and Vukovar has the lowest. The cities of Slavonski Brod, Dubrovnik and Vukovar have the highest revenues in absolute amounts, and Vukovar has the lowest revenues.

City	Share of total earmarked revenues/total revenues and receipts	Share of utility fees/total revenues and receipts	Share communal contribution/total revenues and receipts	Share of revenue from utility fees/total earmarked revenue	Share of revenue from utility contributions/total earmarked revenue
1	2	3	4	5	6
Dubrovnik	26.5	7.96	4.54	30.02	17.12
Gospić	51.0	9.66	3.77	18.96	7.40
Kaštela	35.0	14.03	8.32	40.15	23.80
Krapina	34.2	8.19	0.23	23.96	0.66
Metković	32.2	8.01	3.75	24.86	11.63
Pazin	70.6	5.71	4.94	8.09	7.00
Slavonski Brod	78.7	8.14	1.76	10.34	2.24
Šibenik	49.3	14.01	4.27	28.44	8.68
Vinkovci	44.2	5.67	0.89	12.85	2.03
Vodnjan	47.8	10.04	22.38	21.00	46.79
Vukovar	54.9	4.52	0.05	8.23	0.09
Zabok	68.5	13.14	0.63	19.18	0.92
Total	46.87	9.02	3.92	19.25	8.36

Table 2: Share of earmarked revenues in total revenues and receipts, share of revenues from utility fees and revenues from utility contributions in total revenues and receipts, and share of revenues from utility fees and revenues from utility contributions in total earmarked revenues (Author according to data from Table 1)

Table 2 provides a calculation of the share of earmarked revenues, and revenues from utility fees and revenues from utility contributions in total revenues and receipts. It also provides the share of revenues from utility fees and revenues from utility contributions in total earmarked revenues. According to Table 2, the share of earmarked revenues in total revenues and receipts is the largest in the cities of Slavonski Brod, Pazin and Zabok, while it is the smallest in the city of Dubrovnik. The largest share of revenues from utility fees in total revenues and receipts is in the cities of Kaštela, Šibenik and Zabok, while the smallest is in Vukovar. The largest share of revenues from utility contributions in total revenues and receipts is in the cities of Vodnjan, Kaštela and Pazin, while the smallest is in Vukovar. According to the calculation of the share of revenues from utility fees in total earmarked revenues, it observed that the largest share is in the cities of Kaštela, Dubrovnik and Šibenik, and the smallest is in Pazin. According to the calculation of the share of revenue from utility contributions in total earmarked revenues, Vodnjan has the largest share, followed by Kaštela and Dubrovnik, and Vukovar has the smallest. The average share of total earmarked revenues in total revenues and receipts is 46.87 %. Seven cities have a higher share than the average, and five cities have a lower share than the average. The average share of revenue from utility fees in total revenues and receipts is 9.02 %. Five cities have a higher share than the average, and seven cities have a lower share than the average. The average share of revenue from utility contributions in total revenues and receipts is 3.92 %.

The calculated shares of revenue from utility fees and utility contributions can be compared with 2010, when the share of revenue from utility fees and contributions in the total revenue of all counties was 13.6%, while in 2011 the share of the same revenue was 13.8%. The share of revenue from utility fees and contributions in the total revenue and receipts of all counties in 2009 was 13.3%. From the data presented in Table 2, it can be seen that in 2022 the share of revenue from utility fees and contributions in the total revenue and receipts at the level of the observed cities is 12.94%, which is lower than in the previous period. The realization of the aforementioned revenues at the level of all counties and the impact on the possibility of performing utility activities are also monitored (Mijoč, I.; Mahaček, D., 2013). Revenues from utility fees and contributions have been a significant source of financing for local and regional self-government units in the past as well. At the level of all counties, the share is not uniform and ranges from 6.84% to 22.61% in 2005. The share is observed at the level of all counties (Perić, R.; Mahaček., 2008). Four cities have a higher share than the average, and seven cities have a lower share than the average. The average share of revenue from utility fees in total earmarked revenues is 19.25 %. Six cities have a higher share than the average, and six cities have a lower share than the average. The average share of revenue from the municipal contribution in total earmarked revenues is 8.36 %.

Five cities (Vodnjan, Kaštela, Dubrovnik, Šibenik and Metković) have a higher share than the average. The cities of Vodnjan and Šibenik have a higher share than the average, for all shares shown in the paper. The city of Kaštela has a higher share than the average, for four shares shown, except for the share of total earmarked revenues in total revenues and receipts. The cities that we included in the paper have different populations; differ in the size and structure of their budgets, the area they occupy, population density and other characteristics. According to scientific literature: "The basic feature of self-government in Croatia is the equal scope of authority in performing tasks, regardless of the size of municipalities and cities, measured by the number of inhabitants and the size of the area they occupy, population density, geographical location, level of development, ability to achieve sustainability goals, organization of administrative bodies and public services (organizational capacity), number of employees and civil servants (human capacity) and income from taxes, assistance, own and earmarked income (financial capacity) for performing public services within the scope of self-government. In addition to its advantages, the system of authority defined in this way has numerous disadvantages. One of the most important disadvantages is the inability to perform public tasks within the scope of self-government and commit to sustainability goals at the same level of quality in all municipalities and cities, given the different levels of development, developmental characteristics, organizational, human and financial capacities and the size of the local unit itself" (Slijepčević, S.; Broz, T.; Rašić, I., 2024). The authors point out the reasons for the differences in self-government in Croatia that lead to the deficiency, namely the inability of local units to perform public tasks at the same level of quality. In the aforementioned study, the authors analysed the capacities for performing utility services in 127 Croatian cities. Among other things, the analysis show which areas need to be improved in order for cities to become more developed and sustainable. It emphasized that work should be done to improve public services, housing and social facilities, health services in cities, and the development of primary education, sports and recreation, as well as cultural activities. It expected that the above should influence decision-making at the state level, which should result in changes that will affect the strengthening of responsibility in the distribution of income and expenditure between state and local governments.

2.1.2 Irregularities in the area of income from communal fees and contributions

The paper investigates irregularities that arise in the area of generating revenue from utility fees and contributions, because eliminating irregularities would increase the sources for meeting the needs of the utility economy, improve the level of services provided, and ultimately achieve better living conditions in a certain area. The irregularities are various, and the most frequent ones are listed below. The source of data for investigating irregularities was the website of the State Audit Office, which published reports on the financial audits of cities for 2022. The most frequent irregularities related to utility fees and utility contributions are listed:

- The report on the implementation of the program for the construction of facilities and devices of utility infrastructure and the report on the implementation of the program for the maintenance of utility infrastructure were accepted by the city council, but the reports were not published in the Official Gazette and on the city website, which was a legal obligation;
- The utility activity of maintaining unclassified roads was performed by a legal entity based on a written contract. All other utility activities were entrusted, according to the decision of the city council, to a company owned by the city. The aforementioned decision on entrusting the performance of communal services may establish that a company owned by the city performs communal services related to the maintenance of public lighting (management and maintenance of public lighting devices and facilities and appropriate decoration of the settlement), maintenance of public stormwater drainage structures, maintenance of public areas where motor vehicle traffic is not allowed, and contrary to the aforementioned decision of the city council, the aforementioned services were also performed by other contractors based on purchase orders and invoices. The aforementioned services were entrusted to other entities, and the performance of communal services was ordered in accordance with the decision on the performance of communal services in the city area.
- Reminders were sent for the collection of claims for communal fees and communal contributions, while other available collection measures were not taken, and it is necessary to systematically take all available collection measures. This irregularity affects the amount of revenue generated, because claims that have not been collected are written off, and the aforementioned affects the local unit's ability to carry out its further activities and programs. The funds that were not realized could have been directed to other projects with the aim of improving the quality of life of all residents in a certain area.

When talking about taking collection measures, it should be noted that it is necessary to adopt a procedure on records, management, procedures, monitoring and control of debt, collection and forced collection of all types of city revenues. The above-mentioned procedure can stipulate that competent officials in administrative departments are obliged to analyze the state of monthly due income for which they are in charge and to determine the debtors against whom collection measures and forced collection should be applied. Collection measures include the sending of reminders and reminders before enforcement for overdue unpaid claims, approval of installment payments, collection by direct debit, cession or similar, and other collection actions. Reminders are sent to debtors who have not settled at least three monthly, two quarterly or one half-yearly/annual debts, and at least once a year. Warnings before execution are sent to debtors who have not settled their debt according to the received warning, at least once a year.

With the procedure, it can be determined that the responsible officers report once a month to the competent heads about the debts incurred and the status of collection of the city's receivables. The irregularities also relate to the monthly reports on executed debts and the status of the collection of city receivables that have not been prepared. From the data on the share of utility fees and contributions, we conclude that they are significant within the framework of the realization of budgetary funds. Therefore, it is necessary to emphasize the importance of taking collection measures (warnings, enforcement decisions, proposal for securing a monetary claim by establishing a lien on real estate). Although the Procedure stipulates that reminders are sent at least once a year, they were sent once a year for most claims (according to the status of claims from May 2022). It follows from the above that the city did not take sufficient measures to collect all claims. Attention should be paid to the maturity of claims in order to avoid their statute of limitations. The above is also related to the Fiscal Responsibility Questionnaire, which confirmed that all necessary measures were taken for the full collection of revenues and receipts from the city's jurisdiction, which was not filled out correctly.

The aforementioned irregularities may prompt the need to conduct an internal audit of the city, which had as its subject the calculation and collection of utility fees. Internal audit has recommended systematically undertaking all available collection measures for debtors who do not settle their debts within the prescribed period. It is stipulated that local and regional self-government units are responsible for the full and timely collection of revenues and receipts from their jurisdiction and for their payment into the budget (the Budget Act, Article 51). Furthermore, budget revenues are collected and paid into the budget in accordance with the law or other regulations, regardless of the amount of revenues planned in the budget. In the following period, it is checked whether the given orders and recommendations of the external audit have been followed. The check can be carried out in the course of conducting a financial audit that covers the entire operations of the city for one of the following years or a review of the orders and recommendations given in the financial audit carried out for a specific year can be carried out. In accordance with the law, local units organize, finance and supervise the construction and maintenance of communal infrastructure and maintain communal order in their area. In order to establish and use the opportunities improved in management, a systematic analysis and evaluation of the effects of management and use of communal infrastructure should be carried out and the impact of management on the local community should be determined.

It is from the above that we can conclude that internal possibilities for improving the management of available budget funds should be explored in order to better meet all the tasks of the cities and the needs that are placed under their jurisdiction. The State Audit Office made recommendations to analyze and evaluate the effects of the management and use of communal infrastructure and to introduce and apply criteria and indicators of the effectiveness of the management of communal infrastructure according to the principles laid down in the provisions of the Act on Communal Economy on which the communal economy is based, and to report to the public on the achieved goals and effects of management, i.e. on the measures taken in case of non-fulfillment of the set goals (Report on the performed audit of the effectiveness of the management of communal infrastructure in the area of the City of Zagreb). In this way, by acting on audit orders, improvements in the system are affected.

3. GRAPHIC EXPLANATION OF BUSINESS DATA

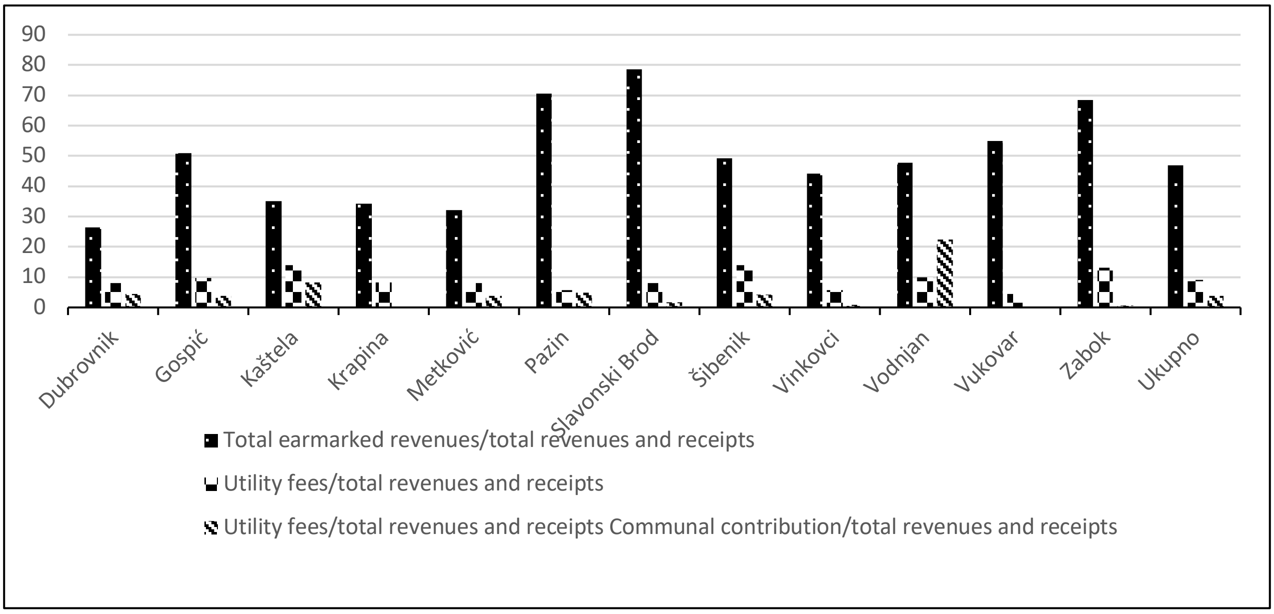


Figure 1: Share of earmarked revenues and utility fees and utility contributions in total revenues and receipts, Source: author, according to data from Table 2, columns 2, 3 and 4.

Figure 1 shows the share of earmarked revenues, utility fees and utility contributions in total revenues and receipts. We note that the shares differ significantly among the cities shown.

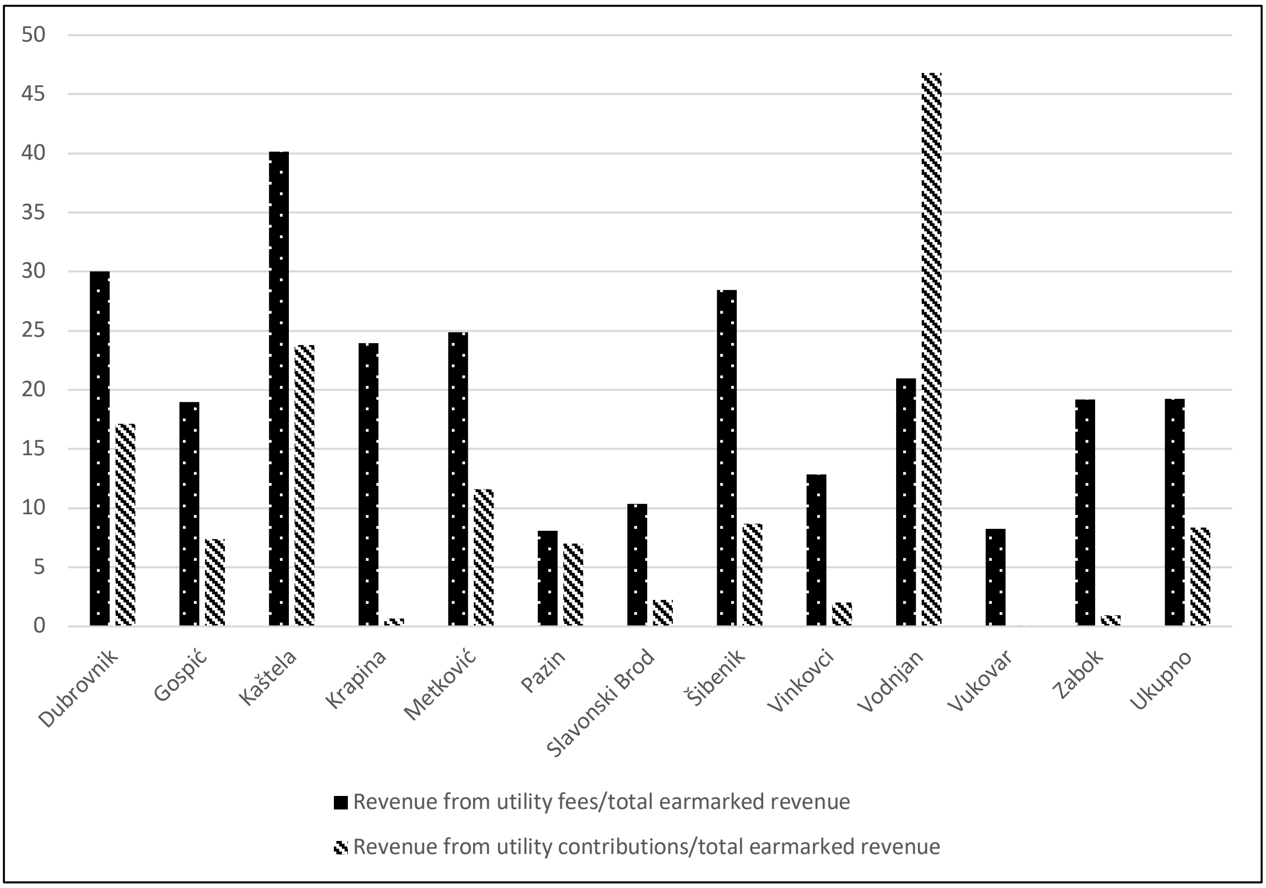


Figure 2: Share of revenue from utility fees and utility contributions in total earmarked revenues and receipts, Source: author, according to data from Table 2, columns 5 and 6.

Figure 2 shows the share of revenue from utility fees and utility contributions in total earmarked revenues and receipts. The share of revenue from utility fees is higher than the share of revenue from utility contributions in all cities except Vodnjan. The shares of revenue from utility fees are significant and differ significantly in the cities covered by the research.

4. CONCLUSION

The paper investigated data on the realization of earmarked revenues from the utility fee and utility contribution, and the source of the research was individual reports from financial audits of cities. An analysis was conducted, a comparison was made, and conclusions were drawn. From the data presented for cities, it can be concluded that cities differ significantly in terms of the size of the revenues realized in absolute amounts. At the level of all cities that were investigated in this paper, the cities of Dubrovnik, Šibenik, and Slavonski Brod have the highest total revenues and receipts in absolute amounts, and Vodnjan has the lowest. Among the cities that have realized significant revenues from the utility fee are Šibenik, Dubrovnik, and Slavonski Brod. The city of Dubrovnik achieved the highest revenues from the utility contribution, and they are significant in Kaštela. Vukovar has the lowest revenues from the utility contribution. Significant earmarked revenues in absolute amounts were realized in Slavonski Brod, Dubrovnik, and Vukovar. The study confirmed the assumption that cities differ significantly in the amount of revenue generated from utility fees and utility contributions and in the share of these revenues in total budget funds. Since the average share of revenue generated from utility fees and utility contributions in total revenues and receipts at the level of the cities covered in this study is 12.94 %, or the average share of revenue generated from utility fees and utility contributions is significant in total revenue, accounting for 27.61 %, it would be necessary to investigate the possibilities of increasing these revenues in cities where the share is below average. In addition to possible changes that will strengthen responsibility in the distribution of revenues and expenditures between state and local authorities, it is also possible to improve the use of available budget funds. Due to the significant share of revenue generated from utility fees in total budget funds in some cities, future research should focus on the structure of revenue generated and their economical spending. A limitation of this paper is that the research focuses on cities, regardless of their size and population, and data should be collected that more precisely measures the provision of municipal services, as this would provide a more accurate distinction between cities and their capacities. Data were used for only one year, excluding municipalities. Expanding the research to multiple years, including municipalities, would allow for a comparison of capacities for providing municipal services.

LITERATURE:

1. Croatian Parliament: Budget Act, Official Gazette 144/21
2. Croatian Parliament: Law on Municipal Economy, Official Gazette 68/18, 110/18 i 32/20
3. Ministry of Finance: Regulations on Budget Accounting and the Chart of Accounts, Official Gazette 158/23
4. Mijoč, I.; Mahaček, D. (2013), Financial Audit and Spending of Appropriations, Ekonomski vjesnik: Review of Contemporary Entrepreneurship, Business, and Economic Issues, Vol. XXVI No. 1, 2013, ISSN 0353-359X (Tisak); ISSN 1847-2206 (Online)

5. Perić, R.; Mahaček, D. (2008), In Pursuit of Utility Services of Local and Regional Self-Government Units 1st International Conference "Vallis Aurea" Focus on: Regional development, Požega-Vienna, Croatia-Austria, ISBN 978-953-98762-7-0, ISBN 978-3-901509-60-5
6. Slijepčević, S.; Broz, T.; Rašić, I. The Capacities and Sustanability of Croatian Cities in Performing Municipal Services, Ekonomski institut Zagreb, August 24, 2024. https://www.mdpi.com/2071-1050/16/17/7277 Retrieved on February 16, 2026
This article belongs to the Special Issue Urban Equality and Sustainability Studies https://doi.org/10.3390/su16177277
7. State Audit Office, Dubrovnik Regional Office, Report on the financial audit of the City of Dubrovnik for 2022, Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/DUBROVNIK.pdf.
8. State Audit Office, Dubrovnik Regional Office, Report on the financial audit of the City of Metković for 2022 Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/METKOVIC.pdf.
9. State Audit Office, Gospić Regional Office, Report on the financial audit of the City of Gospić for 2022 Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/GOSPIC.pdf.
10. State Audit Office, Krapina Regional Office, Report on the financial audit of the City of Krapina for 2022, January 2024, Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/KRAPINA.pdf.
11. State Audit Office, Krapina Regional Office, Report on the financial audit of the City of Zabok for 2022 Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/ZABOK.pdf.
12. State Audit Office, Split Regional Office, Report on the financial audit of the City of Kaštela for 2022, Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/KASTELA.pdf.
13. State Audit Office, Pazin Regional Office, Report on the financial audit of the City of Pazin for 2022 Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/PAZIN.pdf.
14. State Audit Office, Pazin Regional Office, Report on the financial audit of the City of Vodnjan – Dignano for 2022, Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/VODNJAN%20%E2%80%93%20DIGNANO.pdf.

15. State Audit Office, Požega Regional Office, Report on the financial audit of the City of Slavonski Brod for 2022, Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/SLAVONSKI%20BROD.pdf.
16. State Audit Office, Šibenik Regional Office, Report on the financial audit of the City of Šibenik for 2022, Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/SIBENIK.pdf.
17. State Audit Office, Vukovar Regional Office, Report on the financial audit of the City of Vinkovci for 2022, Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/VINKOVCI.pdf.
18. State Audit Office, Vukovar Regional Office, Report on the financial audit of the City of Vukovar for 2022, Retrieved on February 16, 2026 from: https://www.revizija.hr/UserDocsImages/izvjesca-novo/Revizije%20-%202023/IZVJESCA_%20O_OBAVLJENIM_REVIZIJAMA/FINANCIJSKE_REVIZIJE/LOKALNE_JEDINICE/GRADOVI/VUKOVAR.pdf.
19. State Audit Office, Zagreb, Report on the performed audit of the effectiveness of the management of communal infrastructure in the area of the City of Zagreb, November 2021, p. 42, Retrieved on February 16, 2026 from: https://www.revizija.hr/izvjesca/10?t=1&godinaID=1465&page=2
20. State Audit Office: Report on the work of the State Audit Office for 2023, p. 66, Retrieved on, February 16, 2026 from https://www.revizija.hr/izvjesca/10?godinaID=2901&tema=3004

CHALLENGES OF AN EXPORT PRODUCT IN A DYNAMIC ECONOMIC ENVIRONMENT

Goranka Majic
Lecturer, Baltazar University of Applied Sciences, Zaprešić, Republic of Croatia
gmajic@bak.hr

David Veseljak
Baltazar University of Applied Sciences, Zaprešić, Republic of Croatia
david.veseljak@bak.hr

Josipa Curjuric Rudic
Kindergarten "Sunce", Zadar, Republic of Croatia
josipa.rudic@gmail.com

ABSTRACT

The increasingly volatile and technology-driven economic environment has substantially altered the conditions under which export products are developed, positioned, and commercialized in international markets. This paper examines the key challenges affecting export products in such circumstances, with particular emphasis on digital products in the IT sector. The analysis is based on the theoretical framework of digital trade and foreign trade operations and is supported by a case study of Sofascore, a Croatian technology company whose development illustrates the export potential of digitally delivered products and services. The paper proceeds from the premise that the competitiveness of an export product in the digital economy depends not only on its technological sophistication, but also on the firm's capacity to respond to rapid market changes, evolving user expectations, and increasingly demanding regulatory frameworks. Particular attention is devoted to the role of technological infrastructure, product adaptability, international scalability, user trust, monetization models, and compliance with legal standards related to data protection and digital platform governance. The findings indicate that digital export products possess important comparative advantages, including low marginal distribution costs, broad international reach, and the possibility of rapid product modification. At the same time, they are exposed to pronounced competitive pressures, dependence on third-party digital platforms, and the continuous need for innovation and strategic adjustment. The case study confirms that long-term export success in a dynamic economic environment is contingent upon the integration of technological capability, organizational flexibility, and sustainable business modelling. Accordingly, the paper concludes that adaptability, innovation, and strategic responsiveness represent essential determinants of the international competitiveness of export products in the contemporary digital economy.

Keywords: *digital economy, digital trade, export product, innovation, international competitiveness*

1. INTRODUCTION

The international business environment of the twenty-first century is marked by a degree of volatility that makes static export strategies increasingly untenable. Accelerated technological progress, regulatory intensification, global platform intermediation, and rapid shifts in consumer expectations have altered not only the terms under which firms enter foreign markets, but also the criteria by which export products are evaluated, scaled, and sustained.

In such an environment, export performance can no longer be interpreted exclusively through the classical variables of price, distribution, and market access. It must also be considered through the capacity for organizational adaptation, digital integration, and institutional responsiveness. This issue is particularly visible in the sphere of digitally delivered products and services. Whereas traditional export models were tied to the movement of physical goods across borders, digital trade increasingly rests on intangible products, data-based services, platform-mediated distribution, and continuous interaction with users located in multiple jurisdictions. Such products are capable of reaching international markets rapidly and at relatively low marginal cost, yet they are simultaneously exposed to intense competitive pressure, technological dependency, and fragmented regulatory frameworks. The very factors that make digital products scalable also make them vulnerable to external shocks and fast-moving structural change. The present paper examines these questions through a combination of theoretical analysis and a case study of Sofascore, a Croatian technology company whose business model represents a distinctive form of digital export activity. The article is conceptually grounded in the literature on digital trade, foreign trade operations, service export, and adaptation to foreign markets, while the empirical part is based on the final thesis from which the case material is derived. That thesis combined literature review with the analysis of company-related materials, internal business indicators referenced in the study, and publicly available market information. The purpose of the present article is not to repeat the thesis mechanically, but to reorganize its findings into a conference paper with a clearer scientific structure that proceeds from the general theoretical level toward a more specific company-level interpretation. The paper pursues three closely connected aims. First, it develops a theoretical framework for understanding the specific nature of export products in a dynamic economic environment, with emphasis on digitally delivered services. Second, it explains the principal mechanisms through which export services adapt to such an environment, including technological adjustment, regulatory alignment, product localization, and business-model flexibility. Third, it interprets the Sofascore case as an empirically grounded illustration of how a digital company from a small open economy positions an export product in a highly competitive global market. By linking conceptual discussion with a concrete case, the paper seeks to contribute to a more precise understanding of the conditions under which digital export products can achieve long-term competitiveness.

2. THEORETICAL FRAMEWORK

The theoretical framework of the paper is built on the premise that export products must be examined within the broader transformation of international business. Contemporary export activity is no longer shaped solely by trade liberalization, logistics efficiency, or the comparative advantages of national economies. It is increasingly conditioned by the diffusion of digital technologies, the platformization of markets, and the redefinition of value creation through data, software, and service ecosystems. For this reason, the analytical point of departure must be sufficiently broad to encompass both the classical logic of foreign trade and the specificities of digital market exchange.

2.1. Dynamic economic environment and the changing logic of export competitiveness

A dynamic economic environment may be understood as an environment characterized by frequent technological, institutional, and demand-side change. Market structures in such an environment are unstable rather than settled; consumer expectations evolve rapidly; and firms are required to make decisions under conditions of uncertainty rather than equilibrium. Inflationary episodes, geopolitical disturbances, regulatory reforms, platform policy changes, and shifts in the availability of digital infrastructures all form part of this context.

As a result, export competitiveness becomes a moving target, dependent not only on efficiency but also on resilience, agility, and strategic anticipation. In classical trade analysis, the competitiveness of an export product was often associated with production costs, product quality, and access to distribution channels. Those elements remain relevant, yet they no longer suffice for the analysis of digitally mediated export activity. In sectors shaped by rapid innovation, competitiveness is closely related to the speed with which firms can update products, interpret signals from users, and comply with formal and informal rules on foreign markets. The export product must therefore be treated not as a fixed output, but as a continuously adjusted market proposition whose value depends on its capacity to remain relevant under changing conditions. This conceptual shift has important methodological consequences. It implies that the study of export products cannot be limited to the final commodity or service itself. The focus must extend to the organizational routines, technological architectures, governance mechanisms, and revenue models through which the product is maintained and repositioned. In the case of service exports, and especially digital services, the adaptive capacity of the firm becomes inseparable from the competitiveness of the product. The product is, in effect, a condensed expression of broader organizational capabilities.

2.2. Digital trade and export services

Digital trade has emerged as one of the central concepts for interpreting contemporary international exchange. Unlike conventional trade flows, which are typically associated with physical shipment and border procedures, digital trade includes transactions in which digitally ordered, digitally delivered, or digitally mediated products and services are exchanged across national boundaries. This broadened understanding includes software solutions, digital platforms, subscription services, app-based products, cloud services, data analytics, and numerous hybrid forms of online business. The literature emphasizes that digitally delivered services differ from traditional export goods in several respects. They are intangible, they can often be delivered instantaneously, and their marginal distribution costs tend to be very low once the underlying infrastructure has been developed. Such characteristics increase the potential for rapid scaling and international reach. At the same time, however, digital services depend on technical reliability, trust in the digital interface, data protection regimes, and the continuity of access to platform ecosystems. These conditions mean that digital exports cannot be understood merely as a technologically updated version of conventional exports; they represent a structurally distinct mode of international business. Foreign trade operations remain an important part of this analysis, because digital service exporters still operate in a world of national legal orders, tax regimes, and market-specific requirements. Even when no physical product crosses a border, questions of jurisdiction, consumer protection, payment security, privacy, and advertising regulation continue to shape the terms of market participation. The growth of digital trade has therefore not abolished foreign-trade complexity; rather, it has reconfigured it. The contemporary exporter of digital services faces lower logistical barriers, but often higher informational and compliance demands.

2.3. Adaptation of export services to foreign markets

Adaptation has long occupied a central place in international marketing and international business research. The traditional debate concerned the extent to which firms should standardize products and promotion internationally or tailor them to local market conditions. In the context of digital services, this discussion acquires additional layers. Adaptation no longer concerns only promotion, packaging, or distribution arrangements. It also encompasses user-interface design, language localization, data processing rules, recommendation systems, monetization architecture, and platform-specific optimization.

Export services adapt to dynamic economic conditions through a combination of technological, regulatory, and market-oriented mechanisms. Technological adaptation refers to the ability to maintain reliability, interoperability, and scalability across diverse user contexts. Regulatory adaptation refers to compliance with rules on privacy, taxation, digital advertising, and platform governance. Market adaptation refers to the alignment of service features, content priorities, and commercial offers with the preferences and purchasing logic of specific user segments. These dimensions are analytically distinct, yet in practice they operate simultaneously. An important implication of this perspective is that adaptation should not be interpreted as a reactive concession to environmental pressure alone. In well-managed export firms, adaptation is a strategic capability that can itself become a source of competitive advantage. Firms that are able to read foreign markets accurately, update products quickly, and institutionalize learning from user behaviour can develop more durable market positions than firms that rely solely on initial product novelty. This proposition is especially relevant for the IT sector, where market cycles are short and technological imitation is common.

Dimension	**Analytical content**	**Strategic implication**
Technological adaptation	Scalability, reliability, data processing, platform optimization	Enables continuity of service and growth under variable demand
Regulatory adaptation	Privacy, taxation, advertising rules, platform governance	Reduces institutional risk and strengthens market legitimacy
Market adaptation	Localization, UX/UI adjustment, sport or content prioritization	Improves relevance for specific foreign user groups
Commercial adaptation	Monetization models, premium logic, B2B extensions	Stabilizes revenue in volatile demand conditions

Table 1: Main dimensions of export-service adaptation in a dynamic environment (Source: systematized by the authors)

Table 1 summarizes the core analytical dimensions used throughout the paper. It also illustrates why adaptation should be treated as a multidimensional process. Export performance depends not on one isolated factor, but on the degree of coherence among technological, regulatory, market, and commercial adjustments.

3. RESEARCH DESIGN AND ANALYTICAL APPROACH

The empirical part of the paper is derived from a case-based inquiry presented in the final thesis on digital trade as a form of foreign-trade business, developed through the example of Sofascore. In order to align the conference paper with a more explicit scientific structure, the thesis material has been reorganized here into a clearly stated analytical design. The aim is not to claim statistical generalization, but to use a single strategically selected case to illuminate wider theoretical questions concerning the adaptation of export services in a dynamic economic environment.

3.1. Research objective and research questions

The primary objective of the research is to determine how a digital export product from the IT sector adapts to dynamic economic conditions and what factors condition its international competitiveness.

This general objective is operationalized through three research questions. First, which theoretical characteristics distinguish digital export products from conventional export goods and services? Second, through which mechanisms do export services adapt to technological, regulatory, and market changes in a volatile environment? Third, in what way does the Sofascore case illustrate the practical interaction between these theoretical adaptation mechanisms and the concrete realities of international business growth?

The rationale for selecting Sofascore as the focal case lies in the company's strong international orientation, its digital product architecture, and the fact that it represents a Croatian enterprise that has achieved global market visibility without relying on extensive physical foreign infrastructure. The company therefore offers a relevant analytical setting for examining born-global tendencies, service export logic, and digitally mediated adaptation.

3.2. Data sources and analytical procedure

The research is based on qualitative case-study logic supported by secondary and contextualized empirical material. The theoretical component draws on the literature on digital trade, e-marketing, foreign trade operations, and platform-based business models. The company-level component relies on the final thesis, which synthesizes academic sources with company-related information and selected market indicators. The thesis references internal and external data sources such as company materials, analytical tools, and business indicators used to illustrate user reach, revenue structure, and market presence. Among the sources explicitly cited in the thesis are internal data presented through Superset, data from the Digital Chamber, SimilarWeb-based comparisons, as well as company and media materials related to Sofascore. The analytical procedure followed in this article is interpretive and comparative. In the first stage, the theoretical literature is used to derive a set of adaptation dimensions relevant for digital export services: scalability, localization, trust, monetization, regulatory compliance, and strategic flexibility. In the second stage, these dimensions are applied to the Sofascore case in order to determine whether and how they are visible in the observed business model. In the third stage, the case findings are discussed as a broader indication of how export-oriented digital firms from small open economies can position themselves internationally. Such an approach necessarily has limitations. Because the analysis is based on one case and on data originally assembled for a final thesis rather than for a multi-case research design, the findings should be treated as analytically suggestive rather than universally representative. Even so, the case is sufficiently rich to support a disciplined interpretation of how digital export products function under dynamic conditions, especially when the purpose of the paper is explanatory rather than predictive.

4. CASE STUDY: SOFASCORE AS AN EXPORT-ORIENTED DIGITAL SERVICE

The Sofascore case provides the empirical core of the article. It enables the transition from the general theoretical level to a concrete example in which the export product is not a physical good but a data-intensive digital service distributed globally through online channels. The company is particularly suitable for this purpose because its market reach, revenue structure, and product architecture correspond closely to the conceptual issues identified in the theoretical framework.

4.1. Product characteristics and international market presence

Sofascore is a Croatian technology company founded in 2010 with the aim of developing advanced solutions for real-time monitoring of sports results and statistics. Over time, it evolved from a local start-up into a globally recognized sports analytics platform.

According to the final thesis, the platform covers more than twenty sports and over 11,000 competitions, while the application is available through the web, iOS, and Android channels and has been localized into more than thirty languages. These features are highly significant from the perspective of export theory, because they indicate that the product was constructed from the outset in a way that supports international accessibility and cross-market usability. The distinctiveness of the product lies not only in broad sports coverage, but also in the depth of statistical interpretation embedded in the service. The thesis emphasizes the company's proprietary player-rating algorithm and the use of advanced analytics and machine learning to generate value that exceeds basic score reporting. This is important analytically because it shows that the export potential of the service is not derived from distribution alone. It rests on the creation of specialized digital value, which can be used by final consumers as well as by business clients such as media outlets and professional sport organizations. The international composition of the user base further confirms the export character of the product. The final thesis indicates that more than 98% of users are located outside Croatia and that the strongest markets include Brazil, the United States, Italy, and Nigeria. In this respect, Sofascore exemplifies a born-global digital product: market expansion is not sequenced through gradual territorial establishment, but through digital reach, localization, and product relevance. The company's internationalization is therefore embedded in the product itself rather than added through later foreign-market replication.

Indicator	**Evidence reported in the thesis**
Scope of service	More than 20 sports and over 11,000 competitions
Language availability	Product localized into more than 30 languages
User geography	More than 98% of users located outside Croatia
Strong foreign markets	Brazil, the United States, Italy and Nigeria highlighted among the strongest markets
Revenue origin	More than 98% of revenue generated abroad
Business model	Advertising, premium functions, data products and API-based B2B services

Table 2: Selected indicators of the Sofascore export product
(Source: adapted by the authors from the final thesis)

Presented in condensed form, these indicators show that the company's export orientation is embedded in the architecture of the product, the composition of the user base, and the distribution of revenue. The indicators therefore provide the empirical basis for the interpretive claims developed in the article.

4.2. Revenue structure and the foreign-trade dimension of the product

The export character of Sofascore is visible not only in the geographical distribution of users, but also in the structure of revenue generation. The thesis states that more than 98% of company revenue is realized abroad. This finding is of particular relevance for foreign-trade analysis because it demonstrates that the product functions as an export service even though no physical shipment occurs. Revenue is generated through digital access, advertising, premium functions, and business-to-business arrangements, while the underlying transactions are connected to foreign users and partners. The company's revenue logic is multi-layered. In the business-to-consumer segment, a major role is played by advertising, particularly personalized forms of advertising shown through digital channels.

Additional revenue is generated through premium functionalities, such as an ad-free experience and advanced analytical insights. In the business-to-business segment, the product extends into the sale of data, graphics, and API-based services to external commercial users. This diversified structure is consistent with the literature on digital platform monetization, which emphasizes the strategic value of combining multiple income streams in order to stabilize revenue in volatile market environments. From the standpoint of economic adaptation, the most important feature of this revenue structure is not diversification for its own sake, but the flexibility it creates. Firms that depend on a single source of monetization are more vulnerable to regulatory shifts, platform policy changes, and fluctuations in user behaviour. By contrast, the coexistence of advertising, premium services, and B2B data products allows Sofascore to distribute risk more effectively and to convert product value in several market segments. In that sense, the revenue model is itself an adaptation mechanism.

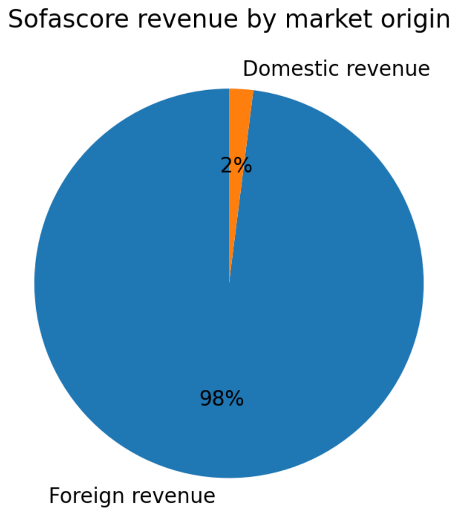


Figure 1: Share of foreign and domestic revenue in the Sofascore business model (Source: adapted by the authors on the basis of the final thesis data)

The visual representation above condenses one of the most important empirical findings from the thesis. It demonstrates that the company's revenue base is overwhelmingly international, which justifies its interpretation as a digital exporter in the substantive, rather than merely descriptive, sense of the term.

4.3. Adaptation mechanisms in a dynamic environment

The Sofascore case reveals several adaptation mechanisms that correspond closely to the theoretical framework set out earlier in the paper. The first is technological adaptation. The thesis points to the use of cloud infrastructure, analytics tools, and AI-supported personalization as key elements of the company's operational model. These elements enable the company to maintain functionality during large sporting events, to process extensive volumes of real-time data, and to tailor notifications and content to user interests. Such infrastructure is not merely a technical background to the product; it is a precondition of export viability. The second mechanism is market adaptation through localization. The product is made accessible across multiple languages and is adjusted to different user priorities and sport cultures. The thesis highlights the company's strategic attention to particular markets such as the United States, India, Brazil, Nigeria, and Indonesia. This suggests a calibrated form of internationalization in which the product retains its core logic while adjusting content scope, sport emphasis, and communication priorities according to the structure of demand.

Localization thus appears not as a cosmetic addition but as a substantive part of foreign-market adaptation. The third mechanism concerns institutional and regulatory adaptation. Because the platform processes user data, engages in digital advertising, and operates in multiple legal environments, it must align its activities with privacy rules, consumer-protection expectations, and advertising restrictions. The thesis explicitly mentions the importance of GDPR and broader European regulatory developments. In practical terms, this means that export growth requires more than product popularity; it also requires the organizational capacity to interpret and implement complex compliance obligations. A fourth mechanism is strategic adaptability in business-model design. Sofascore's product architecture allows new functionalities to be introduced with relatively low marginal cost, whether through AI-based insights, new content formats, additional sport coverage, or B2B service extensions. This capacity for iterative product development is central to success in a dynamic environment. It allows the company to move from a static service logic toward a learning-based model in which user feedback, analytical data, and market shifts can be translated into product adjustments.

4.4. Strategic challenges, SWOT interpretation and growth prospects

Although the case is often read primarily as a success story, its analytical value also lies in the tensions and constraints it reveals. The thesis identifies dependence on third-party platforms as one of the key vulnerabilities of the business model. Distribution through app stores and the web provides global scale, but also creates exposure to external rule-setting. Changes in platform policies, advertising restrictions, or ranking algorithms may influence visibility and monetization conditions without the firm having direct control over them. This asymmetry is characteristic of many digital exporters and should be treated as a structural dimension of their operating environment. The thesis also points to regulatory uncertainty and the challenge of sustaining innovation under intense competition. Competitors such as Flashscore, FotMob, OneFootball, and ESPN occupy adjacent market spaces and compete through speed, content, interface quality, and brand strength. In such conditions, export success cannot rest on early entry alone. It requires continued investment in product differentiation, user experience, and data capabilities. The company's strengths—global recognition, proprietary analytics, high user ratings, and multilingual reach—must therefore be understood as dynamic assets that require ongoing renewal. At the same time, the case highlights notable growth opportunities. Further expansion in markets with large digital populations and strong sports engagement, as well as the broadening of premium and B2B services, offer routes toward greater revenue depth and reduced dependence on any single monetization source. The company's capacity to add new functionalities without proportionate cost escalation is especially important here, because it links growth opportunities directly to the scalability of the service.

Category	**Main elements**
Strengths	Global reach, proprietary analytics, high user ratings, multilingual accessibility
Weaknesses	Dependence on third-party platforms, limited monetization on the domestic market
Opportunities	Expansion in new markets, broader premium services, partnerships with sport organizations and media
Threats	Advertising-policy shifts, strong competition, regulatory uncertainty across jurisdictions

Table 3: Condensed SWOT interpretation of Sofascore
(Source: adapted and condensed by the authors from the final thesis)

The SWOT synthesis makes visible the dual nature of digital export success. The same factors that enable rapid international growth—platform distribution, scalable monetization, and broad market accessibility—also create dependencies that must be actively managed if the firm is to sustain competitive advantage over time.

5. CONCLUSION

Further research on this topic should proceed in several directions. First, comparative studies involving multiple digital exporters from different service segments would make it possible to assess the extent to which the adaptation patterns identified in this article are sector-specific or more broadly generalizable. Second, longitudinal research could examine how digital export firms adjust over time to regulatory shifts, platform governance changes, and cyclical market disturbances. Third, future studies could place greater emphasis on the quantitative measurement of adaptation outcomes, particularly in relation to user retention, monetization efficiency, and international revenue structure. Finally, additional research could investigate the role of institutional support, innovation ecosystems, and higher-education partnerships in strengthening the export capacity of digitally oriented firms in small and medium-sized economies. The findings of the paper suggest that the adaptation of export services should be understood as a multidimensional process involving technological, organizational, market, and institutional adjustments. This has broader relevance for firms originating in small open economies, where digital channels may reduce barriers to internationalization, yet do not eliminate the need for sustained innovation, strategic flexibility, and regulatory preparedness.
The case study of Sofascore demonstrates how these mechanisms operate in practice. The company has achieved substantial international market reach on the basis of a digital product that combines data processing, platform-based distribution, multilingual accessibility, and diversified revenue sources. At the same time, the case makes clear that such success remains contingent upon the firm's ability to respond to platform dependency, regulatory fragmentation, market volatility, and competitive pressure. Sofascore therefore illustrates not only the opportunities created by digital trade, but also the managerial and strategic demands that accompany export activity in a dynamic environment. From the theoretical standpoint, the article confirms that dynamic economic conditions alter the very logic of export activity. In digitally mediated markets, export services are characterized by intangibility, rapid scalability, low marginal distribution costs, and simultaneous exposure to high levels of uncertainty. For that reason, adaptation becomes a structural imperative rather than an occasional strategic choice. Export success depends on the integration of technological reliability, user trust, localization, institutional compliance, and the continuous refinement of business models. The paper has examined the challenges of an export product in a dynamic economic environment by linking a general theoretical framework of digital trade and export services with the empirically grounded case of Sofascore. The analysis has shown that the competitiveness of a contemporary export product, particularly in the IT sector, cannot be explained solely by product quality or cost efficiency. It is increasingly determined by the capacity of firms to adapt their technological architecture, monetization logic, regulatory compliance, and market positioning to conditions of constant change.

LITERATURE:

1. Andrijanić, I. (2012). Vanjskotrgovinsko poslovanje. Zagreb: Mikrorad.
2. Baymard Institute. (2025). Cart Abandonment Rate Statistics. Retrieved 17.07.2025 from https://baymard.com/lists/cart-abandonment-rate.

3. BigCommerce. (2025). ERP Integrations Bring Systems Together and Remove Data Silos. Retrieved 12.07.2025 from https://www.bigcommerce.com/articles/ecommerce/erp-integration/.
4. Chinnasamy, S. (2025). Transforming E-Commerce with Intelligent Recommendation Systems. Retrieved 12.07.2025 from https://www.ijcesen.com/index.php/ijcesen/article/view/1183.
5. Kotler, P., Wong, V., Saunders, J. and Armstrong, G. (2006). Osnove marketinga. Zagreb: MATE.
6. Lee, K. (2020). The Economics of Digital Platform Monetization. Journal of Digital Business, 5(4), 641-655.
7. McKinsey Digital. (2024). The UX Imperative in Digital Sales. Retrieved 17.07.2025 from https://www.mckinsey.com.
8. OECD. (2020). OECD Digital Economy Outlook 2020. Paris: OECD Publishing. Retrieved 11.07.2025 from https://www.oecd.org/en/publications/oecd-digital-economy-outlook-2020_bb167041-en.html.
9. OECD. (2021). Measuring Digital Trade. Paris: OECD Publishing. Retrieved 17.07.2025 from https://www.oecd.org/content/dam/oecd/en/publications/reports/2021/10/measuring-digital-trade_bd0df576/48e68967-en.pdf.
10. Previšić, J., Ozretić Došen, Đ. and Krupka, Z. (2012). Marketing. Zagreb: Adverta.
11. Ružić, D., Biloš, A. and Turkalj, D. (2014). E-marketing. Osijek: Ekonomski fakultet u Osijeku.
12. Salesforce. (2024). What Is an Ecommerce Tech Stack? Retrieved 12.07.2025 from https://www.salesforce.com/commerce/ecommerce-tech-stack/.
13. Sofascore Corporate. (2025). About Sofascore. Retrieved 03.08.2025 from https://corporate.sofascore.com/.
14. Srhoj, S. (2021). Digital trust and export growth in the IT sector. Economic Annals, 66(231), 83-101.
15. UNCTAD. (2022). Trade and Development Report 2022. Geneva: United Nations. Retrieved 12.07.2025 from https://unctad.org/tdr2022.
16. Veseljak, D. (2025). Digitalna trgovina kao oblik vanjskotrgovinskog poslovanja na primjeru iz prakse (final thesis). Zaprešić: Veleučilište Baltazar.

TAX BALANCE BETWEEN LABOUR, CAPITAL AND RENTAL INCOME: AN ANALYSIS OF EFFECTIVE TAXATION IN CROATIA

Zdenko Bolfek
University of Applied Sciences Hrvatsko Zagorje Krapina,
Šetalište Hrvatskog narodnog preporoda 6, 49000 Krapina, Croatia
zdenko.bolfek@vhzk.hr; zdenko.bolfek@gmail.com

ABSTRACT

The tax system of the Republic of Croatia includes income from various sources and regulates their taxation through separate rules within a single piece of legislation – the Personal Income Tax Act. Such a structure of taxation results in different effective tax rates, which is at odds with the requirements of horizontal and vertical equity and tax neutrality. The aim of the paper is to compare the effective tax burden on different types of income in Croatia and to assess its implications for tax equity and neutrality. The paper analyses the effective tax burden on five selected income sources: salary, distributed profit, rental income, income from contracts for services and author's remuneration. The research is based on a comparative simulation model of different tax scenarios. In each scenario, an identical total amount is assumed for the payment of each income type, after calculating public levies. To test vertical equity, the model includes three income levels, from average to high wages. The simulation considers a taxpayer who is entitled only to the basic personal allowance, without additional reliefs for family members, and by assuming the application of standard personal income tax rates without reductions or increases that municipalities may apply. In addition to personal income tax, social contributions and corporate income tax are taken into account where prescribed. The results indicate different effective tax burdens across income types, with labour income subject to higher levies than capital and property income. The paper discusses the implications of these findings for horizontal and vertical equity as well as for taxpayer behaviour, primarily through the shifting of income into more favourably taxed forms.

Keywords: *Capital taxation, Effective tax rate, Income shifting, Labour taxation, Tax equity*

1. INTRODUCTION

Tax policy plays a significant role in shaping the behaviour of taxpayers, the allocation of resources among production factors, and the overall balance between efficiency and fairness in an economy. In Croatia, as in many contemporary tax systems, different forms of income are not treated equally. Labour income is subject not only to personal income tax, but also to mandatory social contributions, while other forms of income, such as dividends, rental income or certain contractual payments, are taxed according to different bases, rates and deductible expenses (Personal Income Tax Act, 2024; Contributions Act, 2024; Croatian Tax Administration, 2026). As a result, taxpayers who generate economically comparable amounts of income may face significantly different effective tax burdens depending on the legal form in which that income is realised, even within formally comprehensive personal income tax systems. Such discrepancies are discussed in the public finance literature as a central challenge for horizontal equity and tax neutrality (Musgrave & Musgrave, 1993; Atkinson & Stiglitz, 2015; Sørensen, 2005). Previous empirical work for Croatia has documented uneven effective taxation across income sources and a limited integration of different income categories into the personal income tax system (Šimović, 2012). This issue is particularly relevant in Croatia, where the personal income tax system distinguishes among several legally defined sources of income, including income from employment, self-employment, property and property rights, capital, insurance, and other income (Personal Income Tax Act, 2024).

Although these categories are justified by differences in legal status and administrative treatment, they also create incentives to restructure income in ways that minimise the tax burden rather than reflect the underlying economic substance (OECD, 2025), which raises important questions about horizontal and vertical equity and tax neutrality. This paper analyses the effective tax burden on different forms of income available to individuals in Croatia, focusing on the relative treatment of labour, capital and property income. It develops a comparative simulation model that applies current tax rules to three stylised income scenarios defined by an identical total cost to the payer and five income types: salary, distributed profit, rental income, contract-for-services income and author's remuneration (Personal Income Tax Act, 2024). Self-employment income is discussed conceptually but not modelled explicitly, since its tax structure largely mirrors that of employment income. The central research question is whether the Croatian tax system imposes significantly different effective tax rates on economically comparable gross amounts depending on the form of income, and how large these differences are across selected income levels. The simulation model incorporates personal income tax provisions, social contributions, corporate taxation where relevant and recognised deductible expenses. For each income type, it calculates the total public burden and the resulting net amount received by the individual to derive the effective tax rate. The scientific contribution of the paper lies in providing a comparative framework for measuring and interpreting the effective taxation of heterogeneous personal income types within a single national tax system. It places these income forms in a common analytical model and evaluates their relative tax burden under equivalent scenarios, thereby identifying implicit tax preferences, distortions in the treatment of labour, capital and property income, and potential incentives for income shifting. The analysis thus contributes to the broader debate on tax neutrality and the design of personal income taxation in small open economies such as Croatia. The remainder of the paper is organised as follows. Section 2 outlines the normative and theoretical framework of taxation of the selected income types, Section 3 presents the methodology and simulation model, Section 4 reports and compares the results, Section 5 discusses their implications for tax equity, efficiency and taxpayer behaviour, and the final section concludes with directions for further research and tax policy considerations.

2. NORMATIVE AND THEORETICAL FRAMEWORK

2.1. Personal income tax in Croatia: basic structure

The Croatian personal income tax system has, since the broad-based tax reforms of 1994, been based on a schedular classification of income, whereby different types of income are taxed according to distinct rules on tax bases, deductible expenses, contribution obligations and applicable rates. The main legally recognised categories include income from employment, self-employment, property and property rights, capital, insurance and other income (Personal Income Tax Act, 2024). Each category reflects specific legal and economic characteristics, but together they form a single personal income tax framework with shared principles of progressivity, personal allowances and source-based differentiation (Croatian Tax Administration, 2026). Within this framework, statutory provisions determine how income is computed, which expenses are deductible and whether social contributions are due in addition to income tax. From a theoretical perspective, this structure combines elements of a global income tax and a dual or semi-dual system. Labour and self-employment income are typically subject to progressive taxation and full social contributions, while many forms of capital and property income are taxed at proportional rates on narrower tax bases. This differentiation aims to balance administrative simplicity, investment incentives and social security financing, but it also creates systematic differences in effective tax burdens across income types, which is a central focus of this paper.

2.2. Taxation of labour income

Income from employment (salary) is the core pillar of the personal income tax system and remains the main source of public revenue from personal taxation. Labour income is taxed on a relatively broad base that includes gross salary reduced by employee social contributions and personal allowance, with progressive tax rates applied above specified thresholds. In addition, employers are obliged to pay social contributions on top of the gross salary, increasing the total labour cost beyond the taxable base for personal income tax (Personal Income Tax Act, 2024; Contributions Act, 2024; Croatian Tax Administration, 2026). A specific feature of the Croatian labour income tax is the preferential treatment of certain groups such as young workers, pensioners, Croatian war veterans with disabilities, residents of underdeveloped areas (Group I municipalities) and the City of Vukovar, as well as returnees from abroad. These categories are entitled to a reduction of personal income tax in the range of 50% and 100% (Croatian Tax Administration, 2026). The combination of personal income tax and social contributions leads to a total burden that may significantly exceed the statutory income tax rate. This comprehensive burden is relevant for both vertical equity (the extent to which higher labour incomes are more heavily taxed) and for the competitiveness of labour relative to other production factors. The simulation model in this paper therefore considers both personal income tax and social contributions when calculating the effective tax rate on salary income.

2.3. Taxation of self-employment income

Self-employment income, which includes income from sole proprietorships and liberal professions, is taxed within the personal income tax framework but with rules that more closely mirror corporate accounting. The tax base is determined as the difference between business receipts and deductible business expenses, reflecting the net economic return from entrepreneurial activity (Personal Income Tax Act, 2024). Compulsory social contributions are calculated on a prescribed base related to assessed income, and personal income tax is then applied using the same progressive rates as for employment income (Contributions Act, 2024). In this paper, self-employment income is discussed conceptually as part of broader labour-related income, but is not modelled in a separate numerical scenario, since its effective tax structure largely mirrors that of employment income and primarily differs through deductible business expenses and prescribed contribution bases.

2.4. Taxation of corporate profits and distributed profits

Corporate profits are taxed at the level of the company through corporate income tax (Corporate Income Tax Act, 2025), after which remaining profit may be distributed to shareholders in the form of dividends or equivalent profit shares. Distributed profits are then subject to personal income tax on capital income, typically at a proportional rate applied to the net amount after corporate taxation (Personal Income Tax Act, 2024). This creates a two-tier system of taxation, where the overall effective burden on corporate earnings depends on both the corporate tax rate and the tax rate on distributed profits. The classical model of corporate taxation predicts that higher effective tax rates on capital income may discourage investment and distort financing decisions, while preferential treatment of retained earnings or capital gains can favour specific forms of income realisation. In the context of this paper, distributed profit represents the standard form in which capital income is realised, and its effective tax rate provides a benchmark for comparing the treatment of labour-related income with the treatment of capital.

2.5. Taxation of rental income from property

Rental income is classified as income from property and property rights and is taxed on a base reduced by recognised deductible expenses.

In the Croatian system, a fixed percentage of gross rent is usually treated as deductible expenses, and the remaining amount is subject to personal income tax at a proportional rate (Personal Income Tax Act, 2024). Rental income is not normally burdened by social contributions, which differentiates it clearly from labour and self-employment income. Rental income reflects both a return on invested capital in the form of property and compensation for ongoing costs such as maintenance, depreciation and management. A fixed-expense deduction aims to approximate actual costs without requiring detailed bookkeeping, thus simplifying administration. However, when combined with the absence of social contributions and proportional tax rates, this can result in a significantly lower effective tax rate on rental income compared with labour. This difference raises issues of horizontal equity between individuals who earn income from work and those who earn income from property (Atkinson & Stiglitz, 2015).

2.6. Taxation of other income: contracts for services

Other income, including payments under contracts for services, represents a flexible category used for episodic or ancillary work outside standard employment or long-term self-employment. Such income is typically subject to compulsory pension contributions calculated on a reduced base after recognised expenses, and personal income tax is applied at a proportional rate on the resulting taxable income (Personal Income Tax Act, 2024; Contributions Act, 2024). Personal allowances and progressive brackets are generally not applied in the same way as for regular employment. Contracts for services occupy an intermediate position between employment and self-employment. They can be used legitimately for occasional work but may also be used as a substitute for standard employment relationships. Differences in contributions and income tax treatment between contracts for services and regular employment therefore have implications for labour market segmentation, the protection of workers and the neutrality of the tax system. In the context of this paper, contract-for-services income provides a distinct channel for comparing the effective taxation of work performed under more flexible legal arrangements.

2.7. Taxation of author's remuneration

Author's remuneration is a specific subcategory of other income that applies to authors, artists and other creators of intellectual or artistic works. The Croatian tax system provides for recognised deductible expenses at a fixed percentage of gross receipts, with higher percentages for certain types of artistic or cultural works. After deducting recognised expenses, compulsory contributions and personal income tax are calculated on the remaining base, usually at proportional rates. The level of recognised expenses is therefore a key parameter in determining the effective tax burden on author's income (Personal Income Tax Act, 2024; Contributions Act, 2024). Theoretically, preferential treatment of author's remuneration can be justified by cultural policy objectives, the irregular nature of creative income and the desire to support intellectual and artistic production. However, high recognised-expense ratios substantially reduce the effective tax base and thus lower the effective tax rate compared with other forms of labour income. This introduces a deliberate asymmetry in the tax system, which can be considered desirable from a cultural-policy standpoint but may create opportunities for tax arbitrage if income that is economically similar to standard work is reclassified as author's remuneration.

2.8. Equity, neutrality and income shifting

The principles used to evaluate the Croatian system are horizontal equity, vertical equity and tax neutrality. Horizontal equity requires that taxpayers with similar economic capacity bear similar tax burdens, regardless of the legal form through which they earn income.

Vertical equity requires that taxpayers with higher economic capacity bear a higher relative tax burden, typically implemented through progressive taxation (Musgrave & Musgrave, 1993; Atkinson & Stiglitz, 2015). Tax neutrality implies that the tax system should not unduly influence economic choices between work, saving, investment and different legal forms of business organisation (Sørensen, 2005). When different income types are taxed under different rules, the risk arises that taxpayers will engage in income shifting, reallocating the same economic value across legal categories to minimise taxes rather than according to economic efficiency (Sørensen, 2005). Such behaviour can erode the tax base, distort labour and capital allocation, and undermine perceptions of fairness. The comparative framework developed in this paper measures how differently the Croatian tax system treats the same gross amount when it is received through alternative income types. This provides an empirical basis for evaluating the current normative design.

3. METHODOLOGY AND SIMULATION MODEL

The analysis is based on a deterministic simulation model that applies the current tax rules to stylised income scenarios, under the assumption that the total cost to the payer is constant across all income types. The aim of the model is to show how tax rules affect the actual tax burden borne by individuals.

3.1. Income types and tax parameters

The simulation covers five legally distinct and economically relevant income types in the Croatian tax system: salary as income from employment, distributed profit as income from capital, rental income as income from property, contract-for-services income as a representative form of other income, and author's remuneration. Self-employment income is not modelled separately because its tax treatment is broadly similar to that of labour income, but reliance on deductible business expenses and specific contribution bases would require a separate model.

	Personal income tax				Social contributions		Corporate income tax
	Tax base	**Tax rates**	**Allowance**	**Lump-sum deduction**	**Pension**	**Health**	**Tax rates**
Labour income	≤ 5,000 EUR	20%	600 EUR	n/a	20%	16.5%	n/a
	> 5,000 EUR	30%					
Distributed profit	All	12%	n/a	n/a	n/a	n/a	10%
Rental income	All	12%	n/a	30%	n/a	n/a	n/a
Contracts for services	≤ 5,000 EUR	20%	n/a	n/a	10%	7.5%	n/a
	> 5,000 EUR	30%					
Author's remuneration	≤ 5,000 EUR	20%	n/a	30%	10%	7.5%	n/a
	> 5,000 EUR	30%					

Table 1 Tax and contribution parameters applied in the simulations
(Source: authors' calculations based on Croatian tax legislation)

The calculations are based on Croatian tax legislation in force in May 2025 and assume a single taxpayer who claims only the basic personal allowance, without any additional reliefs. Although local municipalities may set personal income tax rates within the legally allowed range, the model is simplified by using standard rates of 20% as the lower rate and 30% as the higher rate (Personal Income Tax Act, 2024). In municipalities that apply higher (or lower) rates, the effective tax burden would be correspondingly higher (or lower).

Rental income and distributed profit are treated as income subject to final taxation and are therefore excluded from the progressive annual personal income tax base (Personal Income Tax Act, 2024). Table 1 summarises, on a monthly basis, the statutory parameters applied in the simulations, including the quantification of the tax base, personal income tax rates, the personal allowance, recognised lump-sum deductions, social contribution rates and, where applicable, corporate income tax (Personal Income Tax Act, 2024; Contributions Act, 2024, Corporate Income Tax Act, 2025). In the case of distributed profit, the model applies a corporate income tax rate of 10%, while acknowledging that Croatian legislation also provides for an 18% rate for companies with annual revenues above 1,000,000 EUR (Corporate Income Tax Act, 2025). The lower rate is chosen as the reference scenario because it represents the most favourable rate that a taxpayer can obtain, and the paper aims to compare the relative tax treatment of different income types at this lowest level of tax burden. In practice, for contract-for-services income and author's remuneration only the lower personal income tax rate would be applied when calculating monthly prepayments, while the higher rate would be imposed only in the annual tax assessment if the annual tax base exceeds the relevant threshold. Since the objective of the paper is to estimate the effective tax burden, the simulations directly apply the higher rate to the part of the monthly tax base above 5,000 EUR, so that the monthly results reflect the annual tax effect. Furthermore, for contract-for-services income and author's remuneration, the model assumes a pension contribution rate of 10% when the taxpayer is already employed, whereas a 20% rate applies if the taxpayer is not employed (Contributions Act, 2024).

3.2. Definition of income scenarios and total cost

To ensure comparability across income types, the model uses three stylised scenarios denoted A, B and C. Each scenario is defined by the total cost to the payer, representing either the total labour cost for an employer or an equivalent amount that a company is willing to spend on an individual through an alternative legal form of payment. The three scenarios correspond to a near-average earner, an upper-middle-income earner and a high-income earner, with total monthly costs of 2,330 EUR, 4,660 EUR and 11,650 EUR respectively. The scenario with a very high income is included in order to trigger the application of the higher personal income tax rate, which in Croatian legislation is set at a relatively high threshold. For each scenario, the same total cost is assumed for all income types. Starting from the given total cost, the model then determines the corresponding gross income amount for each income type, the associated tax base according to the rules in Table 1, total public levies and the resulting net income accruing to the individual. In the case of salary, the total cost is decomposed into gross wage and employer social contributions, whereas for other income types it is generally treated as the gross payment, unless the law requires additional contributions over and above that amount. The relevant rules on recognised expenses, contributions and tax rates are then applied to the resulting tax base, depending on the income type. Finally, the sum of all applicable taxes and contributions is recorded as total public levies, which are used to calculate the effective tax rate and the ratio of net income to total cost.

3.3. Effective tax rate and net-to-total-cost ratio

Two synthetic indicators are used for comparison. The effective tax rate is defined as the ratio of total public levies to the total cost to the payer, expressed as a percentage, while the net-to-total-cost ratio is defined as the share of total cost that ultimately accrues to the individual as net income. Taken together, these indicators provide a consistent basis for comparing the relative tax treatment of labour, capital and property income under Croatian tax rules.

4. RESULTS – EFFECTIVE TAX BURDEN ACROSS INCOME TYPES

Table 2 reports the main results of the simulation for three income scenarios (A–C) and five income types, while Figure 1 presents the corresponding effective tax rates in graphical form.

Income scenario	Indicator	Salary	Distributed profit	Rental income	Contract for services	Author's remuneration
A	Total cost (EUR)	2,330.00	2,330.00	2,330.00	2,330.00	2,330.00
	Gross income (EUR)	2,000.00	2,330.00	2,330.00	2,167.44	2,213.78
	Net income (EUR)	1,400.00	1,845.36	2,134.28	1,560.56	1,779.88
	Public levies (EUR)	930.00	484.64	195.72	769.44	550.12
	Effective tax rate (%)	39.9%	20.8%	8.4%	33.0%	23.6%
	Net / total cost ratio (%)	60.1%	79.2%	91.6%	67.0%	76.4%
B	Total cost (EUR)	4,660.00	4,660.00	4,660.00	4,660.00	4,660.00
	Gross income (EUR)	4,000.00	4,660.00	4,660.00	4,334.88	4,427.55
	Net income (EUR)	2,680.00	3,690.72	4,268.56	3,121.12	3,559.75
	Public levies (EUR)	1,980.00	969.28	391.44	1,538.88	1,100.25
	Effective tax rate (%)	42.5%	20.8%	8.4%	33.0%	23.6%
	Net / total cost ratio (%)	57.5%	79.2%	91.6%	67.0%	76.4%
C	Total cost (EUR)	11,650.00	11,650.00	11,650.00	11,650.00	11,650.00
	Gross income (EUR)	10,000.00	11,650.00	11,650.00	10,837.21	11,068.88
	Net income (EUR)	6,280.00	9,226.80	10,671.40	7,327.44	8,702.04
	Public levies (EUR)	5,370.00	2,423.20	978.6	4,322.56	2,947.96
	Effective tax rate (%)	46.1%	20.8%	8.4%	37.1%	25.3%
	Net / total cost ratio (%)	53.9%	79.2%	91.6%	62.9%	74.7%

Table 2: Croatian effective tax burden across income types and income scenarios (Source: authors' calculations based on Croatian tax legislation)

The figures in Table 2 should be interpreted as baseline effective tax rates: they are calculated under harmonised assumptions about personal allowances and tax rates and abstract from local surcharges, additional reliefs and individual circumstances. Within this simplified setting, the table provides a clear benchmark for how statutory rules translate into different effective burdens across income types and income levels. Across all three scenarios, salary is consistently the most heavily taxed income type. For the near-average wage level in Scenario A, the effective tax rate on salary is 39.9%, while the net-to-total-cost ratio is 60.1%, meaning that only about three fifths of the employer's total labour cost accrues to the employee as net income. As income rises to Scenario B and especially Scenario C, the effective tax rate on salary moves into the mid-40% range, with the net share falling to nearly one half of the total cost at the highest income level. This pattern illustrates both the high overall tax burden on labour and its increasing marginal rate at the top of the distribution, driven by the interaction of progressive personal income tax and full social security contributions. By contrast, distributed profit exhibits a relatively low and stable effective tax rate across all scenarios, at around one fifth of the total cost (about 20.8%), while rental income is taxed even more lightly, with an effective rate of 8.4% and 91.6% of the total cost preserved as net rent. These results indicate that, for a given total economic outlay, capital and property income are structurally favoured compared with labour income. For contract-for-services income and author's remuneration, the effective tax rate rises at the highest income level, although it still remains below that on salary.

Contract-for-services income and author's remuneration thus occupy an intermediate position between salary and capital/property income, reflecting the impact of reduced contribution bases, recognised lump-sum expenses and proportional income tax rates applied on a narrower base. Overall, Table 2 reveals a clear ranking of effective tax burdens across income types that remains stable as the income increases from Scenario A to Scenario C. To visualise these differences more clearly, Figure 1 presents the effective tax rates from Table 2 by income types and scenarios.

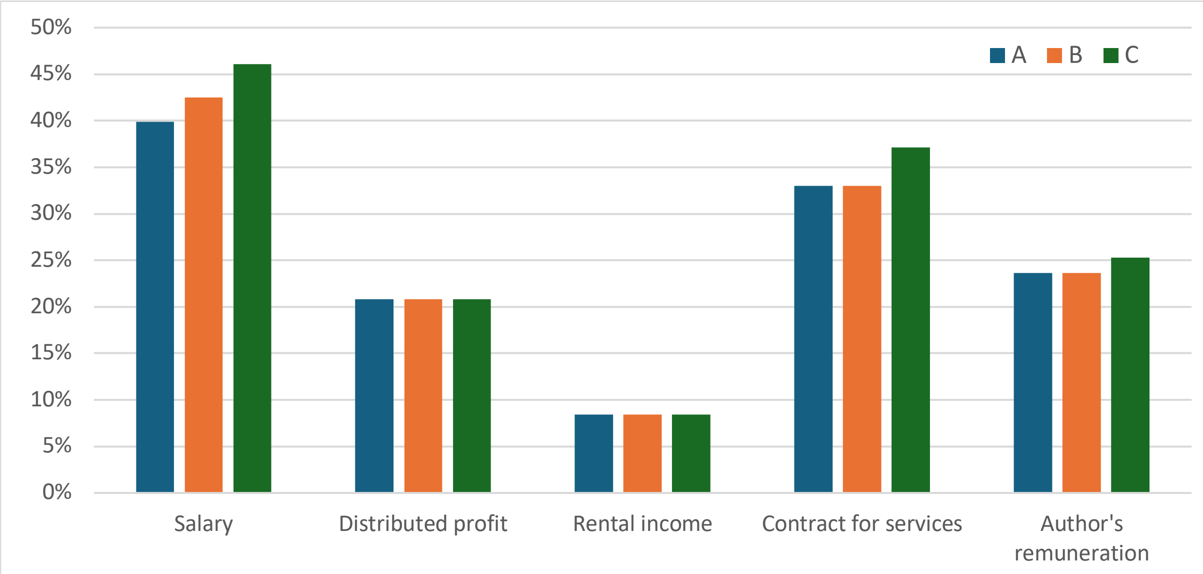


Figure 1: Effective tax rates by income type and income scenario in Croatia (Source: authors' calculations based on Table 2)

Figure 1 highlights the same ordering of effective tax burdens: labour income is always at the top, labour-related income types such as contracts for services and author's remuneration lie in the middle, while capital and rental income remain at the bottom across all income levels. This stable ranking across scenarios A–C indicates that the Croatian tax system is structurally non-neutral with respect to the legal form through which an identical gross economic amount is realised. The graphical representation also makes it clear that the gap between labour and non-labour income is sizeable at each income level and does not close as income rises, which reinforces the incentives for taxpayers to consider alternative types of remuneration. From a policy perspective, the combination of Table 2 and Figure 1 shows that the observed differentials are not marginal, but substantial in both absolute and relative terms. The visual pattern of effective rates suggests that any reform aimed at improving horizontal equity and tax neutrality would have to address not only the statutory rates, but also the underlying bases, contribution obligations and recognised expenses that drive the observed hierarchy across income types.

5. DISCUSSION: EQUITY, NEUTRALITY AND BEHAVIOURAL RESPONSES

5.1. Equity and neutrality implications

The simulation results in Table 2 and Figure 1 can be interpreted through the lens of horizontal equity, vertical equity and tax neutrality. Horizontal equity requires that individuals with comparable economic capacity bear similar tax burdens, irrespective of the legal form through which they earn their income (Musgrave & Musgrave, 1993; Atkinson & Stiglitz, 2015).

The pronounced differences in effective tax rates across income types indicate that this condition is not met: for the same total cost to the payer, salary is taxed much more heavily than distributed profit or rental income, while contract-for-services income and author's remuneration occupy an intermediate position. Vertical equity is only partly achieved. Although the effective tax rate on labour income rises with income, the burden on capital and rental income remains almost flat, so high-income individuals can substantially reduce their overall tax burden by shifting income into more lightly taxed types. From the point of tax neutrality, the system clearly differentiates between both sources of income and legal forms of earning economically similar income, creating strong incentives to choose organisational and contractual arrangements that minimise the combined burden of taxes and social contributions.

5.2. Incentives for income shifting in practice

A simple hypothetical example illustrates how these tax differentials translate into behavioural incentives. Consider the owner-manager of a company who analyses how to extract an additional 4,660 EUR per month from the business, either by increasing salary, distributing profit or renting privately owned real estate to the company. Under current tax rules, and given the effective tax rates in Table 2, renting out privately owned property is by far the most tax-favoured type, profit distributions are taxed more lightly than salary, and higher employment income is the most expensive option. If the goal is to maximise net income after tax, the owner-manager will probably choose rental payments and profit distributions rather than increasing salary. This mechanism helps explain why the salaries of many owner-managers in Croatia remain relatively low and why the legislator has introduced rules on minimum managerial wages. By imposing a statutory minimum salary for company directors, the system attempts to counteract the incentive to channel income through less heavily taxed forms, but these measures address the symptoms rather than the underlying structural imbalance. Similar considerations apply more broadly. For example, a few years ago the Croatian Tax Administration carried out targeted audits of lump-sum sole proprietorships that provided services almost exclusively to a single client, concluding that these arrangements were being used to exploit the more favourable tax treatment of the lump-sum regime even though, in economic substance, they represented disguised dependent employment (Croatian Tax Administration, 2021). Considering the lower tax burden, such options create fertile ground for income shifting and hybrid arrangements motivated more by tax considerations than by economic or legal substance.

6. CONCLUSION AND POLICY IMPLICATIONS

The paper has examined the effective tax burden on different forms of income available to individuals in Croatia using a comparative simulation model that holds the total cost to the payer constant across income types and income levels. By analysing five representative types – salary, distributed profit, rental income, contract-for-services income and author's remuneration, it has quantified how the Croatian tax system differentiates between labour, capital and property income. The results show that statutory rules on tax bases, rates, deductible expenses and social contributions jointly generate substantial variation in effective tax rates across income sources. The simulations confirm a consistent pattern of effective tax burdens. Labour income in the form of salary is taxed most heavily, labour-related income types such as contracts for services and author's remuneration face intermediate rates, while capital income and rental income are taxed the least. This hierarchy persists across all three income scenarios, indicating that the Croatian tax system is structurally non-neutral with respect to the legal form and source of income. These findings have important implications for tax equity and taxpayer behaviour.

From the standpoint of horizontal equity, the fact that economically similar amounts are taxed very differently across income types raises concerns about equal treatment of taxpayers with comparable ability to pay. From the perspective of vertical equity, the progressivity observed in labour taxation is not mirrored in the treatment of capital and rental income, which remain subject to relatively low and flat effective rates. At the behavioural level, large gaps in effective tax burdens create strong incentives for income shifting, as owner-managers and other high-income individuals can reduce their overall tax load by substituting wages with profit distributions, rental arrangements and similar tax-advantaged types. The main contribution of the paper is to provide a micro-simulation perspective on how heterogeneous income types are taxed within a single national system, making implicit tax preferences and distortions visible in a transparent and comparable way. By placing different income categories side by side under equivalent scenarios, the analysis can inform future debates on personal income tax reform in Croatia, especially regarding the balance between labour and capital taxation and the design of safeguards against aggressive income shifting. Future research could extend the analysis to additional income forms, dynamic behavioural responses and international comparisons, as well as to reform scenarios that narrow the gap between labour and non-labour income while preserving revenue and social objectives.

LITERATURE:

1. Atkinson, A. & Stiglitz, J. E. (2015). *Lectures on Public Economics*. New Jersey: Princeton University Press.
2. Contributions Act (Zakon o doprinosima) (2024). *Official Gazette of the Republic of Croatia*. NN 84/08, 152/08, 94/09, 18/11, 22/12, 144/12, 148/13, 41/14, 143/14, 115/16, 106/18, 33/23, 114/23, 152/24.
3. Corporate Income Tax Act (Zakon o porezu na dobit) (2025). *Official Gazette of the Republic of Croatia*. NN 177/04, 90/05, 57/06, 146/08, 80/10, 22/12, 148/13, 143/14, 50/16, 115/16, 106/18, 121/19, 32/20, 138/20, 114/22, 114/23, 151/25.
4. Croatian Tax Administration (Porezna uprava) (2026). *Special Reliefs (Posebne olakšice)*. Retrieved 10.05.2026 from https://porezna-uprava.gov.hr/hr/posebne-olaksice/4669.
5. Croatian Tax Administration (Porezna uprava) (2026). *Tax Base and Rates (Porezna osnovica i stope)*. Retrieved 12.05.2026 from https://porezna-uprava.gov.hr/hr/porezna-osnovica-i-stope/4775.
6. Croatian Tax Administration (Porezna uprava) (2021). *Use of lump-sum sole proprietorships contrary to the purpose of the law - disguised dependent employment (Korištenje paušalnih obrta protivno svrsi zakona - prikriveni nesamostalni rad)*. Retrieved 10.05.2026 from https://porezna-uprava.gov.hr/hr/koristenje-pausalnih-obrta-protivno-svrsi-zakona-prikriveni-nesamostalni-rad/6631.
7. Musgrave, R. & Musgrave, P. (1993). *Public finance in theory and practice (Javne financije u teoriji i praksi)*. Zagreb: Institut za javne financije.
8. OECD (2025). *Corporate Tax Statistics 2025*. Paris: OECD Publishing. Retrieved 14.05.2026 from https://www.oecd.org/en/publications/corporate-tax-statistics-2025_6a91 5941-en/full-report.html.
9. Personal Income Tax Act (Zakon o porezu na dohodak) (2024). *Official Gazette of the Republic of Croatia*. NN 115/16, 106/18, 121/19, 32/20, 138/20, 151/22, 114/23, 152/24.
10. Sørensen, P. B. (2005). *Neutral Taxation of Shareholder Income*. International Tax and Public Finance, 12, 777-801.
11. Šimović, H. (2012). *The Development of Personal Income Tax in Croatia: Reforms and Failures (Razvoj poreza na dohodak u Hrvatskoj: reforme i promašaji)*. EFZG working paper series, 01, 1-23. Retrieved 12.05.2026 from https://hrcak.srce.hr/file/201685.

CITY BRANDING IN THE DIGITAL SPACE: AN ANALYSIS OF THE ONLINE PRESENCE OF SMALL HUNGARIAN SPA TOWNS

Kornelia Zsanett Horvath
University of Sopron
horvath.kornelia.zsanett@phd.uni-sopron.hu

ABSTRACT
Health and wellness tourism plays a prominent role in Hungary's tourism offering, particularly in smaller settlements whose economic development and place branding largely rely on thermal and medicinal spas. This study analyses the official websites of five Hungarian spa towns with fewer than 5,000 inhabitants—Bük, Harkány, Hévíz, Igal, and Zalakaros. The research applies the Online City Brand Evaluation (OCBE) model to assess the websites' content structure, visual and verbal brand representation, functionality, interactivity, and tourism marketing communication value. The aim of the study is to explore how official municipal websites contribute to the development of the digital city brand, the communication of local identity, and the promotion of health tourism destinations. The findings indicate that, for smaller spa towns, a professionally designed, strategically managed, and experience-oriented online presence can significantly enhance destination visibility, strengthen place identity, and improve tourism competitiveness. The study also demonstrates the applicability of the OCBE model as a practical framework for evaluating the effectiveness of municipal websites in the context of digital city branding.
Keywords: *digital city branding, spa towns, online presence, tourism identity, online marketing communication*

1. INTRODUCTION

Located in the heart of Central Europe, within the Carpathian Basin, Hungary possesses natural resources that provide an exceptional foundation for health and wellness tourism (Smith & Puczkó 2008, 2009, 2014). Over thousands of years, the country's geological and hydrogeological characteristics have enabled the formation of extensive thermal and medicinal water resources, which have become significant not only as natural assets but also as cultural, healthcare, and tourism resources. The use of healing waters in the region has deep historical roots: even during the Roman period, when Pannonia was part of the Roman Empire, the beneficial effects of bathing culture and natural thermal waters were already well recognised. Their importance has continued to grow alongside advances in modern medicine, recreation, and destination development. The significance of Hungary's thermal and medicinal water resources is also supported by official statistics. According to data published by the State Audit Office, the country has more than 1,100 thermal wells, approximately 650 of which are currently active. Furthermore, the list of medicinal waters officially recognised by the former National Chief Medical Officer's Office (OTH), currently available through the National Center for Public Health and Pharmacy, contains 270 entries. Based on these natural resources, health tourism has become one of the flagship sectors of Hungarian tourism, representing a major and continuously developing segment in which officially designated spa towns play a prominent role (Csapó & Marton, 2017; Smith, 2025). It is particularly noteworthy that many of Hungary's officially designated spa towns are small towns or villages. These settlements face challenges similar to those encountered by many small spa destinations across Europe in transforming their natural resources, historical heritage, and tourism services into authentic, competitive, and digitally visible destination brands.

Therefore, the analysis of Hungarian spa towns extends beyond the national tourism context and provides an analytical framework that may also be applicable to similarly sized settlements in other countries built around natural healing resources. For spa towns, the conscious development of a place brand is of strategic importance. A city brand is far more than a logo, a slogan, or an occasional communication campaign; it is a long-term positioning process that shapes a settlement's identity, reputation, tourism attractiveness, and economic opportunities (Govers, 2013; Papp-Váry, 2010; Papp-Váry, 2020; Papp-Váry & Gyémánt, 2009; Tózsa, 2025). The image associated with a settlement influences visitors' travel decisions, investment intentions, and residents' attachment to the place (Kotler et al., 1999; Michalkó, 2012; Papp-Váry, 2011; Tózsa, 2014; Buskó & Tózsa, 2018). A successful city brand requires that the image communicated about the town be authentic, consistent, and meaningful for its various target groups, including visitors, local residents, and economic stakeholders (Papp-Váry, 2018, Papp-Váry, 2019). In this process, official municipal websites play a crucial role. They function not only as channels for providing information but also as digital representations of the city's identity, character, and distinctive features. The visual appearance of a website, its content structure, up-to-dateness, language availability, and user-friendliness can significantly influence the impressions that potential visitors form about a spa destination. Digital presence is particularly important in health tourism decision-making, as prospective visitors typically rely on online information before planning their trips. A well-structured, up-to-date, and credible website can strengthen trust, facilitate the exploration of available services, and enhance a settlement's competitiveness (Aman et al., 2024; Liska, 2024; Zhang et al., 2025.)
Building on these considerations, the present study investigates how the official websites of five Hungarian spa towns with fewer than 5,000 inhabitants—Bük, Harkány, Hévíz, Igal, and Zalakaros—contribute to the development and communication of the digital city brand. The geographical locations of the examined towns are presented in Figure 1.

Figure 1. Map of Hungary showing the five examined spa towns
(Source: Author's own compilation)

2. LITERATURE REVIEW

Today, it is widely recognized that the principles of marketing and branding are applicable not only to products and services but also to organizations (Kotler & Keller, 2006; Papp-Váry, 2007), individuals (Papp-Váry, 2009; Törőcsik, 2017), and places, including cities, regions, and countries (Anholt, 2007; Govers & Go, 2009; Papp-Váry, 2019, Papp-Váry, 2020; Papp-Váry & Tóth, 2021; Szeberényi & Papp-Váry, 2021; Papp-Váry et al., 2025). In recent years, sustainability has become a fundamental dimension of place branding, as the long-term development and communication of cities must address not only visitors but also local residents and other stakeholders (Aman et al., 2025; Braun et al., 2013; Smith et al., 2018; Garanti et al., 2024; Piskóti & Papp-Váry, 2018; Lukács & Papp-Váry, 2024). The importance of place branding has increased in parallel with the intensifying competition between geographical areas. For settlements, it has become increasingly important to develop a distinctive and authentic brand identity that creates a positive impression among target groups and can, in the longer term, be transformed into tourism, economic, or social advantages. A favourable city image may contribute to an increase in visitor numbers, encourage investment, and attract new residents and businesses (Papp-Váry, 2011). The development of the information society and digital communication has fundamentally transformed the toolkit of city and place branding. The online environment enables cities, regardless of their geographical size and economic strength, to reach their target groups directly, quickly, and at relatively low cost (Liska, 2024; Aman & Papp-Váry, 2022). As a result, digital presence—particularly the official website and related online communication—has become a defining element of city branding strategies (Aman et al., 2024; Barbócz, 2020; Benedek, 2021; Papp-Váry & Szűcs-Kis, 2021; Szűcs-Kis & Papp-Váry, 2022; Jenes, 2023). Place branding is no longer exclusively a tool for large cities and economically stronger regions; it also represents a strategic opportunity for smaller settlements. This is particularly important for small towns that possess unique natural, cultural, or health tourism assets. Through a consistent online presence, these settlements may be able to consciously articulate their identity, increase their visibility, and strengthen their competitive position (Piskóti, 2012, 2023). According to Piskóti and Papp-Váry (2018), one of the fundamental conditions for successful city marketing is cooperation among stakeholders. The city brand is not merely the product of municipal communication, but a complex process in which the local community, businesses, civil actors, and tourism service providers all take part. Modern city marketing therefore serves not only economic or tourism-related objectives, but may also contribute to strengthening local identity, social cohesion, and resident satisfaction (Piskóti, 2012; Papp-Váry & Piskóti, 2018). In the international literature, place branding is usually discussed within the conceptual frameworks of place branding, city branding, and destination branding. According to Kavaratzis (2004), city branding can be regarded as a further development of city marketing, in which the city is no longer merely the object of communication campaigns, but a complex carrier of meaning that shapes the image formed by target groups through visual, functional, symbolic, and experiential elements. This approach is particularly important in the case of spa towns, as their identity is built not only on the visual identity of the settlement, but also on spa traditions, health tourism offerings, natural assets, and the visitor experience (Kiss, 2015; Smith et al., 2015; Sziva et al., 2017). Hankinson (2004) interprets the place brand as a relational network in which brand value is created through relationships and cooperation among stakeholders. This perspective fits well with the analysis of smaller spa destinations, since in these towns the city brand cannot be separated from the communication of the municipality, the spa operator, accommodation providers, hospitality businesses, local residents, and tourism organisations. The online presence of the town is therefore not merely an information-providing interface, but one of the most important forms through which the identity and destination promise communicated by local stakeholders are represented.

The literature on tourism destination branding also points out that destination branding is a particularly complex process. According to Pike (2005), branding tourism destinations is an especially complex task, as a destination is not a single product, but a system of interconnected services, experiences, local assets, and stakeholder interests. In the case of thermal spa towns, this complexity is even more pronounced, since visitor decisions are influenced simultaneously by health preservation, recreation, the credibility associated with thermal waters, the settlement environment, and the visual and content-based image communicated in the digital space. Through the concept of competitive identity, Anholt (2007) and Papp-Váry (2019) emphasise that the reputation of countries, regions, and cities is not merely a matter of communication, but an interconnected system of tourism, investment promotion, community self-identity, and external perception. This approach is relevant to spa towns because the competitive position of these settlements is influenced not only by the quality of spa services, but also by the general image of the town, the quality of available online information, and the consistency of its visual identity. At the same time, the branding of health, spa, and wellness destinations still appears as a relatively narrow field within international research. Examining the joint brand development process of five Bavarian thermal spas, Pippirs and Steckenbauer (2022) point out that spa destination branding is becoming increasingly important in the competition among thermal and health tourism destinations. Their case study is especially relevant to the present research, as it confirms that the branding of spas and thermal locations is not only a matter of service marketing, but also a strategic issue in destination development. Shared visual identity, positioning, stakeholder cooperation, and the conscious management of the visitor experience play a decisive role in how a spa town appears in the tourism market. Research on health and wellness tourism provides an additional theoretical basis for examining the online brand communication of spa towns. According to the literature review by Zhong et al. (2021), medical, health, and wellness tourism is a dynamically developing, multidisciplinary research field in which tourism, health preservation, quality of life, and consumer motivations are closely interconnected. In their study of the health benefits of wellness tourism, Liao et al. (2023) identify four main dimensions: physical well-being, psychological well-being, quality of life, and environmental health. These dimensions can also be interpreted in the context of Hungarian spa towns, as messages related to thermal water, relaxation, recreation, and a nature-oriented environment may become important content elements of the city brand. In the European context, Papadopoulou (2020) discusses spa tourism as a significant and economically important segment of wellness tourism. The author argues that Europe is one of the world's leading spa and wellness tourism regions, where, alongside traditional therapeutic functions, recreation, experience, prevention, and quality-of-life enhancement have become increasingly important. These observations are highly relevant to the analysis of Hungarian spa towns, as Bük, Hévíz, Zalakaros, Harkány, and Igal can be interpreted not merely as local or regional service centres, but as integrated health tourism destinations whose competitiveness increasingly depends on how effectively these values are communicated through their digital place brands. Based on the above international approaches, the online brand communication of spa towns can be understood as a complex field of analysis in which the city brand, the tourism destination brand, and the health tourism image appear in an intertwined manner. Official municipal websites are therefore not merely technical carriers of information, but also mediators of settlement identity, visual identity, tourism positioning, and the value proposition of health tourism. Accordingly, the present research examines the extent to which, and the forms in which, the elements of city branding, destination branding, and health tourism communication appear on the official online platforms of Hungarian spa towns with fewer than 5,000 inhabitants.

3. METHODOLOGY

One of the fundamental questions of city branding is how a town can effectively communicate its unique values to different target groups (Papp-Váry, 2020). In the case of spa towns, this is particularly important, as there is strong competition among settlements with similar profiles in attracting visitors and investors, as well as in strengthening local attachment. To analyse municipal communication, the present study draws on the POE model, which classifies communication channels into three main categories: paid media, owned media, and earned media (Corcoran, 2009; Papp-Váry & Farkas, 2018, 2019; Baker, 2019). Paid media comprise communication channels for which the organisation pays in order to distribute or promote its messages and increase their visibility among target audiences. These include, for example, online and offline advertisements, sponsored social media posts, search engine advertising, display advertising, and other forms of paid promotional content. Owned media refer to platforms that are owned and controlled by the brand owner—in this case, the municipality—such as the official website and official social media accounts. Earned media, by contrast, consist of unpaid exposure generated by external actors, including media coverage, recommendations, online reviews, user-generated content, and social media shares. The present research focuses exclusively on the field of owned media and, within this category, on the analysis of official municipal websites. These platforms are directly owned and controlled by local governments, making them suitable instruments for the consistent and strategic communication of the city brand. In this context, the official website functions not merely as an information platform but also as a key digital touchpoint through which a municipality communicates its identity, values, image, and brand promise to current and potential stakeholders (Simmons, 2007; Florek, 2011). The research is based on secondary analysis, relying on the examination of existing data, online content, and previous findings in the literature. The empirical analysis focuses on the official websites of five Hungarian spa towns with fewer than 5,000 inhabitants—Bük, Hévíz, Harkány, Igal, and Zalakaros—all of which hold officially designated spa status. These settlements represent a distinctive group of small health tourism destinations where spa and wellness tourism plays a central role in local development and place identity. The aim of the analysis is to explore how their official websites contribute to the development of the digital city brand, the communication of settlement identity, and the strengthening of tourism competitiveness. The official websites of spa towns fulfil informational, tourism-related, and brand communication functions at the same time. On the one hand, they present the main characteristics, services, and programme offerings of the settlement and its spa; on the other hand, they provide practical information for planning a visit. Well-structured, up-to-date, and credible content is particularly important in health tourism decisions, where trust, service quality, and the accuracy of available information play a prominent role. The city branding significance of websites is further strengthened by their ability to communicate the values and identity of a settlement to audiences beyond its local boundaries. Multilingual content, a transparent menu structure, user-friendly design, and accessible usability help make the website understandable and attractive to both domestic and international target groups. Especially in the case of smaller settlements, professional, consistent, and target group-oriented digital communication may constitute an important competitive advantage. The visual and verbal elements of a website directly influence the first impression formed about the town. The logo, slogan, colour use, typography, imagery, and information structure together shape the settlement's online visual identity (Rowley & Bird, 2011; Papp-Váry, 2010). Since users form impressions of a website within a very short time, visual coherence, clarity, and content relevance can be regarded as fundamental factors in digital city branding (Tuch et al., 2012). The study therefore interprets websites as strategic communication platforms that not only inform visitors but also actively participate in shaping the digital brand identity of spa towns.

On this basis, the research seeks to determine the extent to which, and by what means, the official websites of the analysed towns support the online representation of the city brand.

4. RESULTS – ANALYSIS OF THE WEBSITES BASED ON THE OCBE MODEL

The analysis focused on the official websites of Hungarian spa towns with fewer than 5,000 inhabitants and officially designated spa status from a city branding perspective. The evaluation was conducted using István Benedek's Online City Brand Evaluation (OCBE) model, which assesses the online representation of the city brand across four main dimensions:

1. visual and verbal representation of the city brand;
2. opportunities for interaction with the city brand;
3. the structure and depth of city brand-related content;
4. quality attributes communicated by the website (Benedek, 2021).

The application of the OCBE model enables an objective and comparable evaluation of the brand elements presented on official municipal websites. Beyond assessing the current state of digital presence, the model also helps identify potential directions for improvement, particularly with regard to online communication, brand positioning, and the communication of tourism identity. Figure 2 summarises the main dimensions of the OCBE model, their analytical focus, and the principal website elements examined during the analysis.

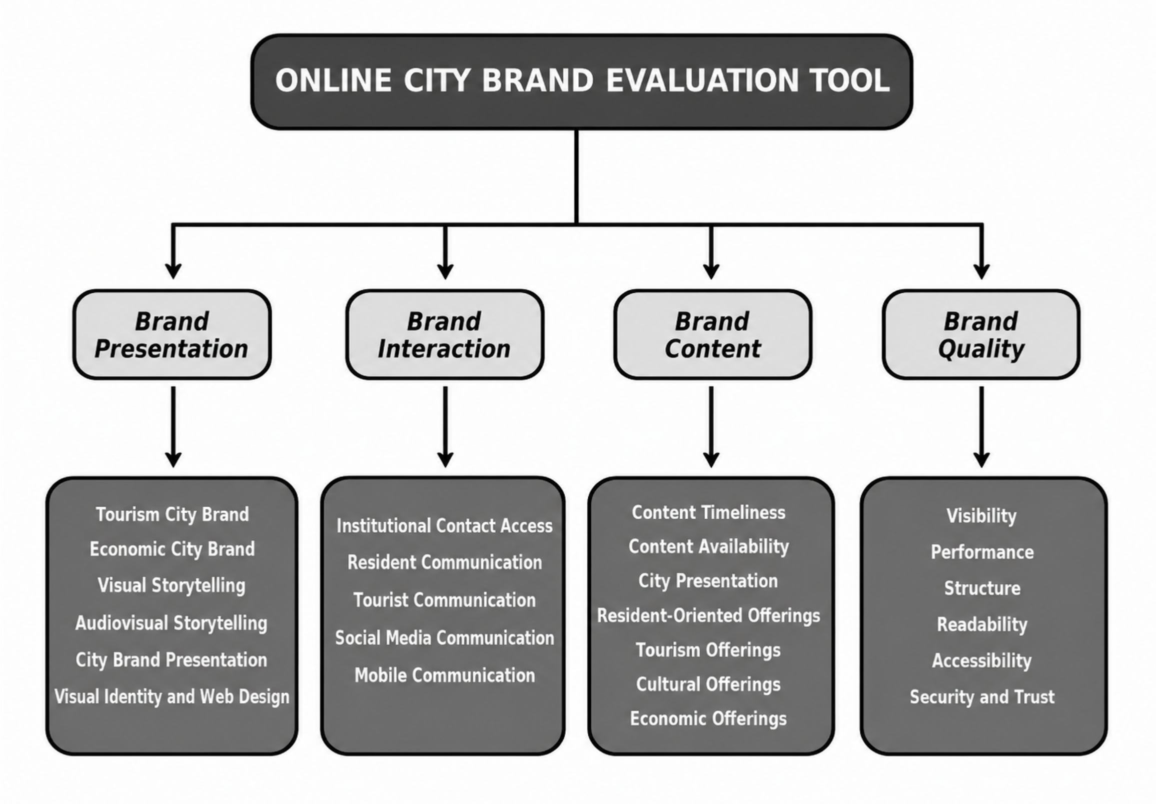


Figure 2: Structure of the OCBE Model
(Source: Author's own elaboration based on Benedek, 2021)

The analysis covered a four-month period between December 2024 and March 2025. Across the four dimensions, 26 indicators and 83 variables were examined. Most variables were assessed using binary coding, where the presence of a given feature received one point and its absence received zero points. For variables where the mere existence of a feature was not sufficient, the quality of implementation was also evaluated on a scale from 0 to 1. Features that were only partially functional or offered limited usability were assigned 0.5 points.

When interpreting the results, it should be noted that the study reflects the condition of the websites during the period examined. Since the content, visual appearance, and technical performance of municipal websites may change over time, the findings should primarily be regarded as a snapshot and as a benchmarking comparison among the analysed settlements. The first dimension examined the visual and verbal representation of the city brand. This included, among other elements, the city logo, coat of arms, slogan, tourism branding elements, as well as visual and audiovisual content. In this dimension, the websites of Zalakaros and Hévíz achieved the strongest performance, as both towns displayed clearly identifiable city branding elements and a consistently applied tourism identity. Bük also demonstrated a strong visual presence, particularly in terms of website design and the organisation of tourism-related content. The second dimension evaluated interactivity and opportunities for two-way communication. In this category, Hévíz achieved the highest score, as its website integrates several social media platforms while also offering a tourism blog and interactive map-based information. The websites of Zalakaros and Bük provide the essential contact information in an appropriate manner; however, the integration of social media is less prominent. In the case of Bük, nevertheless, the tourism subpages already incorporate digital channels that support interactive communication with visitors. The evaluation criteria applied to the first and second dimensions are presented in the following tables.

Examined indicators (7)	Examined variables (20)
City brand identifiers	city logo city slogan city coat of arms province name
Tourism city brand	tourism logo tourism slogan
Economic city brand	investment logo investment slogan
Visual storytelling	featured image image gallery
Audiovisual storytelling	video content video gallery
Presentation of the city brand	presentation of the city logo presentation of the city coat of arms corporate identity and brand manual
Identity and web design	homepage visual appearance coherent use of typography coherent use of visual identity elements colors aligned with the visual identity shapes aligned with the visual identity

Table1: Indicators and Variables of the
'Representation of the City Brand' Dimension
(Source: Author's own compilation based on Benedek (2011))

Examined indicators (5)	Examined variables (20)
Institutional accessibility	physical address telephone number e-mail address
Resident communication	newsletter subscription direct messaging webcast virtual assistant participatory budgeting mayor's blog
Tourist communication	city map webcam virtual tour tourism blog
Social media communication	Facebook integration YouTube integration Instagram integration Twitter integration
Mobile communication	mobile application resident app tourist app

Table 2: Indicators and Variables of the
'Interaction of the City Brand' Dimension
(Source: Author's own compilation based on Benedek (2011))

The third dimension examined the structure of the content and the depth of information related to the city brand. The findings indicate that the websites of Zalakaros, Hévíz, and Bük perform particularly well in this respect, as they provide comprehensive information on tourism, culture, and local services. In these cases, the content serves not only an informational function but also contributes to shaping the city's image and visitors' expectations before their arrival. The website of Harkány offers a well-structured and easy-to-navigate interface, while Igal presents a simpler visual identity and less extensive content. The fourth dimension focused on the quality characteristics of the websites, including technical performance, responsiveness, navigation, searchability, accessibility, and data security. Overall, most of the websites examined can be regarded as functional and up to date. The website of Harkány performs particularly well from a technical perspective, offering a stable and well-organised structure.

In the case of Bük, search engine optimisation is a notable strength, as the official website appears in a favourable position in search engine results for the keyword "Bük." The evaluation criteria applied to the third and fourth dimensions are presented in the following two tables.

Examined indicators (7)	Examined variables (19)
Content timeliness	news feed latest news
Content accessibility	multilingualism internal search
City presentation	mayor’s welcome message mayor’s profile general presentation historical presentation sister cities notable local figures
Resident offer	city vision city management city performance
Tourism offer	tourism menu item separate tourism website
Cultural offer	cultural offer events calendar
Economic offer	economic menu item separate investor website

Table 3: Indicators and Variables of the ‘Content of the City Brand’ Dimension (Source: Author’s own compilation based on Benedek (2011))

Examined indicators (7)	Examined variables (24)
Website visibility	search engine position inbound links
Website performance	loading speed mobile optimization
Website navigation	home button site map main menu breadcrumb navigation footer navigation back-to-top button
Website structure	homepage length main menu layout number of menu items target-group-oriented structure
Website readability	text layout font size text hierarchy
Website accessibility	accessibility function text size adjustment color scheme adjustment number of WCAG errors
Website security and trust	secure domain cookie banner privacy policy

Table 4: Indicators and Variables of the ‘Quality of the City Brand’ Dimension
(Source: Author’s own compilation based on Benedek (2011))

Hévíz and Zalakaros employ visually strong and contemporary web design solutions. At the same time, the mobile presentation and the occasionally excessive emphasis on visual elements could benefit from further refinement.

To complement the evaluation of the websites, additional online tools were used to assess their technical performance and accessibility. Accessibility features were examined using UserWay, the number of inbound links was analysed with Ahrefs, and technical performance was assessed using Google PageSpeed Insights. Search engine rankings were evaluated based on a set of basic keywords; however, this assessment should not be regarded as a comprehensive SEO audit.

Table 5 provides a qualitative summary of the findings presented in the analysis. A precise ranking or numerical comparison can only be established on the basis of the original variable-level scores generated using the OCBE model.

Spa Town	Visual and Verbal Brand Representation	Interactivity	Content Structure	Quality and Technical Performance	Overall Assessment
Zalakaros	Excellent	Good	Excellent	Good	A highly developed and contemporary website with a strong tourism orientation and a clearly articulated destination brand identity.
Hévíz	Excellent	Excellent	Good	Good	A comprehensive, visually sophisticated and interactive online presence that effectively communicates the city's brand values and tourism offer.
Bük	Good	Good	Good	Good	A stable and well-structured digital platform with a coherent brand image and opportunities for further optimization.
Harkány	Moderate	Moderate	Moderate	Good	A transparent and technically reliable website with a functional structure, although exhibiting a less pronounced branding strategy.
Igal	Limited	Limited	Moderate	Moderate	A simple and functional website characterized by a lower level of branding complexity and destination-oriented communication.

Table 5: Comparative Evaluation of the Official Websites of the Examined Hungarian Spa Towns Based on the OCBE Framework (Source: Author's own compilation based on the results of the OCBE analysis)

Based on the comparative analysis, it can be concluded that the official websites of the examined towns represent different levels of digital development; nevertheless, all of them are capable of providing a basic online representation of the settlement. According to most of the evaluation criteria, Zalakaros, Hévíz, and Bük achieved the strongest overall performance. This is illustrated in Figure 3. The websites of these three towns present a more coherent approach in terms of visual identity, tourism content, usability, and brand communication.

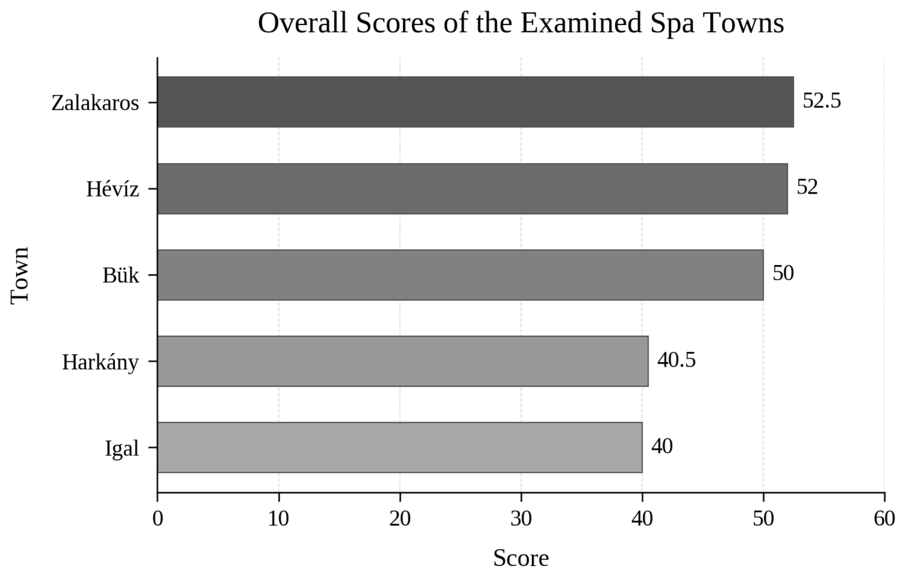


Figure 3: Overall Scores of the Examined Hungarian Spa Towns (Source: Author's own compilation based on the results of the OCBE analysis)

Overall, the results suggest that official municipal websites are a key instrument of digital city branding. A well-structured, visually consistent, and up-to-date website functions not only as an information platform but also actively contributes to strengthening the image of a spa town, fostering visitor trust, and enhancing its tourism competitiveness.

5. CONCLUSION

The aim of this study was to analyse the official websites of Hungarian spa towns with fewer than 5,000 inhabitants—Bük, Harkány, Hévíz, Igal, and Zalakaros—from a city branding perspective. Using the Online City Brand Evaluation (OCBE) model, the research assessed the extent to which these websites support the communication of settlement identity, tourism attractiveness, and the digital city brand. The findings reveal varying levels of digital maturity among the websites examined. Zalakaros, Hévíz, and Bük demonstrated the strongest overall performance, as their websites provide more coherent brand communication from visual, content, and tourism perspectives. Rich visual and audiovisual content, consistent visual identity elements, and well-structured tourism information contribute to creating a positive city image and shaping visitors' expectations before their arrival. The websites of Harkány and Igal are generally functional and informative; however, they offer further opportunities for improvement through a more deliberate presentation of the city brand, stronger visual identity elements, and the further development of interactive and visual content. Future improvements should primarily focus on strengthening social media integration, enhancing mobile optimisation and accessibility, and expanding map-based, video, and experience-oriented content. Overall, the study confirms that official municipal websites are among the most important instruments of digital city branding. A well-structured, up-to-date, and visually consistent website serves not only as an information platform but also plays an active role in strengthening the identity, competitiveness, and tourism positioning of spa towns.

LITERATURE:

1. Aman, E. E., & Papp-Váry, Á. (2022). Digital marketing as a driver for sustainable tourism development. Multidiszciplináris Kihívások, Sokszínű Válaszok, 2, 3–33. https://doi.org/10.33565/MKSV.2022.02.01
2. Aman, E. E., Kangai, D., & Papp-Váry, Á. (2024). Digital marketing role in the tourism sector in post-COVID-19. In M. E. Korstanje, V. G. B. Gowreesunkar, & S. W. Maingi (Eds.), Tourist behaviour and the new normal, Volume I: Implications for tourism resilience (pp. 129–146). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-45848-4_8
3. Aman, E. E., Papp-Váry, Á., & Challouf, K. (2025). Integrating sustainability into destinations branding: A literature based-review. GeoJournal of Tourism and Geosites, 62(4), 2506–2514. https://doi.org/10.30892/gtg.62445-1611
4. Anholt, S. (2007). Competitive identity: The new brand management for nations, cities and regions. Palgrave Macmillan. https://doi.org/10.1057/9780230627727
5. Baker, B. (2019). Place branding for small cities, regions and downtowns: The essentials for successful destinations. 2nd ed. Independently published.
6. Barbócz, Zs. (2020). The branding power of Szeklerland: Online place branding tendencies and identity-forming efforts in Szeklerland. Acta Universitatis Sapientiae, Communicatio, 7(1), 123–136.
7. Benedek, I. (2021). Városmárkázás az online térben: Romániai megyeszékhelyek weboldalainak vizsgálata egy city branding modell segítségével [City branding in the online space: An analysis of the websites of Romanian county seats using a city branding model] (Doctoral dissertation). Babeș-Bolyai University.
8. Braun, E., Kavaratzis, M., & Zenker, S. (2013). My city–my brand: The different roles of residents in place branding. Journal of Place Management and Development, 6(1), 18–28. https://doi.org/10.1108/17538331311306087
9. Buskó, T. L., & Tózsa, I. (2018). Településmarketing: A Településmarketing című tantárgy egyetemi tankönyve [Place marketing: University textbook for the course "Place Marketing"]. Dialóg Campus Kiadó.
10. Corcoran, S. (2009). No media should stand alone: Defining the roles of owned, earned and paid media in online marketing. Forrester Research.
11. Csapó, J., & Marton, G. (2017). The role and importance of spa and wellness tourism in Hungary's tourism industry. Czech Journal of Tourism, 6(1), 55–68. https://doi.org/10.1515/cjot-2017-0003

12. Florek, M. (2011). No place like home: Perspectives on place attachment and impacts on city management. Journal of Town & City Management, 1(4), 346–354.
13. Garanti, Z., Ilkhanizadeh, S., & Liasidou, S. (2024). Sustainable place branding and visitors' responses: A systematic literature review. Sustainability, 16(8), 3312. https://doi.org/10.3390/su16083312
14. Govers, R. (2013). Why place branding is not about logos and slogans. Place Branding and Public Diplomacy, 9(2), 71–75. https://doi.org/10.1057/pb.2013.11
15. Govers, R., & Go, F. M. (2009). Place branding: Glocal, virtual and physical identities, constructed, imagined and experienced. Palgrave Macmillan.
16. Hankinson, G. (2004). Relational network brands: Towards a conceptual model of place brands. Journal of Vacation Marketing, 10(2), 109–121. https://doi.org/10.1177/135676670401000202
17. Jenes, B. (2023). A városmarketing online kommunikációs megoldásai Kecskemét esetében [Online communication solutions for city marketing: The case of Kecskemét]. In I. Tózsa (Ed.), Hírös város az Alföldön Kecskemét: Válogatott tanulmányok a kecskeméti településmarketing témaköréből (pp. 112–128). Neumann Lapkiadó és Kommunikációs Kft.
18. Kavaratzis, M. (2004). From city marketing to city branding: Towards a theoretical framework for developing city brands. Place Branding, 1(1), 58–73. https://doi.org/10.1057/palgrave.pb.5990005
19. Kiss, K. (2015). The challenges of developing health tourism in the Balkans. Tourism: An International Interdisciplinary Journal, 63(1), 97–110.
20. Kotler, P., & Keller, K. L. (2006). Marketingmenedzsment (A 12. angol nyelvű kiadás magyar kiadása). Akadémiai Kiadó.
21. Kotler, P., Asplund, C., Rein, I., & Haider, D. H. (1999). Marketing places Europe: Attracting investments, industries, residents and visitors to European cities, communities, regions and nations. Financial Times/Prentice Hall.
22. Liao, C., Zuo, Y., Xu, S., Law, R., & Zhang, M. (2023). Dimensions of the health benefits of wellness tourism: A review. Frontiers in Psychology, 13, Article 1071578. https://doi.org/10.3389/fpsyg.2022.1071578
23. Liska, F. (2024). Az online marketing alapjai [Fundamentals of online marketing]. Akadémiai Kiadó. https://doi.org/10.1556/9789636640682
24. Lukács, R., & Papp-Váry, Á. (2024). Beyond green campuses: Sustainability rankings as strategic tools for university branding. Prosperitas, 11(3), Article 4.
25. Papadopoulou, G. (2020). Spa tourism in Europe: An economic approach. Athens Journal of Tourism, 7(3), 133–144. https://doi.org/10.30958/ajt.7-3-1
26. Papp-Váry, Á. (2007). Márkaépítés mint a modern marketing egyik kulcseleme [Brand building as a key element of modern marketing]. In Cs. Svéhlik (Ed.), Marketing a 21. században: Kihívások, trendek, szemléletváltás (pp. 87–138). Kheops Automobil-Kutató Intézet.
27. Papp-Váry, Á. (2009). Mágikus márkázás: Beckham: Hogyan lett egy futballistából globális márka [Magic branding: Beckham—How a footballer became a global brand]. Századvég Kiadó.
28. Papp-Váry, Á. (2010). Country slogans and logos: Findings of a benchmarking study. In Gy. Kadocsa (Ed.), MEB 2010: 8th International Conference on Management, Enterprise and Benchmarking (pp. 199–208). Óbudai Egyetem.
29. Papp-Váry, Á. (2011). Hogyan lesz a településből márka? A városmárkázás alapjai [How can a settlement become a brand? The fundamentals of city branding]. In J. Róka, G. Jávorka, M. Kovács, Gy. Téglásy, & K. Téglásy (Eds.), Beszédek könyve polgármestereknek: Szónoklatminták és kommunikációs tanácsok minden alkalomra (pp. 1–24). Raabe Kiadó.
30. Papp-Váry, Á. (2018). Country branding: What branding? Relevant terminologies and their possible interpretations in the case of countries. Economic and Regional Studies / Studia Ekonomiczne i Regionalne, 11(4), 7–26. https://doi.org/10.2478/ers-2018-0032
31. Papp-Váry, Á. (2019). Országmárkázás: Versenyképes identitás és imázs teremtése [Country branding: Creating a competitive identity and image]. Akadémiai Kiadó.
32. Papp-Váry, Á. (2020). Országmárka-építés: Országnevek, országszlogenek, országlogók, országarculatok és Magyarország márkaépítési törekvései [Country brand building: Country names, country slogans, country logos, country identities and Hungary's country branding efforts]. Dialóg Campus Kiadó.

33. Papp-Váry, Á., & Farkas, M. (2018). Az országmárka-kommunikáció lehetséges eszközei és csoportosításuk a POE-modell alapján [Possible tools of country brand communication and their classification based on the POE model]. ME.DOK: Média–Történet–Kommunikáció, 13(4), 19–40. https://doi.org/10.59392/medok.1212
34. Papp-Váry, Á., & Farkas, M. (2019). The possible ways of country brand communication and their classification based on the POE model. Acta Universitatis Sapientiae, Communicatio, 6, 19–40. https://doi.org/10.2478/auscom-2019-0002
35. Papp-Váry, Á., & Gyémánt, B. (2009). Az arculat szerepe az országmárkázásban – országnevek, országszlogenek, országlogók [The role of identity in country branding: Country names, country slogans and country logos]. Marketing & Menedzsment, 43(2), 38–47.
36. Papp-Váry, Á., & Szűcs-Kis, A. (2021). The social media communication of Hungarian county seats: Facebook, Instagram, and YouTube presence. Acta Universitatis Sapientiae, Communicatio, 8, 84–103.
37. Papp-Váry, Á., & Tóth, T. Zs. (2021). Analysis of Budapest as a film tourism destination. In R. Baleiro & R. Pereira (Eds.), Global perspectives on literary tourism and film-induced tourism (pp. 257–279). IGI Global. https://doi.org/10.4018/978-1-7998-8262-6.ch014
38. Pike, S. (2005). Tourism destination branding complexity. Journal of Product & Brand Management, 14(4), 258–259. https://doi.org/10.1108/10610420510609267
39. Pippirs, C., & Steckenbauer, G. C. (2022). Case study—Spa destination branding: A strategic realignment process of five Bavarian thermal spas. International Journal of Spa and Wellness, 5(3), 308–319. https://doi.org/10.1080/24721735.2022.2117009
40. Piskóti, I. (2012). Régió- és településmarketing: Marketingorientált fejlesztés, márkázás [Regional and place marketing: Marketing-oriented development and branding]. Akadémiai Kiadó.
41. Piskóti, I. (2023). Integrált városmarketing-tervezés – Elvek és módszerek [Integrated city marketing planning: Principles and methods]. In I. Piskóti & Sz. Nagy (Eds.), Marketingkaleidoszkóp 2023: Tanulmányok a Marketing és Turizmus Intézet és partnerei kutatási eredményeiből (pp. 8–41). Miskolci Egyetem Marketing és Turizmus Intézet.
42. Piskóti, I., & Papp-Váry, Á. (2018). A sikeres városmarketing keretrendszere – A 10 legfontosabb összetevő [The framework of successful city marketing: The 10 most important components]. Márkamonitor, 2018(2), 44–46.
43. Rowley, J., & Edmundson-Bird, D. (2013). Brand presence in digital space. Journal of Electronic Commerce in Organizations, 11(1), 63–78.
44. Simmons, G. J. (2007). "i-Branding": Developing the internet as a branding tool. Marketing Intelligence & Planning, 25(6), 544–562. https://doi.org/10.1108/02634500710819932
45. Smith, M. K. (2025). Health tourism in Hungary: Future challenges for thermal spas. Worldwide Hospitality and Tourism Themes, 17(2), 187–199. https://doi.org/10.1108/WHATT-01-2025-0027
46. Smith, M. K., & Puczkó, L. (2009). Health and Wellness Tourism. Butterworth-Heinemann.
47. Smith, M. K., & Puczkó, L. (2014). Health, Tourism and Hospitality: Spas, Wellness and Medical Travel (2nd ed.). Routledge. https://doi.org/10.4324/9780203083772
48. Smith, M. K., & Puczkó, L. (2018). Thermal spas, well-being and tourism in Budapest. In M. Uysal, M. J. Sirgy, & S. Kruger (Eds.), Quality-of-Life and Destination Visitor Experience (pp. 103–118). CABI. https://doi.org/10.1079/9781786390455.0103
49. Smith, M. K., Puczkó, L., & Sziva, I. (2015). Putting the thermal back into medical tourism. In N. Lunt, D. Horsfall, & J. Hanefeld (Eds.), Handbook on medical tourism and patient mobility (pp. 393–402). Edward Elgar Publishing.
50. Smith, M. K., Sulyok, J., Jancsik, A., Puczkó, L., Kiss, K., Sziva, I., Papp-Váry, Á., & Michalkó, G. (2018). Nomen est omen – Tourist image of the Balkans. Hungarian Geographical Bulletin, 67(2), 173–188. https://doi.org/10.15201/hungeobull.67.2.5
51. Szeberényi, A., & Papp-Váry, Á. (2021). Research of microregion-related renewable energy tenders for local governments. Engineering for Rural Development, 20, 1272–1279. https://doi.org/10.22616/ERDev.2021.20.TF280
52. Sziva, I., Smith, M. K., & Olt, G. (2017). Wellness tourism in Hungary. In C. Cooper, S. Volo, W. Gartner, & N. Scott (Eds.), The SAGE handbook of tourism management (Vol. 2, pp. 476–489). SAGE Publications.

53. Szűcs-Kis, A., & Papp-Váry, Á. (2022). Magyarországi megyeszékhelyek közösségimédia-kommunikációjának elemzése [Analysis of the social media communication of Hungarian county seats]. In E. Korcsmáros (Ed.), 13th International Conference of J. Selye University: Economics Section. Conference Proceedings (pp. 353–372). J. Selye University.
54. Tózsa, I. (2024). The good, the bad and the ugly: Didactics of settlement marketing. In A. Caragliu & E. Martins (Eds.), Proceedings of the 14th World Congress of the Regional Science Association International: Sustainable regional economic growth: Global challenges and new regional development trajectories (pp. 340–346). Regional Science Association International (RSAI).
55. Tózsa, I. (2014). A településmarketing elmélete [The theory of settlement marketing]. In I. Tózsa (Ed.), Turizmus és településmarketing: Tanulmánykötet (pp. 129–157). Budapesti Corvinus Egyetem Gazdaságföldrajz és Jövőkutatás Tanszék.
56. Törőcsik, M. (2017). Self-marketing: Személyes és marketing kapcsolatok. Akadémiai Kiadó.
57. Tuch, A. N., Presslaber, E. E., Stöcklin, M., Opwis, K., & Bargas-Avila, J. A. (2012). The role of visual complexity and prototypicality regarding first impression of websites: Working towards understanding aesthetic judgments. International Journal of Human-Computer Studies, 70(11), 794–811.
58. Zhang, Y., Papp-Váry, Á., & Szabó, Z. (2025). Global influences of digital transformation on behavioral factors in tourism: A systematic literature review. Cogent Business & Management, 12(1), Article 2536101. https://doi.org/10.1080/23311975.2025.2536101
59. Zhong, L., Deng, B., Morrison, A. M., Coca-Stefaniak, J. A., & Yang, L. (2021). Medical, health and wellness tourism research—A review of the literature (1970–2020) and research agenda. International Journal of Environmental Research and Public Health, 18(20), Article 10875. https://doi.org/10.3390/ijerph182010875

SOCIAL PARTNERSHIP IN THE SLOVAK REPUBLIC: DEVELOPMENT, CHALLENGES AND OPPORTUNITIES FOR IMPROVEMENT

Miriama Dubovska
University of Economics in Bratislava
Faculty of National Economy
Dolnozemská cesta 2, 852 35 Bratislava, Slovakia
miriama.dubovska@euba.sk

ABSTRACT
Social partnership constitutes a key institutional mechanism of labour market governance within the European social model. Although it has been formally established in the Slovak Republic since the early 1990s, its practical functioning has been marked by political discontinuities, limited effectiveness, and recurring tensions among social partners. This article aims to critically assess the development of social partnership in the Slovak Republic over the past two decades, with particular attention to the gap between its formal institutional framework and its real capacity to coordinate socio-economic interests. Using a qualitative analytical approach based on document analysis and synthesis of empirical findings, the article examines major phases of development and identifies structural weaknesses related to representativeness, continuity, and the link between social dialogue and collective bargaining. The analysis shows that the main limitations of social partnership in Slovakia are not legislative but institutional and implementation-related. A SWOT analysis is employed to synthesise key strengths, weaknesses, opportunities, and threats, providing a basis for formulating realistic recommendations aimed at improving the effectiveness of social partnership in the Slovak Republic.
Keywords: *social partnership, social dialogue, Slovak Republic, labour market, collective bargaining*

1. INTRODUCTION

Social partnership and social dialogue constitute key institutional mechanisms of labour market governance within the European social model, providing a framework for coordinating the interests of employers, employees, and the state. While social partnership is normatively associated with social cohesion, stability of labour relations, and the legitimacy of socio-economic decision-making, its effectiveness depends not merely on formal institutionalisation but on its quality, continuity, and capacity to generate implemented outcomes. In the Slovak Republic, social partnership has been formally established since the early 1990s and embedded in a comprehensive legislative and institutional framework. Nevertheless, its practical functioning has been marked by political discontinuities, contested representativeness, and recurrent tensions between consultation and decision-making. The aim of this article is therefore to critically assess the development of social partnership in the Slovak Republic, identify its key strengths and weaknesses, and, through a SWOT-based synthesis, outline realistic options for improving the effectiveness of social dialogue in the contemporary socio-economic context.

2. THEORETICAL BACKROUND OF SOCIAL PARTNERSHIP

Social partnership and social dialogue are among the key concepts of modern labour law and social policy. They are defined by various authors and institutions with emphasis on different dimensions, such as actors, processes, outcomes, institutional frameworks, and levels of operation (Hyman, 2010; Kohl & Platzer, 2020).

Social partnership can be broadly understood as a system of processes and relationships based on consultation, cooperation, and negotiation in labour relations between representatives of employers and employees. These interactions typically take place at company and sectoral levels through collective bargaining and participatory decision-making. The fundamental idea of social partnership is based on the assumption that key objectives of economic and social policy—such as stable employment, sustainable wage growth, and social cohesion—are more effectively achieved through cooperation and dialogue than through persistent conflict between capital and labour (Pochet & Degryse, 2017; Keller & Sörries, 2012). Social partnership assumes that, alongside their specific objectives (e.g. higher wages and better working conditions for employees, and flexibility and competitiveness for employers), interest groups also share common goals, such as the long-term prosperity of enterprises, employment stability, predictability of the regulatory environment, and the development of communities and society in which they operate (Eurofound, 2015; ILO, 2013). In this regard, social partnership is grounded in the principles of mutual recognition, compromise, shared responsibility, and participation (Traxler & Brandl, 2012). The German scholar Reinold Biskup defined social partnership as "a cooperative and responsible protection of interests oriented towards a common economic or social objective, based on mutual trust and equality of participants, as well as on binding rules of conduct, aimed at preventing conflicts that could jeopardise the common goal" (Biskup, 1986). This definition highlights the importance of mutual trust and normative frameworks for preventing conflict escalation and maintaining stable relationships between social partners. Based on this definition, it can be argued that social partnership cannot be understood as a denial of the existence of divergent and often conflicting interests among employers, employees, and the state. On the contrary, modern theories of social partnership are based on the realistic assumption of a pluralistic society, in which conflicts of interest are natural and legitimate. The role of social partnership is therefore to regulate, manage, and transform these conflicts into constructive dialogue that enables mutually acceptable solutions. This approach forms the foundation of modern tripartite and bipartite social dialogue, which is regarded as an important stabilising mechanism in democratic societies. Social partnership also represents a participatory mechanism that enables representatives of employers and employees to contribute to the formulation of economic and social policies at various levels, from the enterprise to the macroeconomic level of the state. According to the literature, it can also be viewed as a strategy that allows social partners to participate in decision-making, control processes, and the regulation of labour relations across different levels of the societal system. This approach is characteristic of democratic and participatory models of social dialogue, which emphasise cooperation, co-decision, and conflict prevention. Effective functioning of social partnership is only possible when it is embedded within a political culture that respects the plurality of actors, their autonomy, and the legitimacy of their interests.

3. DEVELOPMENT AND FORMATION OF SOCIAL PARTNERSHIP AND SOCIAL DIALOGUE IN THE SLOVAK REPUBLIC

The formation of social dialogue in the Slovak Republic dates back to the period preceding the establishment of the independent state itself. A key turning point occurred in 1989, when Czechoslovakia experienced profound social, political, and economic transformations. The centrally planned socialist economy transitioned to a market-based system, which required not only economic restructuring but also the establishment of democratic institutions, including new mechanisms for communication between the government, employers, and employees (Ost, 2000; Myant, 2010). The transformation process after 1989 created space for the development of social partnership and collective bargaining. Under the former Czechoslovak regime, trade unions existed within a state-controlled system and lacked autonomy vis-à-vis both the government and employers.

The regime change necessitated the creation of new forms of interest representation capable of supporting social peace and collective negotiation in a dynamically changing economic environment (Crowley & Stanojević, 2011). Following the establishment of the Czech Republic and the Slovak Republic in 1993, the formal conditions for building a stable system of social partnership began to emerge. The voluntary participation of employers, trade unions, and the government led to the creation of a new tripartite body—the Economic and Social Council of the Slovak Republic (RHSD SR), which became the central institution of tripartite dialogue. Its establishment was a response to the socio-economic conditions of the time, which required the rapid creation of a platform for negotiation among key labour market actors. The agreements initially adopted by this body were primarily of a recommendatory nature rather than legally enforceable commitments (Firlit-Fesnak & Matoušek, 2013). The RHSD SR represented a joint body of employers, employees, and government representatives, reflecting the tripartite principle embedded in international ILO standards. It was established through a written agreement signed by four entities: the Government of the Slovak Republic, the Confederation of Trade Unions of the Slovak Republic, the Confederation of Art and Culture of the Slovak Republic, and the Council of Employers' Associations. Its primary objective was to achieve consensus on issues related to economic policy, social policy, labour relations, employment, and wage-setting. The outcome of these negotiations was to be a "general agreement" (gentlemen's agreement), regulating conditions and relationships in these areas. Due to the absence of legislative regulation of tripartism in the early 1990s, these agreements carried strong political and moral authority but lacked legal enforceability. General agreements served as a framework for future collective bargaining and social policy-making, despite their non-binding nature. This model was similar to practices in other transforming Central and Eastern European countries, where social dialogue developed alongside the construction of democratic institutions and a market economy (Crowley & Stanojević, 2011). The development of tripartism in Slovakia faced numerous obstacles. These included the absence of a legislative framework for tripartite relations, the limited preparedness of social partners for negotiation processes, and the low level of economic development. Trade unions and employers' organisations underwent transformation after 1989 and lacked sufficient experience in autonomous collective bargaining or structured tripartite dialogue (Ost, 2000). Additionally, economic challenges—particularly low growth and high unemployment in the late 1990s—restricted the scope for wage growth and compromise (Myant, 2010). These challenges were reflected in the suspension of social dialogue in 1997, following a unilateral government decision to introduce wage regulation, which was strongly opposed by trade unions. This action undermined trust and highlighted the vulnerability of tripartite relations to political intervention. Social dialogue was resumed in December 1998 after the repeal of the contested measure. Evidence of these problems was the suspension of social dialogue negotiations in 1997. Representatives of the government did not always respect the principles of social dialogue, which led to a breakdown of trust between the social partners and the government. The conflict arose when the government unilaterally introduced wage regulation, which was rejected by employee representatives. They considered this step to be a serious violation of the principles of collective bargaining, resulting in the interruption of social dialogue until the following year. This incident demonstrated that tripartite arrangements are highly sensitive to political interventions and that stable social peace cannot be achieved without trust and respect for established rules. Social dialogue between the government and social partners was restored in December 1998, after nearly a year and a half of suspended negotiations. The newly appointed government repealed the contested wage regulation, which had been one of the key demands of trade union organisations. This step created the necessary conditions for the reactivation of tripartite social dialogue.

In mid-1999, the Act on Economic and Social Partnership was adopted and approved by Parliament, representing the first legislative attempt to formally institutionalise tripartite relations between social partners and the government. The aim of this Act was to define the functioning of tripartism and to specify the competences of social partners. Among other objectives, the Act sought to stabilise the process of collective bargaining at the national level and to create a transparent framework for the adoption of joint agreements. Despite positive expectations, the adoption of the Act failed to fulfil its intended purpose and its validity subsequently expired. The termination of its effectiveness was primarily due to persistent divergences in the positions of social partners during negotiations, insufficient preparedness for effective bargaining, and the protraction of the legislative process, during which previously discussed materials were repeatedly reconsidered. Following the declaration of the Act as dysfunctional and the termination of its validity, social partners reached a consensus on the need to continue social dialogue, albeit in a new and more effective form than before. The outcome of subsequent negotiations was the signing of the Declaration by representatives of the Government of the Slovak Republic, the Confederation of Trade Unions of the Slovak Republic, the Association of Employers' Associations and Federations of the Slovak Republic, and the National Union of Employers in November 2004. This document formally brought an end to the previously applied mode of organisation and functioning of social dialogue and at the same time established a framework for its new institutional form. Among other matters, the social partners agreed on a new concept for the operation of tripartism and on a new designation of the tripartite body—the Economic and Social Partnership Council of the Slovak Republic. During 2006, intensive legislative preparations continued for a new law intended to clearly define the principles and mechanisms of tripartite consultations at the national level. This process culminated in the adoption of Act No. 103/2007 Coll. on Tripartite Consultations at the National Level, which entered into force on 1 April 2007. The Act established the basic rules governing the functioning of tripartism, defined its participants, forms of consultation, and procedures for adopting positions, and regulated the creation of expert sections and working groups within the Economic and Social Partnership Council of the Slovak Republic. In parallel with the preparation of the new legal framework for social dialogue, a new consultative body of the government and social partners at the national level was established—the Economic and Social Council of the Slovak Republic. Its establishment was closely linked to the process of modernising tripartite mechanisms and represented a response to the long-standing criticism of the dysfunctionality of the previous model of social dialogue (Ministry of Labour, Social Affairs and Family of the Slovak Republic, 2005). The newly established council replaced the previous platform of a voluntary nature operating under the title of the Council for Economic and Social Partnership, which lacked clearly defined competences, procedural rules, and guaranteed representativeness of the partners (Štefko, 2006). The introduction of the new institutional form of dialogue was driven by the demands of social partners for greater stability, predictability, and binding character of consultation mechanisms, as well as by recommendations of the European Commission aimed at strengthening tripartite frameworks in the Member States (European Commission, 2004). Pursuant to Act No. 103/2007 Coll. on Tripartite Consultations at the National Level, the Economic and Social Council of the Slovak Republic is defined as the central platform for concluding agreements, coordinating positions, and formulating recommendations in the field of economic and social development. The Act confers extensive competences upon the Council, including the conclusion of agreements and adoption of positions on issues of economic and social development; formulation of recommendations to the Government of the Slovak Republic, particularly in relation to strategic documents and policies; negotiation of positions on draft generally binding legal regulations affecting the interests of employees and employers; assessment and commenting on the draft state budget; support and coordination of all forms of collective bargaining at the national level;

and consultations on labour, wage, and social conditions (Collection of Laws of the Slovak Republic, 2007). The adoption of the Act on Tripartite Consultations at the National Level also necessitated amendments to related legislation, particularly the law governing collective bargaining. In September 2007, a legislative amendment was therefore adopted that fundamentally redefined the conditions for extending the binding effect of higher-level collective agreements (Collection of Laws of the Slovak Republic, 2007). The amendment allowed the binding effect of a higher-level collective agreement to be extended to employers operating within a given sector even without their consent, provided that their predominant activity fell within the relevant sector. This mechanism was justified by the need to strengthen the protection of working conditions and to prevent so-called social dumping, that is, the downward pressure on wages and labour standards resulting from competitive pressures among enterprises within the same sector (Eurofound, 2008). A further significant legislative intervention occurred with the adoption of Act No. 564/2009 Coll. amending the Act on Collective Bargaining, which further expanded the scope of applicability of higher-level collective agreements. The amendment stipulated that a higher-level collective agreement could become binding for all employers operating in a given sector regardless of whether they were members of the relevant employers' association or had expressed consent to the extension of its binding effect (Collection of Laws of the Slovak Republic, 2009). This measure substantially contributed to the broad extension of collective agreement coverage and became the subject of extensive debate among experts, particularly with regard to issues of representativeness and potential impacts on the business environment (Morávek, 2010). In the following year, another amendment to the Act on Collective Bargaining, Act No. 557/2010 Coll., was adopted. This amendment represented a partial liberalisation of the previous approach. It stipulated that "the Ministry of Labour, Social Affairs and Family of the Slovak Republic may extend the binding effect of a higher-level collective agreement to an employer to whom no other higher-level collective agreement applies, provided that the employer agrees to such an extension" (Zachar, 2011). This model reintroduced the principle of voluntariness, aiming to mitigate criticism from the employers' side concerning the previous blanket extensions of collective agreement coverage. In 2011, the government proceeded with an extensive amendment to the Labour Code, adopted as Act No. 257/2011 Coll. This amendment constituted a significant intervention in the system of labour relations and simultaneously had an impact on the functioning of social dialogue. One of its key elements was the strengthening of the powers of employee councils and employee trustees, who were granted expanded competences in negotiating working conditions, wage conditions, and conditions of employment (Collection of Laws of the Slovak Republic, 2011). The amendment also broadened the range of cases in which collective agreements could regulate labour-law conditions to the detriment of employees, provided that such arrangements were enabled through collective bargaining at the relevant level. This step marked a departure from the previously strict protection of minimum labour standards and opened space for greater flexibility in areas where social partners were able to reach an agreement (Bakoš, 2012). In the subsequent years, the legal framework governing collective bargaining also underwent further changes. The Act on Collective Bargaining was repeatedly amended, with individual revisions responding primarily to the need to adjust the mechanism for extending the binding effect of higher-level collective agreements. In 2013, an additional provision was incorporated into the Act regulating the procedure for extending the binding effect of higher-level collective agreements to other employers operating within the sector. These changes aimed to strengthen legal certainty in a process that had been the subject of disputes, particularly between employers' associations and trade union organisations (Eurofound, 2014). In 2017, an amendment was adopted that significantly revised paragraph 9 concerning the procedure for verifying compliance with the conditions of a representative higher-level collective agreement and the method of publishing notifications of its conclusion.

The purpose of this amendment was to enhance transparency and the verifiability of the representativeness of social partners in collective bargaining (Collection of Laws of the Slovak Republic, 2017). The subsequent period represented a particularly dynamic phase in the context of social dialogue in the Slovak Republic. It was characterised by alternating phases of legislative stabilisation, growing conflicts among social partners, and a subsequent shift of the focus of social dialogue towards crisis management during the COVID-19 pandemic (Eurofound, 2021; ILO, 2021). During this period, there was a gradual weakening of the formal tripartite framework, alongside an increased reliance on ad hoc consultations in addressing economic and social shocks (Kohl and Platzer, 2020). The development of social dialogue in this period significantly influenced the overall quality of labour market regulation, collective bargaining mechanisms, and the process of formulating socio-economic policies (Žúdel and Lichner, 2020). From the perspective of legislative developments, 2018 represented a relatively stable period in the field of social dialogue and collective bargaining. The version of the Act on Collective Bargaining that entered into force following the amendments adopted in 2017 and 2018 created certain conditions for the consolidation of sectoral collective bargaining (Collection of Laws of the Slovak Republic, 2017; Collection of Laws of the Slovak Republic, 2018). Despite this legislative stability, tensions among social partners continued to deepen, particularly in relation to the determination of the minimum wage, the extension of the binding effect of higher-level collective agreements, and debates concerning the possible introduction of an automatic indexation formula (Confederation of Trade Unions of the Slovak Republic, 2018; National Union of Employers of the Slovak Republic, 2018). At the same time, the implementation of the principles of the European Pillar of Social Rights strengthened the European orientation of social policy, which directly and indirectly influenced discussions among social partners, especially in the areas of working conditions, wage growth, and collective rights (European Commission, 2017; ETUC, 2019). As a result, social dialogue in the Slovak Republic increasingly operated in an environment characterised by frequent confrontations with requirements to align national policies with European Union standards in the field of social rights. The subsequent period of 2019 was marked by a weakening of the quality of formal tripartite dialogue. The most significant conflict concerned the adoption of the minimum wage indexation mechanism, which was approved without achieving consensus within the Economic and Social Council (Ministry of Labour, Social Affairs and Family of the Slovak Republic, 2019; National Union of Employers of the Slovak Republic, 2019). This legislative process exposed the limits of tripartite functioning, as the government adopted a key decision outside the framework of social dialogue, a move that employers' associations interpreted as a weakening of institutionalised social partnership (Kollár, 2020). At the same time, the ability of the institution to fulfil its role as a platform for concluding agreements and formulating joint positions declined. Several negotiations ended without consensus, further deepening distrust among social partners (Eurofound, 2020). This period can be characterised as a shift from consensual social dialogue towards fragmented advocacy strategies pursued by individual actors (Kohl and Platzer, 2020). The nature of social dialogue changed significantly with the outbreak of the COVID-19 pandemic at the beginning of 2020. Actors of social dialogue were required to rapidly adapt to the changes brought about by the pandemic, and social dialogue was transformed into a crisis-oriented communication mechanism (ILO, 2020; OECD, 2021). Tripartite negotiations became more operational, with a substantial part taking place in an online environment, and focused primarily on the adoption of measures aimed at stabilising the labour market and protecting employment. The most significant outcome of this period was the introduction of financial support schemes under the "First Aid" programme, including a temporary short-time work (Kurzarbeit) regime (Ministry of Labour, Social Affairs and Family of the Slovak Republic, 2020; Eurofound, 2020).

Although social partners participated in the preparation of these measures, they repeatedly criticised the insufficient predictability of government decisions and the limited opportunities for genuine participation in the formulation of pandemic-related policies (Confederation of Trade Unions of the Slovak Republic, 2020; National Union of Employers of the Slovak Republic, 2020). As a result, the system of social dialogue reached a high level of intensity, while its formal quality was weakened. Ad hoc decision-making prevailed, focused primarily on immediate economic and social needs, whereas longer-term structural issues of the labour market were largely sidelined (ILO, 2021). One of the most significant legislative outcomes of social dialogue in the modern period was the adoption of the Act on Permanent Short-Time Work in 2021 (Collection of Laws of the Slovak Republic, 2021; Ministry of Labour, Social Affairs and Family of the Slovak Republic, 2021). The legislative process was characterised by relatively intensive and constructive cooperation among social partners, which contrasted with the preceding years and is often assessed as a positive example of consensual social partnership (Eurofound, 2022; ILO, 2021). Kurzarbeit was institutionalised as a systemic instrument for the protection of jobs during periods of extraordinary circumstances, with social partners being assigned a role in its evaluation and implementation, primarily within tripartite consultation mechanisms (Tomek and Kahanec, 2022). At the same time, discussions were underway on the modernisation of labour law, particularly in relation to the expansion of remote work, the digitalisation of work processes, and the impacts of the pandemic on the structure of work (OECD, 2021; Kahanec and Sedláková, 2021). High inflation, the consequences of the war in Ukraine, the energy crisis, and the continuing effects of the pandemic generated new pressures on the functioning of social dialogue during 2022. In this period, social dialogue focused primarily on issues related to increases in the minimum wage and the preservation of the real value of wages, compensation schemes for enterprises and households, wage adjustments in the context of rising price levels, and the impacts of the energy crisis on employment and labour costs (Eurofound, 2022; ETUC, 2022). The functioning of tripartism during this period was marked in particular by its reactive character. Social dialogue became fragmented, burdened by multiple political and economic conflicts, and oriented more towards addressing short-term problems than towards long-term strategic questions of socio-economic development (Kohl and Platzer, 2020). The amendment to the Labour Code that entered into force on 1 June 2023 changed the method for determining wage premiums for work performed on Saturdays, Sundays, and during night shifts. The legal regulation reverted from fixed monetary amounts to a percentage-based system linked to the level of the minimum wage, thereby once again strengthening the link between minimum wage growth and the level of wage supplements (Collection of Laws of the Slovak Republic, 2023). This step became the subject of intensive discussion among social partners, as employers' associations pointed to rising labour costs in a context of high inflation, while trade union organisations argued for the need to preserve the real value of wage premiums and to compensate for the deteriorating living conditions of employees (National Union of Employers of the Slovak Republic, 2023; Confederation of Trade Unions of the Slovak Republic, 2023). Social dialogue subsequently focused on the issue of the adequacy of the minimum wage. These discussions took place in the context of the transposition of Directive (EU) 2022/2041, which places emphasis on increasing collective bargaining coverage, systematically assessing the adequacy of minimum wages, and ensuring the involvement of social partners in the process of setting the minimum wage (European Commission, 2022; ETUC, 2023). Negotiations within the Economic and Social Council of the Slovak Republic focused on the design of the mechanism for setting the minimum wage, the role of automatic indexation elements, and the degree of binding force of social partners' recommendations.

Although social partners agreed on the need to maintain a certain level of predictability and transparency in the process, consensus on a specific model was not achieved, once again revealing tensions between employee protection and business competitiveness (Eurofound, 2023; Kollár, 2023). The year 2023 was also marked by political changes related to parliamentary elections and the subsequent change of government, which was reflected in the continuity of social dialogue. Several measures in the fields of social and labour-law policy were prepared through accelerated legislative procedures, during which social partners pointed to insufficient scope for consultations and comments (Confederation of Trade Unions of the Slovak Republic, 2023; National Union of Employers of the Slovak Republic, 2023). In the following year, social dialogue in the Slovak Republic remained under strong pressure from macroeconomic challenges, particularly the need for public finance consolidation, persistent inflationary pressures, and the consequences of the geopolitical situation in the region (National Bank of Slovakia, 2024; OECD, 2024). At the tripartite level, social partners primarily engaged in discussions on adjustments to the minimum wage and its linkage to the average wage, the impacts of rising energy prices and labour costs on employment, issues of social protection for low-income households, and the assessment of the effectiveness of short-time work schemes and active labour market policy instruments (Eurofound, 2024; Ministry of Labour, Social Affairs and Family of the Slovak Republic, 2024). The transposition of the Directive on adequate minimum wages created space for renewed discussion on the extent of collective bargaining coverage in the Slovak economy and on possibilities for its strengthening, particularly in sectors with low levels of trade union organisation. Trade unions emphasised the need to extend the binding effect of higher-level collective agreements and to support sectoral bargaining, while employers' organisations warned of the risk of excessive administrative and cost burdens for small and medium-sized enterprises (ETUC, 2023; National Union of Employers of the Slovak Republic, 2024). Although tripartite dialogue formally remained in place, its practical effectiveness was frequently questioned by the social partners themselves. They pointed in particular to the uneven quality of consultations across individual legislative proposals, short deadlines for submitting comments, and the bypassing of the Economic and Social Council of the Slovak Republic in some key government decisions (Confederation of Trade Unions of the Slovak Republic, 2024; National Union of Employers of the Slovak Republic, 2024). At the same time, however, social dialogue at company and sectoral levels in certain industries (e.g. the automotive industry and energy sector) demonstrated an ability to respond flexibly to changes in demand, technological innovation, and the need to adjust working arrangements (Eurofound, 2024). The overall assessment of the development indicates that the potential of social dialogue to support the quality of working conditions, the sustainability of the social system, and the long-term competitiveness of the economy remains only partially utilised in the conditions of the Slovak Republic. The identified trends therefore provide an important analytical framework for assessing impacts on employment, labour mobility, and wage growth, as well as for formulating measures aimed at enhancing the effectiveness

3.1 Critical Assesment of the Development of Social Dialogue in the Slovak Republic

The development of social dialogue in the Slovak Republic over the past two decades reveals a pronounced mismatch between its formal institutional entrenchment and its actual capacity to fulfil a coordinating and stabilising function in the fields of labour market governance and socio-economic policymaking. Although the Slovak Republic possesses a legislative framework and institutional arrangements comparable to those of other European Union Member States, the practical functioning of social dialogue has long been marked by discontinuity, political conditionality, and limited implementation capacity.

A key problem in the development of social dialogue in Slovakia is its cyclical instability, closely linked to political change. Repeatedly, it has become evident that the intensity and quality of tripartite dialogue depend more on the political will of the government than on the autonomous strength of social partners. The adoption of major decisions outside the framework of tripartite consultation (for example, in the area of minimum wage setting or labour-law reforms) has weakened trust among the actors involved and contributed to a situation in which social dialogue often serves a legitimising or consultative function rather than constituting a space for genuine negotiation and joint decision-making. Another long-standing weakness is the fragile link between social dialogue and collective bargaining, particularly at the sectoral level. Repeated legislative interventions in the mechanism for extending the binding effect of higher-level collective agreements formally created conditions for strengthening collective bargaining, yet simultaneously generated conflicts among social partners and raised questions regarding representativeness. The outcome is a system in which collective bargaining is unable to systematically perform its regulatory function, while a substantial share of wage-related and labour-law issues is shifted into the political sphere. The COVID-19 pandemic and subsequent crisis periods (inflationary pressures, the energy crisis, and geopolitical tensions) led to an increase in the intensity of social dialogue but at the same time exposed its reactive and ad hoc character. During this period, social dialogue was transformed into a crisis-oriented communication mechanism focused primarily on addressing immediate problems, while long-term strategic issues of labour market development and socio-economic progress remained largely sidelined. Positive examples of consensual cooperation (such as the introduction of permanent short-time work schemes) thus tend to confirm the existence of the potential of social dialogue rather than its systemic functionality. Overall, the development of social dialogue in the Slovak Republic can be characterised by an asymmetry between form and substance. While formal institutions and a legal framework are in place, their ability to generate stable, predictable, and effectively implemented outcomes remains limited. Social dialogue therefore contributes only partially to labour market regulation, the protection of working conditions, and the long-term competitiveness of the economy.

3.2 SWOT Analysis of Social Partnership

The above findings suggest that social partnership in the Slovak Republic cannot be assessed unilaterally as a dysfunctional system, but rather as a mechanism with a significantly underutilised potential. On the one hand, there are notable strengths in the form of a legislative framework, institutionalised tripartite bodies, and a broader European context. On the other hand, persistent weaknesses remain, particularly in the areas of implementation, representativeness, and continuity of social dialogue. For this reason, it is appropriate to synthesise the identified findings through a SWOT analysis, which enables a systematic identification of the strengths and weaknesses of social partnership, as well as the opportunities and threats arising from its internal functioning and external socio-economic environment. The SWOT analysis thus creates an analytical bridge between the assessment of the development of social dialogue and the formulation of recommendations for its further improvement. From a SWOT perspective, social partnership in the Slovak Republic can be characterised as a system with a formally established institutional and legislative framework, which represents its main strength, together with the existence of tripartite bodies and its anchoring in the European social model. At the same time, significant weaknesses persist, particularly low representativeness of social partners, discontinuity of social dialogue depending on political cycles, and a weak link between tripartism and collective bargaining, especially at the sectoral level. Key opportunities include the potential to strengthen collective bargaining and social dialogue through the implementation of European initiatives, as well as leveraging experience gained from crisis-driven cooperation among social partners to stabilise the system in the longer term.

Conversely, major threats include the ongoing politicisation of social dialogue, the bypassing of tripartite mechanisms in key decision-making processes, and the risk of further erosion of trust among social partners, which may lead to the predominance of ad hoc and reactive solutions at the expense of systematic coordination of socio-economic development.

4. CONCLUSION

Based on the critical assessment of the development of social dialogue in the Slovak Republic, it can be concluded that the main problems of social partnership are not primarily legislative in nature, but rather institutional and implementation-related. Social dialogue is supported by a formal framework, yet its practical effectiveness is constrained by the weak representativeness of social partners, interrupted continuity, and insufficient linkage to public policy-making processes. Key recommendations for improving social partnership in the Slovak Republic include, in particular:

- strengthening sectoral collective bargaining as a fundamental instrument for coordinating working and wage conditions,
- enhancing the representativeness and bargaining capacity of social partners,
- stabilising social dialogue beyond political cycles and limiting ad hoc interventions in its functioning,
- systematically linking the outcomes of social dialogue to decision-making processes in labour market and social policy.

Social partnership in the Slovak Republic thus represents a partially underutilised instrument of economic and social governance, the strengthening of which could contribute to greater labour market stability, improved protection of working conditions, and more sustainable socio-economic development. The identified trends and recommendations also create scope for further research focused on the quantitative evaluation of the impacts of social dialogue and on comparative assessments of the Slovak model with more functional examples within the European Union.

LITERATURE:

1. Bakoš, M. (2012) *Zmeny v pracovnom práve a ich vplyv na kolektívne vyjednávanie.* Bratislava: Právnická fakulta UK.
2. European Commission (2004) *Partnership for change in an enlarged Europe*. Brussels: European Commission.
3. European Commission (2017) *European Pillar of Social Rights. Brussels*: European Commission.
4. European Commission (2022) *Directive (EU) 2022/2041 on adequate minimum wages in the European Union*. Brussels: European Commission.
5. Eurofound (2008) *Extension of collective agreements in Europe*. Dublin: Eurofound.
6. Eurofound (2014) *Developments in collective bargaining in Slovakia*. Dublin: Eurofound.
7. Eurofound (2020) COVID-19: *Implications for employment and working life*. Dublin: Eurofound.
8. Eurofound (2021) *Industrial relations and social dialogue*. Dublin: Eurofound.
9. Eurofound (2022) *Minimum wages and collective bargaining in Europe*. Dublin: Eurofound.
10. Eurofound (2023) *Social dialogue developments in Slovakia*. Dublin: Eurofound.
11. Eurofound (2024) *Industrial relations developments in Europe 2023–2024*. Dublin: Eurofound.
12. ETUC (2019) *Social dialogue and workers' rights in Europe*. Brussels: European Trade Union Confederation.

13. ETUC (2022) *Wage developments and inflation.* Brussels: European Trade Union Confederation.
14. ETUC (2023) *Collective bargaining and minimum wage adequacy*. Brussels: European Trade Union Confederation.
15. ILO (2020) *Social dialogue, labour law and COVID-19*. Geneva: International Labour Organization.
16. ILO (2021) *Social dialogue in times of crisis. Geneva*: International Labour Organization.
17. Kahanec, M. and Sedláková, M. (2021) *Labour market transformations and remote work*. Bratislava: CELSI.
18. Kohl, H. and Platzer, H.-W. (2020) *Industrial relations in Central and Eastern Europe*. Brussels: ETUI.
19. Kollár, M. (2020) *Minimálna mzda a sociálny dialóg na Slovensku*. Bratislava: Ekonomický ústav SAV.
20. KOZ SR (2018) *Stanoviská k vývoju minimálnej mzdy*. Bratislava: Konfederácia odborových zväzov SR.
21. KOZ SR (2020) *Sociálny dialóg počas pandémie COVID-19*. Bratislava: KOZ SR.
22. KOZ SR (2023) *Pripomienky k legislatívnym návrhom v oblasti práce*. Bratislava: KOZ SR.
23. KOZ SR (2024) *Hodnotenie fungovania sociálneho dialógu*. Bratislava: KOZ SR.
24. Morávek, J. (2010) *Rozširovanie záväznosti kolektívnych zmlúv*. Praha: Wolters Kluwer.
25. MPSVR SR (2005) *Reforma sociálneho dialógu v SR*. Bratislava: Ministerstvo práce, sociálnych vecí a rodiny SR.
26. MPSVR SR (2019) *Minimálna mzda a tripartita*. Bratislava: MPSVR SR.
27. MPSVR SR (2020) *Prvá pomoc – opatrenia na podporu zamestnanosti*. Bratislava: MPSVR SR.
28. MPSVR SR (2021) *Zákon o trvalom kurzarbeite*. Bratislava: MPSVR SR.
29. MPSVR SR (2024) *Správa o trhu práce*. Bratislava: MPSVR SR.
30. NBS (2024) *Makroekonomický výhľad Slovenska*. Bratislava: Národná banka Slovenska.
31. OECD (2021) *Employment Outlook*. Paris: OECD Publishing.
32. OECD (2024) *Economic Surveys*: Slovak Republic. Paris: OECD Publishing.
33. RÚZ SR (2018) *Stanoviská zamestnávateľov k mzdovej politike*. Bratislava: Republiková únia zamestnávateľov SR.
34. RÚZ SR (2019) *Hodnotenie fungovania tripartity*. Bratislava: RÚZ SR.
35. RÚZ SR (2020) *Dopady pandémie na podnikateľské prostredie*. Bratislava: RÚZ SR.
36. RÚZ SR (2023) *Pripomienky k Zákonníku práce*. Bratislava: RÚZ SR.
37. RÚZ SR (2024) *Kolektívne vyjednávanie a konkurencieschopnosť*. Bratislava: RÚZ SR.
38. Štefko, M. (2006) *Sociálny dialóg a tripartita v SR*. Bratislava: Iura Edition.
39. Tomek, M. and Kahanec, M. (2022) *Kurzarbeit as a labour market stabiliser*. Bratislava: CELSI.
40. Žúdel, B. and Lichner, I. (2020) *Regulácia trhu práce na Slovensku*. Bratislava: Ekonomický ústav SAV.
41. Zbierka zákonov SR (2007) *Act No. 103/2007 Coll. on Tripartite Consultations at the National Level.*
42. Zbierka zákonov SR (2009) *Act No. 564/2009 Coll. amending the Act on Collective Bargaining.*
43. Zbierka zákonov SR (2011) *Act No. 257/2011 Coll. amending the Labour Code*.
44. Zbierka zákonov SR (2017) *Amendment to the Act on Collective Bargaining*.
45. Zbierka zákonov SR (2018) *Amendment to the Act on Collective Bargaining*.
46. Zbierka zákonov SR (2021) *Act on Permanent Short-Time Work.*
47. Zbierka zákonov SR (2023) *Amendment to the Labour Code*.

MULTI-AGENT MODELLING OF INVESTORS BEHAVIOURAL BIASES: THE CASE OF THE MOROCCAN STOCK MARKET

Anas Mossadak
Faculty of Law, Economic and Social Sciences, Salé
Mohammed V University
anas.mossadak@gmail.com

Necaira Sghiouar
Faculty of Law, Economic and Social Sciences, Salé
Mohammed V University
necaira.sghiouar@gmail.com

ABSTRACT

Given the limitations of standard models in traditional finance, this research falls within the field of behavioural finance, which incorporates the cognitive, emotional and social dimensions of investors into their decision-making. The aim is to understand, through a heterogeneous multi-agent modelling (HMAM) approach, how these factors influence allocation decisions and market dynamics, as applied to the Casablanca Stock Exchange. The methodology combines a theoretical approach with simulation : after identifying the main biases, a multi-agent model simulates their interactions, followed by an econometric analysis to assess the explanatory power of these factors. The results confirm that the joint integration of biases significantly improves our understanding of financial performance. Cognitive biases explain 11.4% of the variance in returns, social biases 39.45%, and emotional biases 49.95%. The unified model (three dimensions) reaches 59.72%, whilst the final model incorporating seven fundamental biases achieves an exceptional R^2 of 69.39%. A clear hierarchy of three biases emerges : overconfidence (27.2%), optimism (19.8%) and euphoria (13.4%). The study reveals complex interactions, including a suppression effect for herd behaviour, which becomes a winning strategy after controlling for other variables. Conversely, anchoring (2.8%) and loss aversion (1.1%) see their impact cancelled out in the integrated model, highlighting the risks of partial analyses. MMA is confirmed as a crucial tool for the Moroccan market, linking individual behaviour and collective dynamics. It reaffirms the predominant influence of behavioural biases on investment decisions and their non-linear effects. The holistic approach adopted thus provides a rigorous framework for understanding the complexity of investment decisions on the Casablanca Stock Exchange.

Keywords : *Behavioural biases, Casablanca Stock Exchange, behavioural finance, Moroccan investor, multi-agent modelling*

1. INTRODUCTION

The efficient market hypothesis (EMH) is one of the cornerstones of mainstream finance ; it states that prices fully and instantly reflect all available information and that investors are perfectly rational. However, empirical observations of contemporary financial markets, particularly emerging markets, call this assumption into question. The Moroccan stock market, represented by the Casablanca Stock Exchange, perfectly illustrates this inefficiency. Empirical data reveal persistent anomalies that do not fit with rational choice theory. The distributions of returns on the Casablanca market exhibit excessive kurtosis and fat tails, suggesting non-random price dynamics. Furthermore, there is strong autocorrelation in returns and frequent episodes of collective speculative behaviour. These phenomena can be explained by the ‘bounded rationality’ of Moroccan investors.

Behavioural surveys and trading data confirm the prevalence of cognitive shortcuts (heuristics) and decision-making heavily influenced by emotions. Individual biases, including overconfidence and loss aversion, are amplified by the effects of social networks and transform into macro-scale phenomena, notably speculative bubbles and crashes. The aim of this paper is to address the following question: How can cognitive, emotional and social biases be integrated into a multi-agent model in order to simulate investors' decision-making on the Moroccan stock market and thus reproduce the anomalies observed in this market?

2. LITERATURE REVIEW

Behavioural finance differs from traditional finance in its methods and approaches, rejecting the notion of perfect investor rationality, the efficient market hypothesis and the concept of arbitrage which form the core concepts of traditional finance. However, the distinction from the standard framework that leads to a paradigm shift requires a more comprehensive conceptualisation. Behavioural finance has developed to address the shortcomings of standard finance by integrating psychology into financial modelling. Our approach is based on three fundamental behavioural pillars:

Cognitive biases

Cognitive biases stem from the limitations of human capacity to process information. Kahneman and Tversky (1974) highlighted how individuals use representativeness[1] and anchoring[2] heuristics to assess complex probabilities. In financial markets, Odean (1998, 1999) demonstrated that overconfidence leads investors to overestimate their own processing capacity and informational accuracy, resulting in excessive trading volumes and suboptimal risk-taking.

Emotional biases and Prospect Theory

Risk assessment is not purely mathematical but is also emotional. Pratt (1964) laid the foundations for risk aversion, but it was Kahneman and Tversky (1979, 1992), with Prospect Theory (PT) and subsequently Cumulative Prospect Theory (CPT), who formalised loss aversion as the psychological pain associated with a loss being significantly greater than the pleasure of an equivalent gain. Furthermore, the dynamic contagion of emotions, conceptualised in DeGroot's (1974) consensus models, explains how emotional states spread between individuals.

Social biases and network topology

Investment decisions are deeply social. Bikhchandani, Hirshleifer and Welch (1992) explain information cascades in which individuals ignore their own signals to imitate the majority (herd effect). To model the structure of these interactions, graph theory is essential. For their part, Erdős and Rényi (1959) modelled random graphs, but real-world social networks follow power-law distributions. The preferential attachment of Barabási and Albert (1999) and the triadic closure (homophily) of Leskovec, Kleinberg and Faloutsos (2008) provide the mathematical framework for simulating how investors influence one another.

3. METHODOLOGY

To address our research question, we have developed a computational multi-agent model (MAM). This bottom-up methodology allows us to observe the emergence of macro-phenomena (market prices) from micro-rules (agent behaviour).

[1] People judge something to be more likely simply because it is more in line with their expectations, thereby disregarding base rates, sample size or the reliability of the available information.
[2] The irresistible tendency of people to place undue weight on the first piece of information they receive.

3.1. Construction of the sociogram (the social network of investors)

At this stage, we focus on constructing the graph of social relationships among Moroccan investors based on a transition matrix. We construct this matrix in three stages, in accordance with the literature, to incorporate the three laws of social attraction one by one. Starting with the random model by ERDŐS AND RÉNYI, which allows for basic links between investors following random encounters. It should be noted that the expression $\boldsymbol{\epsilon} \leq \frac{\mathbf{2}}{\boldsymbol{N}}$ ensures that the distribution of edges or relationships follows a Poisson distribution, as observed in the real world.

$$\mathbf{MT} = \begin{pmatrix} \mathbf{a_{1,1}} & \cdots & \mathbf{a_{1,N}} \\ \vdots & \ddots & \vdots \\ \mathbf{a_{N,1}} & \cdots & \mathbf{a_{N,N}} \end{pmatrix}$$

Where $\boldsymbol{a_{i,j}} = \boldsymbol{a_{j,i}} = \mathbf{1}_{\left(\epsilon \leq \frac{2}{N}\right)}$ and i and j are nodes

Nevertheless, this step alone does not capture the full reality of social networks. This brings us to our second rule or law of social attraction: preferential attachment, introduced in 1999 by BARABÁSI & ALBERT, which states that individuals who are already popular (high degree) attract new links more easily, creating hubs. We began by calculating the in-degree for each node. Next, the total volume of connectivity available in the sociogram. This allows us to estimate the probability that a node i is connected to a node j. Thus, the higher the in-degree relative to the total, the more sought-after the agent is, and therefore the greater their probability of forming new connections, as their likelihood increases. However, whilst this rule certainly allows us to approximate real-world social networks, it has the drawback of evaluating only the quantity of relationships. To remedy this, we have the third law of social attraction, which is triadic closure or microscopic evolution, stipulating that social networks evolve through a narrowing diameter and the tendency to become friends with our friends' friends. Subgroups with very dense links should emerge, increasing the clustering coefficient or local cohesion of the graph.

To achieve this, and using the threshold $\boldsymbol{\tau}$ =0.2 (which allows us to ignore weak but significant relationships, in line with Granovetter's theory of weak ties), we end up with the neighbourhood of the node defined by:

$$\boldsymbol{N(i)} = \{\boldsymbol{j} \in \boldsymbol{V} \mid \boldsymbol{a_{ij}} > \boldsymbol{\tau}\}$$

The figure below shows the sociogram of the relationships between Moroccan investors.

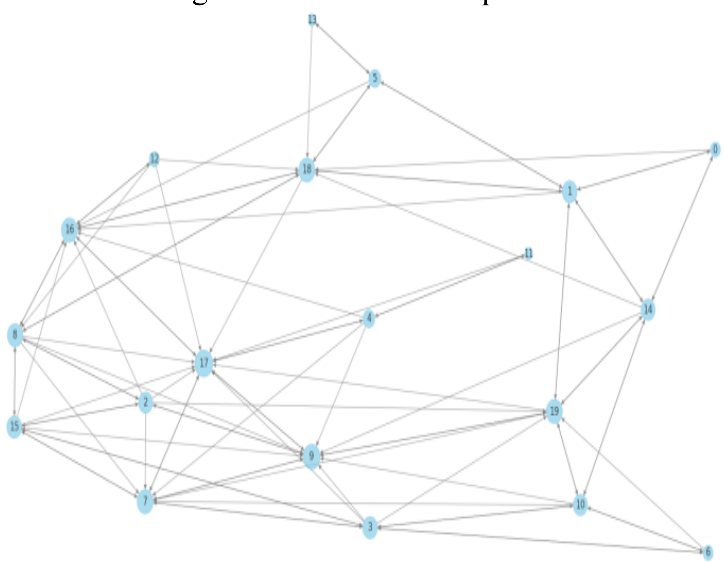


Figure 1. The sociogram of the relationships between Moroccan investors.

3.2. Contagion émotionnelle

An investor's emotional state is dynamic and susceptible to the moods of their network. The agent's updated emotion is calculated as follows:

$$\boldsymbol{em_{t+1} = em_t + (\alpha_{ce} * (emc_t - em_t))}$$

Where $\boldsymbol{\alpha_{ce}}$ = 0,35 represents the rate of emotional convergence. $\boldsymbol{emc_t}$ is the average emotion of the neighbourhood, weighted by the weights of the sociogram's edges:

$$\boldsymbol{emc_t = \frac{1}{N} \sum_{j \in N_i} (w_{i,j} em_{j,t})}$$

3.3. Dynamic modulation of loss aversion (CPT)

Loss aversion is not static; it intensifies during times of crisis. We parameterise the utility function of Kahneman and Tversky (1992) with a decreasing sensitivity $\boldsymbol{\alpha_{sd} = 0.88}$:

$$\mathbf{R_{expected}} = \frac{\mathbf{V_{fondamental} - P_{current}}}{\mathbf{P_{current}}}$$

$$\mathbf{U(R_{expected})} = \begin{cases} \mathbf{R_{expected}^{\alpha_{sd}}} & \mathbf{R_{expected} \geq 0} \\ \mathbf{-\lambda_{eff} * |R_{expected}|^{\alpha_{sd}}} & \mathbf{R_{expected} < 0} \end{cases}$$

The pain coefficient $\boldsymbol{\lambda_{eff}}$ becomes dynamic:

$$\boldsymbol{\lambda_{eff} = \lambda_{base} * e^{\eta * \max(0, emc_t - s_{panic})}}$$

With $\boldsymbol{\lambda_{base} = 2.25}$ (empirical standard), a critical panic threshold $\mathbf{S_{panique} = 0.20}$, and a collective stress acceleration factor $\boldsymbol{\eta = 0.80}$

3.4. Herd Effect and Composite Signal

The probability that an agent will ignore their own signal to follow the crowd is modelled by a logistic function (Cont & Bouchaud, 2000):

$$\mathbf{P_{herd}} = \frac{\mathbf{1}}{\mathbf{1 + e^{-(-\frac{1}{2} + \beta_{st} * (M_t - \frac{1}{2}))}}}$$

$$\boldsymbol{SocialBias} = \begin{cases} \boldsymbol{(M_t - \frac{1}{2}) * 2} & \boldsymbol{P_{herd} > \epsilon} \\ \mathbf{0} & \boldsymbol{P_{herd} \leq \epsilon} \end{cases}$$

Where : $\boldsymbol{\beta_{st} = 0.80}$ is the propensity to imitate the majority, $\boldsymbol{\epsilon}$ is the random variable generated according to a uniform distribution and $\boldsymbol{M_t - \frac{1}{2}}$ is buyer pressure.

Thus, the agent's final decision is merely an augmented utility function balancing fundamental, social and emotional factors (Ratcliff & McKoon, 2008; Statman, 2017).

$$\mathbf{S_{final} = U(R_{expected}) + SocialBias + \gamma * em_{t+1}}$$

$\boldsymbol{\gamma = 0.3}$ weights the influence of the emotional state on the analytical process.

This weighting allows us to model affective heuristics (Slovic et al., 2007) and noise trading (Black, 1986), generating realistic liquidity and divergences of opinion in emerging markets such as the Casablanca Stock Exchange, where sentiment and herd behaviour often take precedence over fundamentals.

3.5. Subjective price estimation:

The aim of this step is to replicate the anchoring to the current price, to introduce realistic overconfidence (the agent believes their signal to be more reliable than it actually is), and to model enhanced inertia for blue chips (stocks perceived as stable).

$$\mathbf{P_b = P_t * (1 + \delta)}$$

Where : $\boldsymbol{\delta = S_{final} * \Delta * (1 + \theta_{overconfidence})}$ the relative adjustment of the subjective price (derivative), $\boldsymbol{\theta_{overconfidence} = 35\%}$ overconfidence coefficient, $\boldsymbol{\Delta = 2.5\%}$ price sensitivity:

an empirical parameter meaning that a maximum signal of 1 would produce a gross adjustment of 2.5% without overconfidence, P_t the current market price, P_b estimated gross price (without inertia).

$$P_{estimated\ sbjective} = \begin{cases} P_b \\ P_t + \frac{1}{\kappa_i} * (P_b - P_t) & if\ BlueChip \end{cases}$$ with k > 1 (inertia parameter)

3.6. Direction Buy / Sell / Hold

The decision to buy, sell or maintain the status quo is based primarily on the calculation of the perceived gap, which is equal to the relative difference between the subjective price and the current price.

$$e = \frac{(P_s - P_t)}{P_t}$$

Avec : e is the perceived gap (anticipated relative return), P_s: estimated subjective price et P_t: the current market price.

$$s_{sell} = (1 - l) * (-0.025) + l * (-0.04)$$
$$l = 1\ \ if\ unrealised\ loss\ and\ 0\ otherwise$$
$$buy\ if\ e > s_{buy} = 0.015$$
$$sell\ if\ e < s_{sell}$$
$$do\ nothing\ if\ none$$

The disposition effect[3] manifests itself here through the use of two selling thresholds:

- A base threshold of -1.5% under normal circumstances (where the investor has no unrealised loss on the asset),
- A lower threshold of -4% where applicable. (When the agent holds an unrealised loss on the asset). (Shefrin & Statman, 1985).

For buying, buy when the perceived gap > $s_{buy} = 0.015$
The use of non-zero thresholds reflects real transaction costs

3.7. Determining the order volume or quantity

Pour To determine the order quantity, we first adjust the perceived volatility:

$$\sigma_{perceived}(\text{perceived volatility}) = \sigma_{actual} * (1 - 0.5 * l)$$
$$l = 1\ if\ there\ is\ an\ unrealised\ loss$$
$$l = 0\ otherwise$$

We then calculate the maximum number of shares to be purchased based on available liquidity and the current price. This is because the agent cannot buy more than their liquidity allows.

$$q_{max} = \frac{\text{liquidity}}{P_t}$$

Furthermore, The agent allocates a fraction of their capital proportional to the strength of their conviction $|e|$ and inversely proportional to the perceived risk $\sigma_{perceived}$.

$$q_{theorical} = q_{max} * \frac{|e|}{\sigma_{perceived}}$$

Similarly, overconfident investors overestimate the accuracy of their signals and therefore the size of their optimal position. This increases the volume of transactions, the final quantity

$$q_{final} = q_{theorical} * (1 + \theta_{overconfidence})$$

For blue chips, the order quantity equals the final quantity divided by the kappa coefficient of 1,3.

$$Q = \begin{cases} q_{final} & \text{non-blueChip} \\ \frac{q_{final}}{\kappa} & \text{blueChip} \end{cases}$$

[3] The tendency for investors to sell their profitable assets quickly and hold on to their loss-making assets for a long time in the hope that they will recover.

4. RESULTS

Simulations carried out using this algorithmic framework have made it possible to isolate the explanatory power of each family of biases in the decision-making variance of investors on the Casablanca Stock Exchange. Analysis of the relative contribution to decision-making reveals a striking asymmetry compared to the axioms of classical finance:

- Predominance of Emotional Biases (49.95%): Nearly half of decision-making is dictated by sentiment contagion and dynamic loss aversion. Panic or euphoria, modelled via the multiplier η= 0,80, overwhelm fundamental analysis during market shocks.
- Significant weight of Social Biases (39.45%): Herd behaviour and information cascades act as extremely powerful second-order market factors. The scale-free network structure accelerates the spread of herd behaviour.
- Limited influence of purely cognitive biases (10.60%): Although present (anchoring, overconfidence, representativeness), individual cognitive processes are marginalised once emotion and social influence come into play.

From a macro perspective, the combined integration of these three factors into the multi-agent model has made it possible to artificially reproduce, albeit with a high degree of fidelity, the anomalies observed on the Casablanca Stock Exchange: the emergence of fat tails in the distribution of simulated returns, volatility clustering, and price overreactions upon the arrival of new information.

5. CONCLUSION

This research demonstrates the feasibility and relevance of computational behavioural finance. The multi-agent model developed has successfully integrated cognitive, emotional and social biases into a unified decision-making architecture, specifically tailored to the Moroccan context. The main conclusion of this study is the absolute predominance of non-cognitive factors. The results confirm that emotions (49.95%) and social influence (39.45%) together account for nearly 90% of decision-making variance. The investor is not merely irrational in their individual calculations; they are, above all, a social and emotional actor whose decisions are overridden by group dynamics. The application of this model has successfully reproduced episodes of herd behaviour, price overshooting and excessive volatility specific to the Casablanca Stock Exchange.

Future directions

There are numerous avenues for improving this model :

- Rigorous calibration of the model using very high-frequency (intraday) databases sourced directly from the Casablanca Stock Exchange.
- The integration of scenarios simulating regulatory or macroeconomic shocks to observe the resilience of the investor network.
- Improving agent heterogeneity through the implementation of machine learning algorithms, enabling agents to adapt their own heuristics over time.

LITERATURE :

1. Amihud, Y. (2002). Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets, 5*(1), 31–56.
2. Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *The Quarterly Journal of Economics, 116*(1), 261–292.
3. Benartzi, S., & Thaler, R. H. (1995). Myopic loss aversion and the equity premium puzzle. *The Quarterly Journal of Economics, 110*(1), 73–92.

4. Bikhchandani, S., Hirshleifer, D., & Welch, I. (1992). A theory of fads, fashion, custom, and cultural change as informational cascades. *Journal of Political Economy, 100*(5), 992–1026.
5. Black, F. (1986). Noise. *The Journal of Finance, 41*(3), 529–543.
6. Bouchaud, J. P. (2011). The endogenous dynamics of financial markets. *Quantitative Finance, 11*(3), 335–340.
7. Cont, R., & Bouchaud, J. P. (2000). Herd behavior and aggregate fluctuations in financial markets. *Macroeconomic Dynamics, 4*(2), 170–196.
8. Damasio, A. R. (1994). *Descartes' error: Emotion, reason, and the human brain*. G.P. Putnam's Sons.
9. DeGroot, M. H. (1974). Reaching a consensus. *Journal of the American Statistical Association, 69*(345), 118–121.
10. DeMarzo, P. M., Vayanos, D., & Zwiebel, J. (2003). Persuasion bias, social influence, and unidimensional opinions. *The Quarterly Journal of Economics, 118*(3), 909–968.
11. Gervais, S., & Odean, T. (2001). Learning to be overconfident. *Review of Financial Studies, 14*(1), 1–27.
12. Granovetter, M. (1978). Threshold models of collective behavior. *American Journal of Sociology, 83*(6), 1420–1443.
13. Griffin, D., & Tversky, A. (1992). The weighing of evidence and the determinants of confidence. *Cognitive Psychology, 24*(3), 411–435.
14. Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.
15. Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*(2), 263–291.
16. Kahneman, D., & Tversky, A. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty, 5*(4), 297–323.
17. Kappas, A. (2011). Biological signals of emotions. In K. R. Scherer, T. Bänziger, & E. B. Roesch (Eds.), *A blueprint for affective computing: A sourcebook and manual* (pp. 169–182). Oxford University Press.
18. Kelly, J. L. (1956). A new interpretation of information rate. *Bell System Technical Journal, 35*(4), 917–926.
19. Lo, A. W. (2017). *Adaptive markets: Financial evolution at the speed of thought*. Princeton University Press.
20. Mankiw, N. G., & Reis, R. (2002). Sticky information versus sticky prices: A proposal to replace the New Keynesian Phillips curve. *The Quarterly Journal of Economics, 117*(4), 1295–1330.
21. Odean, T. (1998). Are investors reluctant to realize their losses? *The Journal of Finance, 53*(5), 1775–1798.
22. Odean, T. (1999). Do investors trade too much? *American Economic Review, 89*(5), 1279–1298.
23. Pratt, J. W. (1964). Risk aversion in the small and in the large. *Econometrica, 32*(1/2), 122–136.

MANAGEMENT OF THE USED CAR PROCUREMENT PROCESS IN THE REPUBLIC OF CROATIA: A CASE STUDY OF A SELECTED COMPANY

Josipa Curjuric Rudic
Head of Finance, Kindergarten "Sunce" Zadar, Croatia

Goranka Majic
Lecturer, University of Applied Sciences Baltazar Zaprešić, Croatia
gmajic@bak.hr

Martina Vukasina
Assistant professor; University of Applied Sciences Baltazar Zaprešić, Croatia
mvukasina@bak.hr

ABSTRACT
The used car market in the Republic of Croatia is characterized by increased demand for more financially affordable vehicles, the development of cross-border trade within the European Union, changes in the legislative framework, and growing customer expectations regarding quality, transparency, and delivery speed. In such conditions, effective management of the procurement process becomes an important factor in competitiveness, profitability, and customer satisfaction. This paper analyzes the procurement process of used cars based on the example of a selected Croatian company operating in the used vehicle trade sector. The aim of the paper is to present the key stages of the procurement process, from vehicle selection on the European Union market, communication with suppliers, and transport organization, to the implementation of administrative procedures, homologation, and vehicle preparation for sale. Special attention is given to procurement costs, legal requirements, and factors that influence the formation of the selling price and business profitability. The research is based on a theoretical consideration of business processes in the used vehicle trade and on a case study of the selected company. The findings indicate that a well-organized procurement process, including the acquisition of vehicles from other European Union Member States, directly contributes to cost reduction, offer quality, sales margin, and the market competitiveness of the company.
Keywords: *Used cars, Procurement process, Vehicle trade, Acquisition from other European Union member states, Vehicle homologation, Business profitability.*

1. INTRODUCTION

The used car market in the Republic of Croatia represents a significant segment of the automotive market, primarily due to the high demand for vehicles that are more financially affordable compared to new vehicles. Such demand is related to the purchasing power of the population, the high prices of new cars, and the relatively old vehicle fleet. According to available statistical indicators, the vehicle fleet in the Republic of Croatia is characterized by a high average vehicle age, which further encourages interest in the procurement and acquisition of used cars from other European Union Member States (Center for Vehicles of Croatia, n.d.; ACEA, 2025; Eurostat, 2026). The purchase of used vehicles from other European Union Member States provides customers with access to a wider selection of cars, various price categories, and often better-equipped vehicles. At the same time, for companies operating in the vehicle trade sector, such purchases create an opportunity to generate business profit through effective management of procurement, costs, and sales.

However, this process does not include only the purchase of vehicles abroad, but also involves a series of related activities, such as supplier selection, vehicle value assessment, transport organization, calculation of dependent costs, homologation, administrative procedures, and preparation of vehicles for sale. For this reason, business success in this sector largely depends on the company's ability to control costs and efficiently manage all stages of the process. The aim of this paper is to analyze the process of procurement and acquisition of used cars from other European Union Member States using the example of Si-agent d.o.o., a company operating in the used vehicle trade sector in the Republic of Croatia. Special emphasis is placed on determining how individual stages of this process affect total costs, the formation of the selling price, and business profitability. The paper is structured into several interconnected sections. The theoretical part discusses the characteristics of the used car market, the basic concepts of supply and demand, the cost and regulatory aspects of acquiring vehicles from other European Union Member States, and the connection between the procurement process and business profitability. The empirical part of the paper is based on a case study of Si-agent d.o.o., analyzing the key stages of the procurement and acquisition process, the cost structure, and their impact on the financial result of the business. Based on the conducted analysis, conclusions are drawn regarding the importance of effective management of the process of acquiring vehicles from other European Union Member States for the competitiveness and sustainability of business operations in the used car market in the Republic of Croatia.

2. THORETICAL FRAMEWORK

The theoretical framework of this paper is based on the concepts of supply and demand, business process management, cost management, profitability, and market competition. These concepts are important for understanding the operations of companies engaged in the procurement, acquisition from other European Union Member States, and sale of used cars, because each stage of this process affects total costs, the formation of the selling price, and the possibility of generating profit. One of the fundamental theoretical concepts relevant to this topic is the theory of supply and demand. Demand for used cars in the Republic of Croatia is related to the financial affordability of vehicles, the prices of new cars, the purchasing power of the population, and the age of the vehicle fleet. According to data from the Center for Vehicles of Croatia, the average age of vehicles in Croatia is continuously monitored through statistics on technical inspections and registrations, which indicates the importance of vehicle fleet age as a market indicator (Center for Vehicles of Croatia, 2024). Similar trends are also visible at the European Union level, where the gradual aging of the vehicle fleet and the growth in the number of vehicles on the roads are emphasized (ACEA, 2025; ACEA, 2026). Given the high demand and limited supply of quality used vehicles on the domestic market, Croatian companies often turn to the markets of other European Union Member States. Cross-border trade in used cars provides access to a wider selection of vehicles, different price categories, and potentially more favorable procurement conditions. Through its research on the used vehicle market in the European Union, the European Commission emphasizes that used vehicles play an important role in citizens' mobility, as well as in the structure of the overall automotive market (European Commission: Joint Research Centre, 2025). An important part of the theoretical framework is the concept of the procurement business process. In this paper, procurement is viewed as the initial and strategically important phase of business operations because it determines the quality of the offer, the cost structure, and the possibility of achieving a sales margin. In the context of used car trade, the procurement process does not include only the purchase of vehicles, but also market analysis, supplier selection, assessment of the technical condition of vehicles, calculation of expected procurement costs, and assessment of demand on the domestic market. Therefore, the quality of the market research that preceded the procurement process directly affects business profitability.

Cost management also represents an important theoretical starting point in this paper. In the process of acquiring used cars from other European Union Member States, the total cost of a vehicle is not composed only of its purchase price, but also of a number of additional costs, such as transport costs, special tax on motor vehicles, administrative costs, homologation, technical inspection, registration, insurance, possible repairs, and preparation of the vehicle for sale. The special tax on motor vehicles in the Republic of Croatia is determined according to elements such as CO_2 emissions, selling price, engine power, engine capacity, and exhaust emission level, while for used vehicles the remaining amount of the special tax is paid according to the depreciation of the vehicle's value on the market (Customs Administration, n.d.). Tax and administrative procedures play an important role in forming the total price of an imported vehicle. When purchasing used vehicles from other European Union Member States, it is necessary to distinguish between obligations arising from value added tax regulations and regulations on the special tax on motor vehicles. The official Gov.hr portal lists the tax obligations and documents required for registration in the case of acquiring used vehicles from other European Union Member States (Gov.hr, n.d.). At the European Union level, VAT rules for the purchase and sale of vehicles are further explained through the Your Europe portal, which distinguishes between the treatment of new and used vehicles, as well as purchases from private and business sellers (European Union, 2021). An important part of the process of acquisition, that is, the entry of vehicles from other European Union Member States, is homologation, or the procedure for determining vehicle conformity. The Center for Vehicles of Croatia states that the determination of conformity of an individual vehicle is a procedure for confirming the conformity of a vehicle with regulations relating to the type or category of vehicle, and it is carried out for new and used vehicles that are individually brought in or imported (Center for Vehicles of Croatia, n.d.). The procedure includes a review of documentation and, where necessary, an inspection of the vehicle, which verifies whether the vehicle meets the prescribed technical and safety requirements for placement on the market or registration in the Republic of Croatia (Center for Vehicles of Croatia, n.d.). The theory of profitability is important for understanding the operations of companies engaged in the import and sale of used cars. Profitability depends on the relationship between the total costs of vehicle procurement and import and the final selling price. The achieved profit is influenced by the purchase price of the vehicle, transport costs, tax liabilities, homologation, investments in vehicle preparation, the time required for sale, and market demand. Therefore, profitability cannot be viewed separately from the efficiency of the procurement process, because procurement determines the initial cost base and the possibility of achieving a sales margin. The concept of market competition is also important for this topic. The used car market in Croatia is characterized by the presence of numerous small dealers, car dealerships, and private sellers, which increases pressure on prices and margins. In such an environment, competitive advantage does not arise exclusively from a lower price, but also from vehicle quality, transparency of documentation, supplier reliability, delivery speed, and customer trust. Eurostat data on passenger cars in the European Union show continuous growth and changes in the structure of the vehicle fleet, which further confirms the importance of monitoring market trends and adapting the business model (Eurostat, 2026).

In the context of this paper, the process of acquiring used cars from other European Union Member States is viewed as a set of connected activities that begin with market analysis and vehicle selection, continue with procurement, transport, tax and administrative procedures, and end with vehicle preparation for sale and sale to the final customer. The efficiency of each stage of the process affects the final financial result of the business. Therefore, the theoretical framework of the paper enables an understanding of the connection between the acquisition process, cost structure, selling price formation, and the profitability of Si-agent d.o.o., which also forms the basis for answering the research question.

3. RESEARCH QUESTION

Based on the theoretical framework and the subject of the research, the following research question is defined:

How does the process of importing used cars affect the profitability of Si-agent d.o.o.?

This research question is focused on the analysis of key business elements that influence the company's financial result, especially vehicle procurement costs, transport costs, tax and administrative obligations, homologation, selling price formation, and profit achieved per vehicle. The aim is to determine which stages of the import process have the greatest impact on profitability and how effective management of this process can contribute to the competitiveness of the selected company in the used car market in the Republic of Croatia.

4. RESEARCH METHODOLOGY

In this paper, the subject of the research is the process of procurement and acquisition of used cars from other European Union Member States, using the example of Si-agent d.o.o., a company operating in the used vehicle trade sector in the Republic of Croatia. The research is focused on analyzing the key stages of this process, including the selection and purchase of vehicles on the European Union market, communication with suppliers, organization of transport, implementation of tax and administrative procedures, homologation, preparation of vehicles for sale, and selling price formation. Special attention is given to the costs that arise during the acquisition process, as they have a direct impact on the sales margin and business profitability. The data used in the paper were collected through the analysis of available professional and official documentation, legal and administrative sources, and data related to the business process of the selected company. Sources from the Customs Administration, the Center for Vehicles of Croatia, the Gov.hr portal, and European institutions were used to understand the regulatory framework. The Customs Administration explains that the special tax on motor vehicles for used vehicles is determined according to the remaining amount of the special tax, taking into account the market value of the vehicle, CO_2 emissions, and other prescribed elements (Customs Administration, n.d.). Furthermore, the procedure for determining conformity, or homologation, represents a mandatory step before the first registration of an individually imported vehicle in the Republic of Croatia (Center for Vehicles of Croatia, n.d.; HAK, n.d.). In addition to official national sources, European sources were also used to present the broader context of the used vehicle market. According to research by the European Commission and the Joint Research Centre, the used car market in the European Union plays an important role in the accessibility of mobility, cross-border trade, and the structure of the automotive market (European Commission: Joint Research Centre, 2025). This context is important for understanding why Croatian companies often procure used vehicles from the markets of other European Union Member States. The analysis was conducted using descriptive and comparative methods. The descriptive method was used to present individual stages of the acquisition process, while the comparative method was used to compare different cost groups and their impact on profitability. The research results were interpreted in relation to the defined research question. For the purposes of the empirical part of the paper, an illustrative example of the acquisition cost calculation for a 2016 Volkswagen Golf was used, based on data from the business practice of the selected company. The example serves to demonstrate the impact of individual cost items on the final margin and business profitability.

5. RESULTS

The analysis of the case study indicates that the process of acquiring used cars from other European Union Member States has a direct and significant impact on the profitability of Si-agent d.o.o.

Profitability does not depend exclusively on the difference between the purchase price and the selling price of the vehicle, but also on the overall organization of the procurement and acquisition process and the company's ability to control costs at each stage of business operations. This process includes several interconnected activities, among which vehicle and supplier selection, transport organization, calculation of tax liabilities, homologation, administrative procedures, vehicle preparation for sale, and formation of the final selling price are particularly important. The first important stage refers to the selection of vehicles and suppliers. The analysis shows that a proper assessment of the market value of a vehicle at the time of procurement plays a key role in later profit generation. If a vehicle is purchased at a price that is too high in relation to its market value in Croatia, the possibility of achieving a margin is significantly reduced. On the other hand, a well-selected vehicle, with a proper service history, acceptable mileage, and demand on the domestic market, enables faster sale and greater profitability. This finding confirms the importance of market analysis and knowledge of customer needs. The second important stage refers to transport and logistics costs. The costs of transporting vehicles from other European Union Member States represent a significant variable cost. Their amount depends on the country of procurement, distance, method of transport, and the number of vehicles transported at the same time. The results indicate that profitability increases when the company succeeds in optimizing logistics, for example by organizing joint transport of several vehicles or cooperating with reliable carriers. Inefficient logistics increases the total cost per vehicle and thereby reduces the sales margin. The third significant factor of profitability consists of taxes and charges, especially the special tax on motor vehicles. Since the special tax on motor vehicles is calculated according to vehicle characteristics, including CO_2 emissions, vehicle value, and other technical characteristics, it is necessary to estimate the total tax burden already in the procurement stage (Customs Administration, n.d.). If these costs are not calculated precisely before purchase, the final price of the vehicle may become too high in relation to the market price in Croatia. This reduces the possibility of generating profit or extends the time required to sell the vehicle. The fourth stage refers to administrative procedures, homologation, and registration. The research shows that administrative efficiency affects not only the level of costs but also the speed at which the vehicle can be placed on the market. The procedure for determining vehicle conformity is required before the first registration of an individually imported vehicle in the Republic of Croatia, and the Center for Vehicles of Croatia and the Croatian Automobile Club are authorized to carry out this procedure (Center for Vehicles of Croatia, n.d.; HAK, n.d.). Delays in documentation, inconsistency of technical data, or lack of required documents can prolong the process and increase business costs. Therefore, proper documentation and good knowledge of administrative requirements directly contribute to better profitability. The fifth stage refers to vehicle preparation for sale and the formation of the selling price. After the acquisition of a vehicle, additional costs often arise, such as technical inspection, minor repairs, cleaning, registration, insurance, and advertising. These costs must be included in the final calculation. The research results indicate that the company can achieve higher profit if it anticipates all costs that arise up to the moment of sale already at the procurement stage. The formation of the selling price must be aligned with the market price of similar vehicles, but also with the total costs incurred by the company in the acquisition process. For the purposes of the analysis, an example of acquiring a used Volkswagen Golf, manufactured in 2016, is presented. The vehicle was purchased at an auction for EUR 9,500. Transport and logistics costs amounted to EUR 500, while tax liabilities and other administrative costs amounted to EUR 500. The cost of homologation and vehicle registration amounted to an additional EUR 500. The total cost of procurement and preparation of the vehicle for sale therefore amounted to EUR 11,000. Since the selling price of the vehicle was EUR 12,500, the difference between the total cost and the selling price amounted to EUR 1,500.

Table 1. Illustrative Example of Vehicle Acquisition Cost Calculation

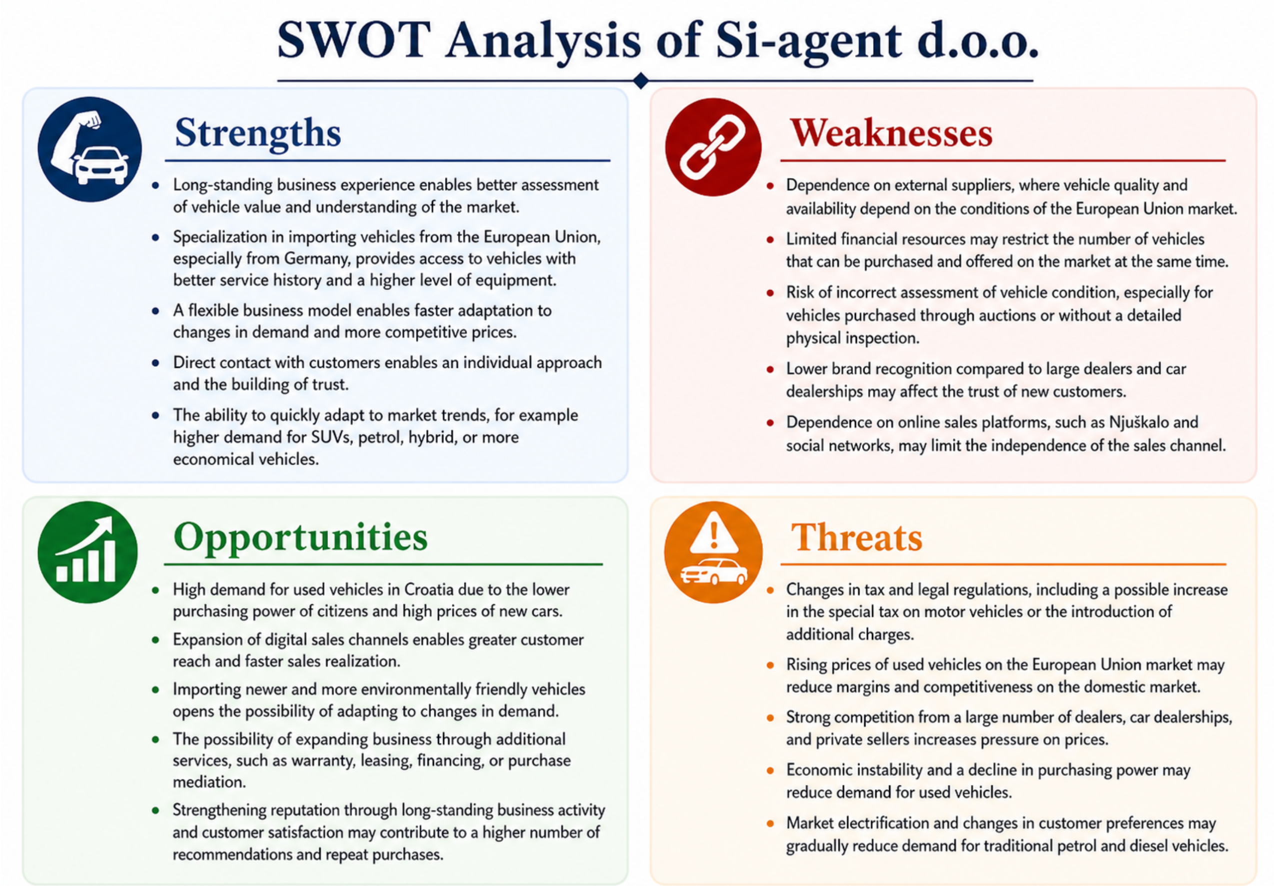
Cost item	**Amount in EUR**
Purchase price of the vehicle	9,500.00
Dependent costs / additional costs (transport, special tax on motor vehicles, homologation)	1,500.00
Total cost of the vehicle	11,000.00
Selling price of the vehicle	12,500.00
Achieved margin	1,500.00

Source: Data from Si-agent d.o.o.

The above example shows that Si-agent d.o.o. achieves a positive margin of EUR 1,500.00 in the presented case. In relation to the selling price, the achieved margin amounts to approximately 12%, while in relation to the total cost of the vehicle it amounts to approximately 13.6%. This example shows that profitability in an individual transaction cannot be viewed only through the purchase price of the vehicle, but through the entire cost structure. Even relatively smaller costs related to transport, tax liabilities, homologation, or registration can significantly affect final earnings if they are not properly estimated in advance. Based on the conducted analysis, it can be concluded that the process of acquiring used cars from other European Union Member States affects the profitability of Si-agent d.o.o. through several key elements: the purchase price of the vehicle, transport costs, tax obligations, homologation, administrative costs, additional investments in the vehicle, and speed of sale.

The greatest risk to profitability occurs when individual costs are underestimated or when a vehicle is purchased without a sufficiently precise assessment of market demand. The answer to the research question is that the process of trading and acquiring used cars from other European Union Member States significantly affects the profitability of Si-agent d.o.o., because each stage of the process shapes the total cost of the vehicle and the possibility of achieving a sales margin. Effective management of the acquisition process enables cost reduction, faster placement of vehicles on the market, better control of the selling price, and greater competitiveness of the company. On the other hand, inadequate management of procurement, transport, tax obligations, and documentation can lead to increased costs, reduced profit, and a weaker market position.

For a more comprehensive understanding of the operations of Si-agent d.o.o., a SWOT analysis was conducted to identify internal strengths and weaknesses, as well as external opportunities and threats that affect business operations in the sector of acquiring and selling used cars. The SWOT analysis provides clearer insight into the factors that can contribute to strengthening the company’s market position, as well as the risks that may limit its profitability and further development.



Source: Data from Si-agent d.o.o.

The SWOT survey conducted shows that Si-agent d.o.o. possesses important internal strengths, particularly long-standing experience, market knowledge, and a flexible business model. These strengths enable better vehicle selection, more efficient cost control, and better adaptation to customer needs. On the other hand, the business is exposed to certain weaknesses, among which dependence on foreign suppliers, limited financial resources, and the risk of incorrect assessment of the technical condition of vehicles are especially significant. The external environment offers significant opportunities for further development, especially through the digitalization of sales, expansion of the supplier network, and acquisition of newer, more economical, and environmentally friendly vehicles. However, the company must also take into account threats arising from changes in tax regulations, rising vehicle prices in the European Union, strong competition, and changes in customer preferences. Therefore, for the long-term sustainability of business operations, it is necessary to continuously monitor market trends, plan costs precisely, and adapt the business model to changes in the used car market.

6. CONCLUSION

The conducted analysis shows that trading in used cars acquired from other European Union Member States represents a sustainable business model, but only if the procurement and acquisition process is carried out in a planned and systematic manner, with continuous cost control. Using the example of Si-agent d.o.o., it was determined that business profitability does not depend exclusively on the difference between the purchase price and the selling price of the vehicle, but on the effective management of all stages of the business process, from the selection of vehicles and suppliers to transport, administrative procedures, homologation, vehicle preparation, and final sale.

The answer to the research question confirms that the process of acquiring used cars from other European Union Member States directly affects the profitability of Si-agent d.o.o. The key elements that shape the financial result are the purchase price of the vehicle, transport costs, tax liabilities, administrative costs, homologation and registration costs, and additional investments required before sale. If these items are not estimated in a timely and precise manner, the possibility of achieving a sales margin is reduced. On the other hand, a well-organized procurement process enables better control of total costs, faster placement of vehicles on the market, and greater competitiveness of the company. The results of the paper indicate that quality procurement has a central role in the company's operations. Proper selection of vehicles that correspond to demand on the Croatian market, have proper documentation, acceptable mileage, and realistic sales potential represents the foundation for generating profit. In addition, important success factors include optimization of logistics costs, knowledge of tax and administrative requirements, monitoring of market trends, and focus on customer needs. The SWOT analysis showed that the company has significant strengths, such as experience, a flexible business model, and knowledge of the European Union market. At the same time, the business is exposed to certain risks, especially dependence on foreign suppliers, changes in tax regulations, rising prices of used vehicles, and strong competition on the domestic market. Therefore, continuous adaptation to market changes is important for the long-term sustainability of business operations. The future development of the company should be focused on the digitalization of business processes, expansion of the supplier network, and automation of administrative activities. Digitalization can contribute to faster monitoring of market prices, more efficient communication with suppliers and customers, and better cost control. Expanding the supplier network would enable greater flexibility in procurement and a higher-quality selection of vehicles, while automation would reduce the time required for document processing and vehicle preparation for sale. In conclusion, the paper confirms that competitive advantage in the used car trade sector does not arise only from a favorable purchase price, but from the company's ability to connect procurement, logistics, regulatory procedures, cost control, and sales activities into an efficient business process. Si-agent d.o.o. can further strengthen its market position if it continues to invest in procurement quality, precise cost planning, digitalization, and adaptation to changes in the used car market.

LITERATURE:

1. ACEA, 2025. *Vehicles on European roads 2025*. Brussels: European Automobile Manufacturers' Association. Available at: https://www.acea.auto/publication/report-vehicles-on-european-roads-2025/ [Accessed 30 April 2026].
2. ACEA, 2026. *Vehicles on European roads 2026*. Brussels: European Automobile Manufacturers' Association. Available at: https://www.acea.auto/publication/report-vehicles-on-european-roads-2026/ [Accessed 30 April 2026].
3. Carinska uprava, n.d. *Information calculator for calculating the special tax on motor vehicles*. Zagreb: Ministry of Finance of the Republic of Croatia. Available at: https://carina.gov.hr/informativni-kalkulator-za-izracun-ppmv-a-4840/4840 [Accessed 30 April 2026].
4. Carinska uprava, n.d. *Special tax on motor vehicles*. Zagreb: Ministry of Finance of the Republic of Croatia. Available at: https://carina.gov.hr/pristup-informacijama/propisi-i-sporazumi/trosarinsko-postupanje/trosarinsko-oporezivanje-opce-informacije/posebni-porez-na-motorna-vozila-3714/3714 [Accessed 30 April 2026].

5. Carinska uprava, 2021. *Ordinance on the special tax on motor vehicles – unofficial consolidated text*. Zagreb: Ministry of Finance of the Republic of Croatia. Available at: https://carina.gov.hr/trosarinsko-postupanje/propisi-o-trosarinama-i-posebnim-porezima/posebni-porezi/posebni-porez-na-motorna-vozila/pravilnik-o-posebnom-porezu-na-motorna-vozila-4631/4631 [Accessed 30 April 2026].
6. Centar za vozila Hrvatske, n.d. *Homologation*. Zagreb: Center for Vehicles of Croatia. Available at: https://www.cvh.hr/gradani/homologacija/ [Accessed 30 April 2026].
7. Centar za vozila Hrvatske, n.d. *Vehicle statistics in the Republic of Croatia*. Zagreb: Center for Vehicles of Croatia. Available at: https://www.cvh.hr/gradani/statistika/ [Accessed 30 April 2026].
8. Centar za vozila Hrvatske, n.d. *Determination of conformity of an individual vehicle*. Zagreb: Center for Vehicles of Croatia. Available at: https://www.cvh.hr/gradani/homologacija/utvrdivanje-sukladnosti-pojedinacnog-vozila/ [Accessed 30 April 2026].
9. Centar za vozila Hrvatske, n.d. *Determination of vehicle conformity*. Zagreb: Center for Vehicles of Croatia. Available at: https://www.cvh.hr/gradani/homologacija/utvrdivanje-sukladnosti-vozila/ [Accessed 30 April 2026].
10. Centar za vozila Hrvatske, 2024. *Overview of age by types of vehicles registered in 2024*. Zagreb: Center for Vehicles of Croatia. Available at: https://www.cvh.hr/media/5281/s01__pregled_starosti_vozila_prema_vrstama_vozila_2024.pdf [Accessed 30 April 2026].
11. European Commission, n.d. *Buying and selling cars*. Brussels: European Commission, Taxation and Customs Union. Available at: https://taxation-customs.ec.europa.eu/buying-and-selling-cars_en [Accessed 30 April 2026].
12. European Commission: Joint Research Centre, 2025. *A review of the used car market in the European Union*. Luxembourg: Publications Office of the European Union. Available at: https://publications.jrc.ec.europa.eu/repository/bitstream/JRC140203/JRC140203_01.pdf [Accessed 30 April 2026].
13. European Union, 2021. *VAT when buying or selling a car*. Brussels: European Union. Available at: https://europa.eu/youreurope/citizens/vehicles/cars/vat-buying-selling-cars/index_en.htm [Accessed 30 April 2026].
14. Eurostat, 2026. *Passenger cars in the EU – Statistics Explained*. Luxembourg: Eurostat. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Passenger_cars_in_the_EU [Accessed 30 April 2026].
15. Gov.hr, n.d. *Tax obligations when purchasing used vehicles from other European Union Member States*. Zagreb: Government of the Republic of Croatia. Available at: https://gov.hr/hr/porezne-obveze-pri-kupnji-rabljenih-vozila-iz-drugih-drzava-clanica-eu/492 [Accessed 30 April 2026].
16. HAK, n.d. *Determination of conformity of an individually imported vehicle*. Zagreb: Croatian Automobile Club. Available at: https://www.hak.hr/vozila/homologacija/ [Accessed 30 April 2026].
17. Narodne novine, 2017. *Ordinance on the special tax on motor vehicles, NN 1/2017*. Zagreb: Narodne novine. Available at: https://narodne-novine.nn.hr/clanci/sluzbeni/2017_01_1_2.html [Accessed 30 April 2026].
18. Narodne novine, 2021. *Ordinance on amendments to the Ordinance on the special tax on motor vehicles, NN 32/2021*. Zagreb: Narodne novine. Available at: https://carina.gov.hr/trosarinsko-postupanje/propisi-o-trosarinama-i-posebnim-porezima/posebni-porezi/posebni-porez-na-motorna-vozila/pravilnik-o-posebnom-porezu-na-motorna-vozila-4631/4631 [Accessed 30 April 2026].

A PROCESS-BASED APPROACH TO SOCIAL IMPACT MEASUREMENT: TOWARD A FRAMEWORK FOR RURAL WOMEN'S COOPERATIVES IN MOROCCO

Sonia Boushaba
Mohammed V University / FSJES Souissi, Rabat, Morocco
sonia.boushaba@gmail.com

Kaoutar Farnane
PhD Candidate, LARMODAD Laboratory — Mohammed V University / FSJES Souissi, Rabat, Morocco
kaoutar.farnane@gmail.com

ABSTRACT
Rural women's cooperatives in Morocco are among the most important vehicles for economic and social empowerment in the country, yet their social impact is almost never documented, because the methodological tools needed to capture it simply haven't been built for contexts like theirs. This article proposes a structured social impact measurement (SIM) approach applied to Taytmatine Tiyout cooperative, founded in 2002 in the province of Taroudant and supported by the Association Ibn Al Baytar with funding from Monaco's cooperation agency. The case study was developed as part of a social impact measurement training program run at ESSEC Business School. Drawing on the core tools of SIM, the impact value chain, theory of change, stakeholder mapping, personas, and SMART indicators, the article builds a methodological framework organized around three dimensions of empowerment: economic autonomy, skills development, and social inclusion. Applying this framework to Taytmatine Tiyout shows both what SIM can reveal and where it runs into difficulty. The framework makes visible a multidimensional impact spanning economic, social, and environmental dimensions. At the same time, the case exposes structural constraints specific to rural Morocco: no baseline data at founding, widespread illiteracy among beneficiaries, language barriers, the domestic burden carried by respondents, and the attribution problem. These constraints don't invalidate the approach — they define the conditions under which it must be adapted. That contribution, arguably, is as important as the framework itself.
Keywords: *social impact measurement, women's cooperative, rural context, theory of change, SROI, SMART indicators, empowerment, Morocco, argan sector, social and solidarity economy, evaluation*

1. Introduction

Gender inequality and the need for more inclusive economic transitions have pushed Social and Solidarity Economy (SSE) organizations and cooperatives run by women in particular, toward the center of debates about how value is produced in society. In Morocco, the argan oil sector is one of the most visible examples of this dynamic. Organized into cooperatives, rural women in the argan belt generate employment, build economic independence, and contribute to the preservation of an ecosystem UNESCO has designated a biosphere reserve. Yet, despite the scale and diversity of the changes these initiatives produce, their social impact remains largely invisible to funders, public authorities, and institutional partners. This invisibility has a straightforward structural cause: the absence of methodological frameworks adapted to organizations operating in rural contexts marked by high rates of illiteracy, significant informality, and change that unfolds across multiple dimensions at once. Social impact measurement (SIM) has emerged as a response to this gap. Defined by the OECD (2002) as the assessment of long-term effects.

Positive and negative, intended and unintended, of an intervention on its beneficiaries and their environment, SIM has gradually taken institutional form through tools such as theory of change, SMART indicators, and social return on investment (SROI). The question is whether those tools can actually be made to work in the rural Global South, with its distinctive social, cultural, and organizational realities. That is the question driving this article. Stated directly: how do you build and operationalize a social impact measurement framework for a rural women's cooperative? The question is pursued through the case of the Taytmatine Tiyout cooperative in the province of Taroudant. Three objectives organize the contribution. First, to lay out the core concepts and operational tools of SIM in the context of social-purpose organizations working in rural settings. Second, to propose a structured SIM approach adapted to rural women's cooperatives, built around stakeholder mapping, personas, theory of change, and SMART indicators. Third, to apply that framework to the Taytmatine Tiyout case and draw out the first elements of impact across economic, social, and environmental dimensions. Methodologically, the article follows an action-research approach (Avise, ESSEC & Mouves, 2021; Laboratoire E&MISE, 2018), combining a literature review drawing on key references in impact evaluation (Leclerc & Sibieude, 2025; Weiss, 1997; Rogers, 2008; Kabeer, 1999) with an empirical application built from practical fieldwork conducted with the cooperative as part of a training program with ESSEC Business School Morocco. The article is organized in two parts: the first presents the theoretical foundations and main tools of SIM; the second applies that framework to Taytmatine Tiyout, building a complete SIM architecture step by step.

2. THEORETICAL FOUNDATIONS AND TOOLS OF SOCIAL IMPACT MEASUREMENT

2.1 From Social Impact to Hybrid Organizations: Why and How to Measure the Value Created by a Women's Cooperative

The concept of social impact took shape in academic and institutional circles during the 1990s, driven by the Anglo-Saxon philanthropic world, the evaluation of development aid, and the rise of the Social and Solidarity Economy (Corvo et al., 2021). Two foundational definitions help fix its meaning. The OECD (2002) defines impact as the long-term effects. Positive and negative, primary and secondary, produced by a development intervention, directly or indirectly, intentionally or not. The European Commission (2006) adopts a broader framing, treating social impact as a general term for the effects of an intervention on society. Both definitions converge on one point: impact is not the same as activities undertaken or immediate outputs observed. It refers to deep, lasting, often non-linear transformations in the lives of beneficiaries and their environment. This distinction matters enormously for rural women's cooperatives, whose work generates multidimensional effects that no standard output indicator can capture. The cooperative is a textbook case of what the literature calls a hybrid organization (Pache, 2020) — one that structurally combines a market logic (production and commercialization) with a social logic (member empowerment, community cohesion, environmental stewardship). Evaluating such an organization's performance through traditional economic indicators alon, turnover, productivity, profitability. Would miss everything that actually makes it worth studying. The real value created lies in the transformations produced in the lives of member women and their communities. This point has particular force in the Moroccan context. Rural women's cooperatives there operate in environments marked by high female illiteracy rates, heavy domestic and agricultural workloads, structural dependence on commercial intermediaries, and limited access to formal markets. Their founding responds to a double imperative: to build a collective economic activity and to create the conditions for deep social transformation. The role played by a specialized NGO, like the Association Ibn Al Baytar in the Taytmatine case, goes well beyond technical or financial support.

It encompasses a whole range of needs: literacy, management training, and even physical infrastructure like on-site childcare. That dimension of accompaniment is itself a producer of impact and must be included in any measurement framework. The question of why measure is just as important as what to measure. Avise, ESSEC & Mouves (2021) distinguish two complementary purposes. The external purpose is accountability, to funders, partners, and institutional stakeholders. The internal purpose is improvement: orienting decisions, adjusting interventions, mobilizing teams. For rural cooperatives supported by NGOs, these two purposes are inseparable. Demonstrating social impact renews partnerships with donors; piloting by impact means interventions stay calibrated to women's actual needs and persistent barriers to empowerment don't go unnoticed.

2.2 The Impact Value Chain, Theory of Change, and Operational Tools: An Integrated Framework

To give social impact operational meaning, contemporary literature mobilizes the impact value chain, also called a logic model or intervention logic (Leclerc & Sibieude, 2025; Avise, ESSEC & Mouves, 2021). This framework links the components of social value creation sequentially: from resources mobilized and activities conducted, through immediate outputs and observed results among beneficiaries, to durable impacts attributable to the intervention. Two criteria run through the entire chain: change — what is the nature and depth of the transformation? Attribution — how much of that transformation is actually due to this intervention?

Theory of change (ToC) sits at the center of any serious SIM approach. Introduced by Weiss (1997) in the field of program evaluation, it is an explicit, testable representation of the causal assumptions linking a program's activities to the changes it is supposed to produce. Rogers (2008) spells out its value for complex interventions: by making the underlying causal logic explicit, ToC allows us to assess not just whether objectives were met, but why and how changes happened. In practice, it translates the impact value chain into a structured table organized by stakeholder, linking initial needs, activities, short-term outputs, medium-term results, and long-term impacts. It is the backbone of the entire measurement system. Without it, there is no coherent basis for deciding what to measure, for whom, at what point, and with which indicators. For a rural women's cooperative, building this theory of change must start from the actual needs women express themselves. This bottom-up approach, favored by the ESSEC methodology (Leclerc & Sibieude, 2025), keeps the impact hypotheses grounded in reality and reflects an interpretivist stance: social impact is a construction of meaning by the actors involved, not a purely objective phenomenon waiting to be measured. Several complementary tools support this framework in practice. Stakeholder mapping comes first. Freeman (1984) defines a stakeholder as any individual or group who can affect or be affected by the organization's objectives. In SIM, this mapping takes the form of a matrix crossing degree of involvement with degree of impact, which helps prioritize the audiences on which data collection efforts should concentrate. Personas, two contrasting composite portraits of beneficiaries built from qualitative data and field experience, complement the mapping. They anchor the theory of change in lived experience and guide the design of data collection tools, ensuring the questions asked correspond to the real situations of the people being evaluated. Defining impact indicators is the next critical step. To be operational, an indicator must meet five SMART criteria: Specific, Measurable, Acceptable, Realistic, and Time-bound. The ESSEC E&MISE Laboratory (2025) applies these criteria in its sectoral evaluation frameworks. Indicators are organized at three levels corresponding to the value chain: output indicators, result indicators, and impact indicators. Together, they enable a complete and nuanced evaluation of the work done.

Data collection, finally, rests on methodological triangulation — combining qualitative and quantitative approaches (Leclerc & Sibieude, 2025). Qualitative methods illuminate the mechanisms of change, produce verbatim accounts that give life to numbers, and explore dimensions of impact that resist quantification — confidence, sense of belonging, shifts in social status. Quantitative methods confirm, measure, and rank the impact hypotheses developed in the qualitative phase. Two questions are indispensable in any impact questionnaire: the attribution question (has the beneficiary had access to a similar program in parallel?) and the deadweight question (what would have happened without this program?). At the end of this process, SROI offers a horizon of monetary valuation of impact, relating social value created to resources invested (Avise & ESSEC, 2012; Nicholls et al., 2012).

3. APPLICATION: BUILDING THE SOCIAL IMPACT MEASUREMENT FRAMEWORK FOR TAYTMATINE TIYOUT

3.1 From Informal Gathering to Certified Cooperative: Applying the Methodological Framework

The article's central question finds its empirical answer through six interdependent steps applied to the Taytmatine Tiyout case. This is not an illustration of an abstract procedure — it is a test of validity. At each step, the rural Moroccan context forces adjustments to the tools being used.

Scoping the evaluation

Four structuring questions define the scope: who is being supported, since when, with what resources, and toward what expected outcomes? Founded in 2002 in the commune of Tiyout with around ten founding members, the cooperative now brings together over a hundred active women engaged in producing and marketing argan oil. The population targeted by the support program consists of women aged 18 to 60, predominantly illiterate, carrying dual domestic and agricultural workloads, with no access to structured markets before the cooperative existed. The means deployed are varied: construction and equipment of a certified production facility, intensive training in management and marketing, compulsory literacy courses, creation of an on-site crèche, and production of visual teaching materials in the Amazigh language. The expected outcomes span three inseparable dimensions: economic empowerment, skills development, and social inclusion through reduction of domestic burden.

Stakeholder mapping

Mapping stakeholders through the matrix crossing involvement and impact (Freeman, 1984; Leclerc & Sibieude, 2025) reveals three concentric circles. The innermost — the core of the evaluation,includes the cooperant women, the Association Ibn Al Baytar, and local suppliers and service providers. The second ring groups the local community of Tiyout, children enrolled in the crèche, and university partners and laboratories. The outer ring comprises the Monaco cooperation agency, local authorities, and competing argan producers. This hierarchy identifies the cooperant women as the central audience around which the entire measurement system should be organized.

Constructing personas

The personas give body to the real profiles of beneficiaries before any intervention. Fatima, 19, single, with no professional experience, whose priority needs were initial economic integration, basic training, and mentoring likely to build her confidence, captures the dimension of first professional insertion that the cooperative produces for its youngest members. Khadija, 32, a mother of a young child, illiterate, partially active in informal argan gathering, with more urgent needs, childcare, a stable income, work flexibility, and adapted literacy support,captures the dimension of inclusion and reduction of domestic burden for the most vulnerable women. These two personas ensure that impact hypotheses correspond to real and differentiated needs, and they guide the design of data collection tools, calibrating vocabulary and topics to each profile's concrete experience.

Theory of change

The theory of change formalizes the causal path from activities to lasting transformations across the same three axes. On the economic axis, cooperative structuring and direct market access replaced the negligible seasonal revenues extracted through intermediaries with regular and growing income. For the most senior members, long-term effects now include effective contributions to household expenses and a measurable reduction in financial dependence. On the skills axis, training and literacy programs have produced measurable gains in management and reading, enabled quality certifications, and generated a diffusion effect beyond Taytmatine itself, several women have transmitted their skills to new cooperatives in the region. On the social inclusion axis, the crèche proved to be the necessary condition for mothers' regular participation, the most frequently cited attraction factor for new members, and a contributor to a long-term shift in women's status in the community of Tiyout. The evaluative question synthesizing this theory of change is: to what extent have the actions undertaken contributed to meeting the needs of Tiyout women in terms of income, skills, and reduced domestic burden, in ways that sustainably reinforce their economic and social empowerment?

SMART indicators and data collection protocol

Indicators are organized according to the three axes and three levels of the value chain, in line with the SMART criteria and E&MISE Laboratory reference frameworks (2025). Economic dimension: percentage of women with a stable income over twelve months; rate of increase in average income; percentage contributing to household expenses. Skills dimension: percentage of illiterate women who can read and write after one year of training; level of cooperative autonomy in day-to-day management. Social inclusion dimension: rate of regular participation in cooperative activities; change in decision-making within the household; progression of self-confidence measured on a four-point Likert scale. The data collection protocol combines semi-structured interviews with a sample built from the personas and a questionnaire administered face-to-face to all active women, organized around five sections: characterization, initial needs, perceived impacts, attribution and deadweight, and suggestions for improvement.

3.2 Evaluating in Rural Morocco: Structural Constraints and Conditions for Replicability

If applying the framework to Taytmatine demonstrates its feasibility and coherence, it also reveals structural constraints that are inseparable from the rural Moroccan context — and naming these clearly is as important a contribution as the framework itself.

No baseline data

Taytmatine was founded in 2002, before impact evaluation culture had taken hold in NGO practice. No documented baseline exists to measure the amplitude of the changes produced over the full period. Reconstructing the initial situation retrospectively from women's own testimony is the only option, and that approach is vulnerable to memory bias and social desirability bias in ways that weaken attribution claims. The lesson is clear: SIM should be integrated from the moment of creation, building a prospective baseline that will make future evaluations substantially more robust.

Lliteracy and the language barrier
Standard evaluation tools in their usual form don't work here. Face-to-face administration with oral translation preserves the validity of data collection but multiplies costs and introduces interpretation risk through the translator. Visual, oral, and participatory tools, co-designed with beneficiaries in their own language, along the lines of the visual manuals and teaching materials already produced for training programs, would be more appropriate and more faithful to women's actual experience than questionnaires translated after the fact.

Measuring deep social and psychological change in a context of orality and cultural reserve
Self-confidence, shifts in social status, changes in gender relations within the household — these don't yield easily to quantification. Exploring them requires a level of trust that a one-off interview rarely produces. Participatory observation and peer-group interviews are better adapted, but they require specific training for fieldworkers that evaluation designs routinely underestimate.

Attribution in an environment of simultaneous change
The women of Taytmatine Tiyout live in a context of multiple concurrent transformations: rural infrastructure investment, public policies promoting women's participation, broader economic shifts. Isolating the specific contribution of the cooperative support program is genuinely difficult. The deadweight and attribution questions built into the questionnaire are a partial response, but their validity depends on respondents' ability to reason counterfactually, which requires particularly careful and accessible formulation in this context. Together, these constraints define what a genuinely adapted impact evaluation for rural women's cooperatives requires: participatory approaches to complement standard tools, local fieldworkers trained in Amazigh, a long-term commitment to compensate for the missing baseline, and an honest acceptance of irreducible uncertainty about the depth of transformation involved. The Taytmatine Tiyout case shows that operationalizing a SIM framework in this context is not only possible but necessary, provided the constraints of the field are treated as constitutive parameters of the methodological framework, not obstacles to route around.

4. CONCLUSION
This article set out to answer a question that is both theoretical and deeply practical: how do you build and operationalize a social impact measurement framework for a rural women's cooperative? The two-part structure, theoretical foundations, then application to Taytmatine Tiyout, produces a structured answer grounded in the realities of the Moroccan field and equipped with the most recent advances in social impact evaluation literature. Theoretically, combining the hybrid organization framework with theory of change, stakeholder mapping, and SMART indicators confirms that the rural women's cooperative is an evaluation object of unusual richness and complexity ,one that resists reduction to classic economic indicators and demands a multidimensional approach combining qualitative and quantitative methods. The purpose of SIM here is not primarily external (accountability to funders) but internal: steering the support program, keeping interventions aligned with women's actual needs, and documenting transformations that, without measurement, would remain invisible. The application to Taytmatine Tiyout demonstrates feasibility and coherence. Stakeholder mapping identified the cooperant women as the central audience for evaluation. The personas anchored the theory of change in beneficiaries' lived experience, ensuring impact hypotheses corresponded to real and differentiated needs. The theory of change ,organized around economic empowerment, skills development, and social inclusion , formalized the causal path from activities to observable transformations in Tiyout women's lives.

SMART indicators and the mixed data collection protocol translated these hypotheses into measurable variables adapted to the constraints of illiteracy and multilingualism in the field. The most original contribution of this article is the analysis of structural constraints encountered in practice. It shows that operationalizing a SIM framework in rural Moroccan cooperatives is not a technical transplant of existing tools. It requires a patient, context-sensitive reconstruction of each step, from retrospective baseline reconstruction to the design of data collection tools capable of reaching into psychological and social transformation. Three research perspectives emerge. First, implementing the proposed data collection protocol, moving from a methodological framework to an impact evaluation grounded in primary data and building the prospective baseline that will underpin future evaluations. Second, calculating the SROI from that data, translating into monetary terms the transformations produced in the lives of Tiyout women. Third, extending the framework comparatively to other women's cooperatives in the argan sector or other Moroccan terroir product sectors, to test its robustness and replicability and contribute to the development of a sectoral SIM reference framework adapted to cooperatives in the rural Global South. Beyond these research directions, this article intends to contribute to a larger issue: the visibility and legitimacy of SSE organizations in rural areas. Making measurable what was invisible, giving documented value to transformations that Tiyout women have been living for over twenty years ,this is at once a scientific and a political act. Social impact measurement is not a methodological luxury reserved for large, well-resourced organizations. For cooperatives like Taytmatine, it is a tool of recognition, emancipation, and institutional sustainability, and its benefits reach far beyond the circle of evaluators.

LITERATURE:

1. Avise, ESSEC & Mouves. (2021). Petit précis de l'évaluation de l'impact social (#2). Paris: Avise.
2. Avise & ESSEC Business School. (2012). Guide du retour social sur investissement (SROI). Paris: Avise.
3. Commission européenne. (2006). L'impact social: cadre de référence. Brussels: European Commission.
4. Corvo, L., Pastore, L., Manti, A., & Iannaci, D. (2021). Mapping social impact assessment models: A literature overview for a future research agenda. Sustainability.
5. Defourny, J., & Nyssens, M. (2010). Conceptions of social enterprise and social entrepreneurship in Europe and the United States. Journal of Social Entrepreneurship, 1(1), 32–53.
6. ESSEC Business School — Laboratoire E&MISE & Impact Tank. (2025). Panorama de l'évaluation d'impact social en France: Focus 2025. Paris: ESSEC.
7. Freeman, R. E. (1984). Strategic management: A stakeholder approach. Boston: Pitman.
8. Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. Development and Change, 30(3), 435–464.
9. Leclerc, É., & Sibieude, T. (2025). La mesure d'impact: intégrer l'impact social et environnemental dans sa performance économique. Paris: Dunod.
10. Nicholls, J., Lawlor, E., Neitzert, E., & Goodspeed, T. (2012). A guide to social return on investment (2nd ed.). SROI Network / Cabinet Office.
11. OECD. (2002). Glossary of key terms in evaluation and results-based management. Paris: OECD.
12. Pache, A.-C. (2020). Social enterprises as hybrid organizations: A review and research agenda. Academy of Management Annals, 14(1), 1–34.
13. Rogers, P. (2008). Using programme theory to evaluate complicated and complex aspects of interventions. Evaluation, 14(1), 29–48.
14. Weiss, C. H. (1997). Theory-based evaluation: Past, present, and future. New Directions for Evaluation, 76, 41–55.

DIGITAL PERSONAL BRANDING AS A STRUCTURAL PATHWAY TO ENTREPRENEURIAL PERFORMANCE: A CONCEPTUAL FRAMEWORK FOR WOMEN ENTREPRENEURS IN EMERGING ECONOMIES - EVIDENCE FROM THE MOROCCAN AND MENA CONTEXT

Abdelhamid Nechad
ESCA School of Management-Casablanca
École Nationale de Commerce et de Gestion (ENCG Tanger)
Université Abdelmalek Essaâdi — Tanger, Morocco
Laboratory of Management, Economics, Information Systems and Law
a.nechad@esca.ma

Imane Akachmar
École Nationale de Commerce et de Gestion (ENCG Tanger)
Université Abdelmalek Essaâdi — Tanger, Morocco

ABSTRACT
Across emerging economies, women entrepreneurs continue to exhibit a systematic gap in financial and relational performance relative to their male counterparts — a disparity that persists even when legislative reforms have formally extended economic rights. This paper argues that this gap cannot be adequately explained at the individual level and instead reflects structural mechanisms of exclusion: informational opacity, gendered network architecture, and contested professional identity. We develop a multi-level conceptual framework in which digital personal branding (DPB) functions as a structural bypass mechanism, enabling women entrepreneurs to partially circumvent these constraints by constructing credibility, institutional trust, and market visibility through digital channels that are accessible independently of traditional gatekeeping institutions. Drawing on eight foundational theoretical traditions — Schumpeter's entrepreneurial function, Weber's domination theory, Goffman's impression management, Spence's signaling theory, Akerlof's information asymmetry economics, Barney's resource-based view, Bourdieu's symbolic capital framework, and Sen's capability approach — we elaborate a mediated-moderated relational model articulating six research propositions. Three moderating variables condition the efficacy of the DPB–performance pathway: gender constraints, digital intensity, and entrepreneurial experience. Theoretical contributions to signaling theory, the resource-based view, and normative implications for policy are discussed.
Keywords: *digital personal branding; women entrepreneurship; entrepreneurial performance; signaling theory; capability approach; information asymmetry; emerging economies; Morocco*

1. INTRODUCTION

One of the most extensively documented empirical regularities in gender and entrepreneurship research is the persistent underperformance of women-led ventures relative to male-led counterparts on financial and relational indicators, even after controlling for sector, firm age, and human capital endowments (Brush, De Bruin & Welter, 2009 ; Jennings & Brush, 2013). In Morocco — the primary empirical anchor of this study — this pattern assumes particularly stark proportions: women constitute merely 11.7% of active entrepreneurs nationwide (Haut-Commissariat au Plan, 2022), notwithstanding the substantial formal broadening of their economic rights following the Family Code reforms of 2004.

This disjunction between formal entitlement and substantive entrepreneurial participation embodies what this paper designates the structural paradox of women's entrepreneurship in emerging economies: institutional architecture has been reformed, yet the material and relational conditions enabling the effective exercise of entrepreneurial agency have not been correspondingly transformed. Attitudinal explanations for the gap are ruled out by qualitative evidence documenting robust entrepreneurial intent among Moroccan women (Amraoui, 2020 ; Bensaid & Lahrichi, 2019). The explanatory burden falls instead on structural mechanisms of exclusion that reproduce themselves independently of formal institutional change. Three such mechanisms are analytically central to this framework. Informational exclusion operates through the absence of the signaling resources — collateral, formal credit history, institutional endorsement — that lending institutions require to assess project quality, generating adverse selection dynamics of the type theorized by Akerlof (1970). Relational exclusion operates through the gendered architecture of professional networks, which distribute opportunity and resources through informal circuits historically inaccessible to women — a structure that Mauss's (1925) theory of reciprocity illuminates with precision. Identity-based exclusion operates through the cognitive and emotional burden of simultaneously performing professional authority and meeting gendered social expectations — the stigma management burden analyzed by Goffman (1959, 1963) — which depletes the attentional and relational resources available for entrepreneurial action. Against this structural backdrop, the proliferation of digital platforms introduces a potentially transformative variable. Social media ecosystems, professional content environments, and digital networking spaces constitute arenas in which professional credibility, visibility, and identity can be constructed independently of the institutional gatekeepers — credit agencies, professional associations, male-dominated networks — from which women entrepreneurs have been structurally excluded. Digital personal branding, understood as the deliberate and sustained construction of a professional identity across digital channels, represents a mechanism through which these structural constraints may be partially, though not unconditionally, circumvented.

This paper addresses the following research question: In what ways does digital personal branding constitute a structural mechanism through which women entrepreneurs in emerging economies can mitigate the informational, relational, and identity-based barriers to their performance — and under what institutional conditions does this mechanism operate with the greatest efficacy?

2. THEORETICAL BACKGROUND AND LITERATURE REVIEW

2.1. Structural Conditions of Women's Entrepreneurship

Accounting for the mechanisms through which women entrepreneurs are systematically constrained requires conceptual tools that operate at the structural rather than individual level. Weber's (1921) typology of domination provides the foundational vocabulary. His distinction between traditional domination — rooted in customary norms and patriarchal authority — and legal-rational domination — grounded in bureaucratic formalism — captures not a historical sequence but a coexisting architecture of power. Women entrepreneurs in Morocco navigate both registers simultaneously: informal patriarchal expectations that contest their professional legitimacy, and formal institutional opacity that generates disproportionate transactional costs for actors who lack the relational capital needed to navigate administrative systems. Schumpeter's (1911, 1942) theory of entrepreneurial function adds the economic dimension of what is at stake. The Schumpeterian entrepreneur — the agent of creative destruction and recombinant dynamism — does not operate from disposition alone; the function requires structural access to resources, capital, and markets.

Where women are denied this access through financial rationing and relational exclusion, the entrepreneurial function is structurally neutralized — not through individual incapacity but through systemic deprivation of its enabling conditions. The macroeconomic cost of this neutralization is borne not only by individual women but by the economies that forfeit the innovative dynamism they would otherwise generate. Sen's (1999) capability approach supplies the normative architecture. Where Weber identifies the structural mechanisms of disadvantage and Schumpeter quantifies their economic costs, Sen provides an evaluative lens that distinguishes between formal rights and substantive capabilities — what individuals are effectively able to do and be, given their social context. Applied to women's entrepreneurship in Morocco, the capability approach reveals a significant gap between the right to enterprise and the real capacity to exercise it, constituted by the asymmetric domestic burden, restricted professional mobility, informational exclusion, and persistently contested legitimacy that characterize women's entrepreneurial environment.

2.2. Information Asymmetry, Signaling, and the Credibility Deficit

The financial exclusion faced by women entrepreneurs admits of a structural-economic explanation grounded in Akerlof's (1970) information asymmetry framework. His market-for-lemons model demonstrates that markets in which sellers possess systematically superior information about product quality are structurally vulnerable to adverse selection: unable to distinguish high from low quality, buyers price at average quality; high-quality sellers withdraw; the market composition degrades. Transposed to Moroccan credit markets, this logic applies with notable precision: financial institutions, unable to reliably evaluate the quality of women-led projects that lack conventional signaling assets — collateral, credit history, formal institutional endorsement — respond with credit rationing, producing market failure that is not discriminatory in intent but structurally discriminatory in effect. Spence's (1973) signaling theory offers the constructive counterpart: where adverse selection arises from signal scarcity, remediation requires the construction of observable, verifiable, and sufficiently costly signals that permit high-quality actors to credibly differentiate themselves from low-quality competitors. Any mechanism that renders professional competence consistently visible and verifiable to uninformed audiences can serve this signaling function. We contend that digital personal branding performs precisely this role — and, crucially, through channels that do not presuppose the institutional credentials from which women entrepreneurs are systematically excluded.

2.3. Identity, Stigma, and the Formation of Symbolic Capital

Goffman's (1959, 1963) dramaturgical sociology surfaces a dimension of structural disadvantage that economic frameworks alone cannot capture. His concepts of impression management — the continuous calibration of self-presentation to audience expectations — and stigma — the social attribute that discredits its bearer in the eyes of a reference community — together describe the identity burden carried by women operating in male-coded professional environments. The requirement to simultaneously project entrepreneurial authority and conform to gendered norms of femininity generates what organizational scholars term covering (Yoshino & Rangel, 2006): a cognitive and emotional overhead that depletes the resources available for entrepreneurial action. Bourdieu's (1986) theory of symbolic capital integrates the identity and economic dimensions into a unified analytical framework: professional reputation and institutional recognition function not merely as social goods but as accumulated forms of power that enable future action within a given field. For women entrepreneurs excluded from the traditional credentialing circuits through which symbolic capital is typically accumulated — male-dominated professional associations, institutional mentorship networks, formal sector affiliations — digital personal branding constitutes an alternative capital formation pathway.

The digital field, still in the process of instituting its own rules of consecration, offers a space in which symbolic capital can be generated through narrative consistency, authentic engagement, and audience resonance rather than through institutional lineage.

3. CONCEPTUAL DEVELOPMENT

3.1. Digital Personal Branding: Definition and Operational Dimensions

We define digital personal branding (DPB) as the intentional, sustained, and audience-responsive construction and governance of a professional identity across digital platforms, oriented toward generating perceived credibility, relational capital, and market visibility. This definition is operationalized across four constitutive dimensions:

— **Narrative consistency** : the degree of coherence in professional self-representation across platforms and over time, which conditions signal reliability.
— **Audience engagement quality** : the depth, reciprocity, and relational density of digital interaction, which determines the relational capital generated by the personal brand.
— **Content authenticity** : the perceived alignment between the projected professional identity and the actual values, expertise, and practice of the entrepreneur — a condition for sustained credibility.
— **Platform multi-presence** : the strategic diversification of digital presence across complementary environments, which expands discoverability and audience reach.

From the perspective of signaling theory (Spence, 1973), these four dimensions collectively constitute the signal-carrying capacity of the personal brand: its aggregate ability to transmit reliable information about professional quality to audiences lacking direct observational access. A coherent, consistent, and authentic digital personal brand satisfies the conditions of a credible signal: it is publicly observable, persistently verifiable, and — critically — requires sustained investment that opportunistic actors would find disproportionately costly to replicate. From the resource-based view (Barney, 1991), a well-developed DPB constitutes a VRIN resource. Its value lies in the credibility and visibility it generates in informationally opaque markets. Its rarity derives from the idiosyncrasy of the personal narrative it embodies. Its inimitability follows from the unique combination of entrepreneurial experience, communicative voice, and relational history it accumulates over time. Its non-substitutability reflects the absence of functional equivalents for entrepreneurs who lack access to traditional institutional credentials.

3.2. Entrepreneurial Performance: A Multidimensional Operationalization

We operationalize entrepreneurial performance across four dimensions calibrated to the structural context of women entrepreneurs in emerging economies. Network expansion measures growth in professional relational capital — the breadth, quality, and diversity of business relationships that generate opportunity flows, resource access, and market intelligence. Revenue growth captures the financial trajectory of the venture. Market legitimacy designates the degree to which the entrepreneur and her venture are recognized as credible, competent, and trustworthy actors within their market environment — a dimension that is particularly consequential for women whose professional authority is structurally contested. Symbolic capital accumulation denotes the conversion of reputational and relational recognition into institutionalized forms of professional authority that enable future entrepreneurial action (Bourdieu, 1986).

3.3. Mediating Mechanisms: Credibility, Trust, and Visibility

The relationship between DPB and entrepreneurial performance is not direct. It is mediated through three theoretically distinct and empirically separable pathways.

Perceived credibility constitutes the keystone mediation mechanism. Through sustained, coherent, and authentic digital self-presentation, DPB generates in market audiences a conviction of professional competence and reliability that partially substitutes for the institutional credentials that women entrepreneurs typically lack. This credibility-construction function operates through Spencian costly-signaling logic: the investment required to maintain a high-quality digital presence screens out opportunistic actors, making the credible personal brand a reliable proxy for underlying professional quality. Institutional trust functions through a complementary pathway. The persistent, traceable, and quality-signaling digital track record that sustained DPB produces serves as a functional substitute for the formal institutional endorsements — mentors, certification bodies, professional associations — that conventionally generate stakeholder confidence. In Weberian terms, DPB creates a form of digital-legal-rational legitimacy: a systematically documented, publicly accessible record of professional competence and organizational commitment. Digital visibility operates at the level of market access. By rendering the entrepreneur's professional identity discoverable, recognizable, and memorable to relevant market audiences, DPB creates an alternative pathway to opportunity that does not require prior membership in the male-dominated relational circuits through which entrepreneurial opportunity has historically been distributed. In Bourdieusian terms, digital visibility constitutes symbolic capital in its most accessible form: recognition without institutional lineage.

4. PROPOSED CONCEPTUAL FRAMEWORK

Figure 1 presents the integrated conceptual model. Digital personal branding functions as the primary antecedent, generating multidimensional entrepreneurial performance through three mediating mechanisms, moderated by three variables that condition the strength and directionality of these relationships across institutional contexts.

Table 1. Integrated Conceptual Framework —
DPB and Women's Entrepreneurial Performance

ANTECEDENT Digital Personal Branding	→	MEDIATING MECHANISMS	→	OUTCOME Entrepreneurial Performance
• Narrative consistency • Audience engagement • Content authenticity • Platform multi-presence	→	• **Perceived credibility** *(Spence, 1973 ; Akerlof, 1970)* • **Institutional trust** *(Weber, 1921 ; Barney, 1991)* • **Digital visibility** *(Bourdieu, 1986 ; Sen, 1999)*	→	• Network expansion • Revenue growth • Market legitimacy • Symbolic capital
MODERATING VARIABLES: Gender Constraints | Digital Intensity | Entrepreneurial Experience				
THEORETICAL FOUNDATIONS: *Schumpeter (1911) · Weber (1921) · Mauss (1925) · Akerlof (1970) · Goffman (1959/1963) · Spence (1973) · Barney (1991) · Sen (1999)*				

Source: Authors, 2026

4.1. Moderating Variables

Gender constraints — the constellation of institutional norms and cultural expectations that restrict women's entrepreneurial agency — are predicted to moderate negatively the DPB-to-credibility relationship. Where traditional domination norms are more entrenched (Weber, 1921), equivalent DPB investment yields diminished credibility attribution, as audiences apply implicit discount factors to their evaluation of female professional signals. This moderation term captures the structural heterogeneity of institutional contexts across and within emerging economies. Digital intensity — the frequency, sophistication, and strategic coherence of platform engagement — amplifies signal strength (Spence, 1973).

Entrepreneurs who invest more deeply and strategically in their digital presence accumulate stronger, more persistent, and more differentiated credibility signals, producing correspondingly stronger effects on the mediating mechanisms and, through them, on entrepreneurial performance outcomes. Entrepreneurial experience provides the complementary resource endowment (Barney, 1991) required to translate digital signals into commercial outcomes. Experience generates market knowledge, relational management capacity, and pattern recognition capability that amplify the performance returns to DPB investment — enabling more precise audience targeting, more strategically calibrated content, and more efficient conversion of digital visibility into commercial opportunity. Following Schumpeter's (1911) account of entrepreneurial learning, experienced entrepreneurs are structurally better positioned to leverage DPB as a recombination of existing capabilities.

5. RESEARCH PROPOSITIONS

Six research propositions operationalize the framework and constitute the agenda for subsequent empirical investigation.

Proposition 1 — Digital personal branding exerts a positive influence on the perceived credibility of women entrepreneurs in emerging economies by generating observable, consistent, and investment-costly signals that reduce the information asymmetry produced by their structural exclusion from traditional credentialing institutions.
Theoretical anchoring: Spence (1973) ; Akerlof (1970) ; Goffman (1959)
Proposition 2 — Perceived credibility and institutional trust, constructed through sustained digital personal branding activity, fully mediate the relationship between digital identity investment and multidimensional entrepreneurial performance.
Theoretical anchoring: Spence (1973) ; Barney (1991) ; Weber (1921)
Proposition 3 — Digital visibility generated through personal branding activity expands the relational capital of women entrepreneurs, enabling network-based performance outcomes independently of prior access to male-dominated professional circuits.
Theoretical anchoring: Sen (1999) ; Bourdieu (1986) ; Mauss (1925)
Proposition 4 — Gender constraints — operationalized as the intensity of traditional domination norms and institutional gender expectations within the entrepreneurial context — negatively moderate the relationship between digital personal branding and perceived credibility, attenuating the credibility yield of equivalent DPB investment in contexts characterized by stronger patriarchal institutional frameworks.
Theoretical anchoring: Weber (1921) ; Sen (1999) ; Goffman (1963)
Proposition 5 — Digital intensity positively moderates the DPB-to-performance relationship: higher frequency, strategic sophistication, and cross-platform coherence amplify signaling strength, increase cumulative credibility attribution, and extend digital visibility reach.
Theoretical anchoring: Spence (1973) ; Barney (1991)
Proposition 6 — Entrepreneurial experience positively moderates the DPB-to-performance relationship: experienced entrepreneurs demonstrate systematically greater capacity to convert digital credibility signals into commercial strategy, relational capital formation, and market opportunity recognition.
Theoretical anchoring: Barney (1991) ; Schumpeter (1911, 1942)

6. DISCUSSION: THEORETICAL AND PRACTICAL IMPLICATIONS

6.1. Contributions to Signaling Theory and the Resource-Based View

This framework advances two substantial contributions to the theoretical literature. With respect to signaling theory (Spence, 1973), it introduces a structural moderation dimension into the signal-reception relationship that the original model did not accommodate.

Classical signaling theory assumes that the credibility yield of equivalent signal investment is constant across senders — that is, that signal reception is structurally neutral. The gender constraint moderation hypothesis challenges this assumption: the institutional context in which a signal is received, and the identity attributes of its sender, condition the credibility attribution process. This constitutes a theoretically significant extension that integrates insights from Weberian institutional theory and gender studies into the economic analysis of information. With respect to the resource-based view (Barney, 1991), the framework extends VRIN logic to a class of resources — discursive, relational, and identity-based — that the original formulation did not explicitly encompass. The argument that a well-constructed digital personal brand constitutes a source of sustained competitive advantage grounded in a unique personal narrative is a theoretically non-trivial contribution that opens a research programme on how intangible, identity-anchored resources generate entrepreneurial competitive advantage in under-resourced institutional environments.

6.2. The Capability Approach as Normative Anchor

Anchoring the framework in Sen's (1999) capability approach endows it with a normative dimension that extends beyond theoretical contribution. The framework implicitly argues that equitable access to the infrastructure enabling digital personal branding — digital skills, platform accessibility, institutional recognition of digital credentialing — is not merely an efficiency-enhancing policy lever but a capability-expanding one. On Sen's account, fostering the capacity of women entrepreneurs to construct and leverage credible digital professional identities constitutes a dimension of substantive entrepreneurial freedom, and therefore a matter of economic justice rather than of economic efficiency alone. This normative framing has concrete policy relevance in the Moroccan context, where the post-Moudawwana institutional landscape has extended formal rights without generating commensurate expansion of substantive entrepreneurial capabilities. Policies oriented exclusively toward formal barrier removal, while neglecting the capability deficits that prevent women from exercising their formal rights in practice, are structurally incomplete from a Senian perspective. The DPB framework points toward a complementary class of interventions: those that expand the practical capability set of women entrepreneurs to construct, maintain, and leverage credible digital professional identities.

6.3. Limitations and Research Directions

The limitations of this contribution are those intrinsic to conceptual work. The propositions advanced require empirical validation through multiple methodological pathways: (1) qualitative, interview-based inquiry exploring the lived experience of DPB among women entrepreneurs in Morocco and comparable MENA contexts; (2) mixed-methods survey research operationalizing the framework's constructs and testing the proposed mediation and moderation relationships; (3) comparative institutional analysis examining how gender constraint variation across MENA contexts shapes the DPB-to-performance relationship; and (4) longitudinal research tracking the capability-expanding effects of DPB investment across entrepreneurial career trajectories. These pathways constitute the empirical agenda that this paper opens, and that the authors are actively developing through qualitative fieldwork in Northern Morocco.

7. CONCLUSION

This paper has advanced a theoretically grounded, multi-level conceptual framework that positions digital personal branding as a structural mechanism through which women entrepreneurs in emerging economies can partially mitigate the informational, relational, and identity-based constraints on their entrepreneurial performance.

By articulating eight foundational theoretical traditions into a coherent, mediated-moderated architecture, it makes contributions that are simultaneously theoretical — extending signaling theory, the resource-based view, and the capability approach into the domain of digital identity and gendered entrepreneurship — and empirically generative, providing a testable propositional structure for future qualitative and quantitative research. The digital economy is restructuring the landscape of entrepreneurial opportunity in ways that are not neutral with respect to gender. For women entrepreneurs who have historically been excluded from the relational and institutional circuits through which entrepreneurial legitimacy is constructed and distributed, digital platforms represent a structurally significant alternative pathway — one whose transformative potential is real, but whose full realization is conditioned by the institutional environments that shape digital agency and govern the reception of digital signals. Understanding these conditions — theorizing when, how, and for whom digital personal branding operates as a genuine capability expander rather than a mechanism that merely displaces structural disadvantage into new digital forms — constitutes one of the most consequential research imperatives in contemporary entrepreneurship scholarship. This paper is a contribution to that inquiry.

LITERATURE:

1. Akerlof, G. A. (1970). The market for lemons: Quality uncertainty and the market mechanism. Quarterly Journal of Economics, 84(3), 488–500.
2. Amraoui, N. (2020). Entrepreneurial intention among Moroccan women: Inhibiting factors and activation levers. Revue Marocaine de Gestion et d'Économie, 12(23), 45–67.
3. Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120.
4. Bensaid, M., & Lahrichi, Y. (2019). Obstacles to women's entrepreneurship in Morocco: A qualitative study. Management & Sciences Sociales, 26, 112–131.
5. Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), Handbook of theory and research for the sociology of education (pp. 241–258). Greenwood.
6. Brush, C. G., De Bruin, A., & Welter, F. (2009). A gender-aware framework for women's entrepreneurship. International Journal of Gender and Entrepreneurship, 1(1), 8–24.
7. Goffman, E. (1959). The presentation of self in everyday life. Doubleday.
8. Goffman, E. (1963). Stigma: Notes on the management of spoiled identity. Prentice-Hall.
9. Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. American Journal of Sociology, 91(3), 481–510.
10. Haut-Commissariat au Plan. (2022). Annual report on the economic and social situation of Morocco. HCP.
11. Jennings, J. E., & Brush, C. G. (2013). Research on women entrepreneurs: Challenges to (and from) the broader entrepreneurship literature? Academy of Management Annals, 7(1), 663–715.
12. Labrecque, L. I., Markos, E., & Milne, G. R. (2011). Online personal branding: Processes, challenges, and implications. Journal of Interactive Marketing, 25(1), 37–50.
13. Mauss, M. (1925). Essai sur le don. L'Année Sociologique, 1(NS), 30–186.
14. Nechad, A. (2023). Resources and capabilities in emerging countries: Which causality? Working paper, ENCG Tanger, Université Abdelmalek Essaâdi.
15. Rampersad, H. K. (2008). Be the CEO of your life. Lulu Press.
16. Schumpeter, J. A. (1911). Theorie der wirtschaftlichen Entwicklung [Theory of economic development]. Duncker & Humblot.
17. Schumpeter, J. A. (1942). Capitalism, socialism and democracy. Harper & Row.
18. Sen, A. (1999). Development as freedom. Oxford University Press.
19. Spence, M. (1973). Job market signaling. Quarterly Journal of Economics, 87(3), 355–374.
20. Weber, M. (1921). Wirtschaft und Gesellschaft [Economy and society]. Mohr.
21. Yoshino, K., & Rangel, C. (2006). Covering in the workplace. Deloitte & Touche USA LLP.

THE BANKING SECTOR OF BULGARIA DURING THE ADOPTION OF THE EURO – PREPARATION, PAYMENT TRANSFORMATION, FIRST RESULTS

Raya Dragoeva
D. A. Tsenov Academy of Economics. 2. Emanul Chakurov Str., Svishtov, Bulgaria
rayadragoeva@gmail.com

ABSTRACT
The report examines the overall process of integration and adaptation of the Bulgarian banking sector in the context of Bulgaria's membership in the eurozone from January 1, 2026. The analysis examined three key phases: preliminary preparation, technical and payment transformation, and the first results of introducing the new currency. The regulatory framework that regulates the introduction of the single European currency is examined in detail. Attention has been paid to both national legislation and European regulations. The emphasis is on the technical and operational readiness of the banking sector, which is an important factor for the smooth and trouble-free process of joining the eurozone. The processes related to the automatic currency conversion of bank accounts at the fixed rate of BGN 1.95583, the migration to the single payment systems of the Eurosystem - the consolidated TARGET platform and the Single Euro Payments Area (SEPA) and the introduction of the double designation of final amounts in balance sheets have been analyzed. The recalculation of interest rates on loans and deposits, their linking to European market indices, as well as the role of commercial banks in conducting large-scale information campaigns for the public were also examined. An analysis of the financial stability of the banking sector in Bulgaria was conducted using capital adequacy ratios and the liquidity coverage ratio, proving that the sector enters the eurozone well-capitalized and highly liquid. The final part of the report takes stock of the preparation and readiness of the Bulgarian banking sector for the adoption of the new currency – the euro. This period covers the first two to three months after implementation, and the conclusions show a high level of technological and operational readiness of the sector, which led to a smooth and seamless transition.
Keywords: *Banking sector, Eurozone, First results*

1. INTRODUCTION

Bulgaria officially joined the Eurozone on January 1, 2026, becoming the 21st country in the European Union to adopt the euro as its national currency. The integration of our country into the eurozone represents an important historical and strategic step for its economic development, which is taking place in a complex and uncertain external environment. Joining the eurozone is the result of Bulgaria's intensive preparation and efforts to fulfill all necessary requirements. This is a complex process, encompassing a number of aspects: economic, social, political and legal, the synchronization of which guarantees the success and expected benefits of membership. The experience of countries that have adopted the euro shows that replacing the national currency with the single European currency requires a serious and timely preparatory period. In Bulgaria, this process begins actively in 2020 with the entry into the so-called "waiting room" of the eurozone - the European Exchange Rate Mechanism II (ERM II) and goes through the implementation of the convergence criteria approved by the European Commission and the European Central Bank (Maastricht criteria). Simultaneously with the participation of the lev in ERM II, our country also joined the Banking Union. One of the key players on Bulgaria's path to the eurozone is the banking sector. Its role in this process is of utmost importance, as it is both subject to strict supervision and the main guarantor for ensuring the technical, operational and logistical continuity of cash turnover.

The sector's preparation encompasses a wide range of activities: logistically ensuring the availability of the new currency, reconfiguring and adapting payment systems, while ensuring the financial stability of commercial banks and public trust. On this basis, the aim of this study is to take a comprehensive stock of the preparation of the Bulgarian banking sector for the adoption of the new currency, through an analysis of the preparatory steps and the first practical results of the actual functioning of the sector in the euro area. The study seeks to prove that despite a series of force majeure circumstances, such as geopolitical tensions in the Middle East and Ukraine, macroeconomic instability in Europe, and the complex political situation in the country, the banking sector managed to achieve full operational and financial readiness for integration. Attention is also paid to the institutional synergy with the European Central Bank (ECB), whose policies and supervisory standards have become a catalyst for the modernization and stability of commercial banks in our country, ensuring their successful transition to the Eurosystem.

2. LEGISLATIVE FRAMEWORK

The introduction of the euro as the official currency necessitates certain changes in our national legislation. Its harmonization with the legislation of the European Union[1] is an important condition for our full membership in the eurozone. In accordance with the principles in the National Plan for the Introduction of the Euro in the Republic of Bulgaria, these regulatory changes are necessary to ensure legal stability and a smooth transition to the new currency. It is a practice, before the official date of membership, to adopt a single law governing all issues related to the replacement of the national currency. The legal regulation of the introduction of the euro includes both the regulatory framework of the European Union and the relevant national legislation. (Kaneva, 2025) One of the normative documents of the European legal framework is the Treaty on the Functioning of the European Union (TFEU). In accordance with Articles 140 and 130 of the Treaty, a report is prepared to assess the compatibility between legislations, as well as the implementation by each Member State of the convergence criteria (Consolidated Version of the Treaty on the Functioning of the European Union, 2012). Some of the legal acts are: Council Regulation (EC) No 974/98 of 3 May 1998 on the introduction of the euro[2] and Council Regulation (EC) No 2866/98 of 31 December 1998 on the exchange rates against the euro of the currencies of the Member States adopting the euro - the regulation has been amended several times to accommodate the exchange rates of the new countries joining the euro area.[3] Other key documents are: the Commission of 10 January 2008 on measures to facilitate the future changeover to the euro, which provides detailed information on the practical measures and preparations that Member States should take in order to ensure a smooth and seamless adoption of the single currency[4] and Guideline of the European Central Bank of 14 July 2006 on certain preparations for the changeover to the euro and on frontloading and reloading with euro banknotes and coins from outside the euro area[5] - these guidelines establish the rules that allow national central banks to be supplied with euro banknotes and coins from the Eurosystem for the purpose of frontloading and backloading before the official changeover date. Table 1 presents the main legal documents from Bulgarian legislation related to the introduction of the euro.

---

[1] Our national legislation must fully comply with the provisions of the Treaty on the Functioning of the European Union (TFEU) and the Statute of the European System of Central Banks and of the European Central Bank.
[2] See Council Regulation (EC) No 974/98 of 3 May 1998 on the introduction of the euro - https://bit.ly/4nZHh7w
[3] The last amendment was dated July 8, 2025 and concerns the exchange rate to the euro for Bulgaria. - https://bit.ly/4nQXfR6
[4] See https://bit.ly/3PwIw1b
[5] See https://bit.ly/4u2Orcn

Regulatory act	Main focus	Responsible institution
National plan for the introduction of the euro	The document presents the principles, institutional and legal framework for the adoption of the new currency.	Coordination Center
Euro Adoption Act	It regulates the method and deadline for cash exchange, currency conversion rules, consumer protection, and defines the period of dual circulation and dual denomination.	Bulgarian National Bank
New Bulgarian National Bank Law	Regulates the status of the euro as legal tender in Bulgaria and in the monetary policy model.	Bulgarian National Bank
Credit Institutions Act (Amendment)	Adapts supervisory functions and capital requirements to the standards of the ECB and the Single Supervisory Mechanism.	Bulgarian National Bank and European Central Bank
Decree No. 168 of the Council of Ministers (adopted 2015)	Establishment of a Coordination Council for the preparation of the Republic of Bulgaria for membership in the eurozone.	Council of Ministers

Table 1: Legal framework for the introduction of the euro
(Source: Own research)

National Plan for the Introduction of the Euro in the Republic of Bulgaria[6] - adopted by Decision of the Council of Ministers No. 344 of 2022, updated twice, the last update being on July 2, 2025 and is related to a priority set in the Management Program of the Republic of Bulgaria for the period 2025-2029 - "Completion of the process of Bulgaria's accession to the euro area". This document implements the operational work for replacing the Bulgarian lev with the euro. It was developed by the Coordination Council for the Preparation of the Republic of Bulgaria for Membership in the Eurozone. Law on the Introduction of the Euro in the Republic of Bulgaria – promulgated in the State Gazette on August 7, 2024. “This law ensures the implementation of the relevant acts of the European Union, by determining the necessary measures at national level for the introduction of the euro in the Republic of Bulgaria” and its purpose is “to supplement and facilitate the introduction of the euro in the Republic of Bulgaria and to increase transparency and information about the process of introducing the euro in the country in accordance with directly applicable European Union law.” (Law on the introduction of the euro in the Republic of Bulgaria, 2024). New law of the Bulgarian National Bank (Law on the Bulgarian National Bank, 2024) - enters into force on January 1, 2026 and completely replaces the 1997 Law. The purpose of the new law is to provide the legal framework for the integration of the Bulgarian Central Bank into the Eurosystem upon the introduction of the new currency. It also reflects the legal inconsistencies reported in the Convergence Reports of the European Central Bank and the European Commission. In addition to the above, in connection with the euro introduction process, the Bulgarian National Bank has also adopted several new Regulations[7].

[6] See National plan for the introduction of the euro in the Republic of Bulgaria - https://www.minfin.bg/bg/1570
[7] See BNB website, National Legal Framework, Regulations - https://bit.ly/4e9DroN

3. PAYMENT TRANSFORMATION AND FINANCIAL SUSTAINABILITY

In addition to purely legal preparation, an important aspect of the euro adoption process is ensuring technical and operational readiness. This requires changes in all software systems that perform cash flow activities and process financial information. The regulatory framework presents the requirements under which banks must modify their core banking systems, payment channels and card payment systems in order to successfully operate in the Eurozone. The rules and steps for preparing information systems are developed in the Methodological Guidelines for Adapting Information Systems, adopted on the basis of Art. 46, para. 3 of the Law on the Introduction of the Euro in the Republic of Bulgaria. This ensures seamless migration of client databases without interrupting the operational process. Figure 1 presents the algorithm for automatic currency conversion of bank accounts. It is based on information from the Law on the Introduction of the Euro in the Republic of Bulgaria, the National Plan for the Introduction of the Euro in the Republic of Bulgaria and the Methodological Guidelines for the Adaptation of the Information Systems of Administrative Bodies to Work with the Euro.

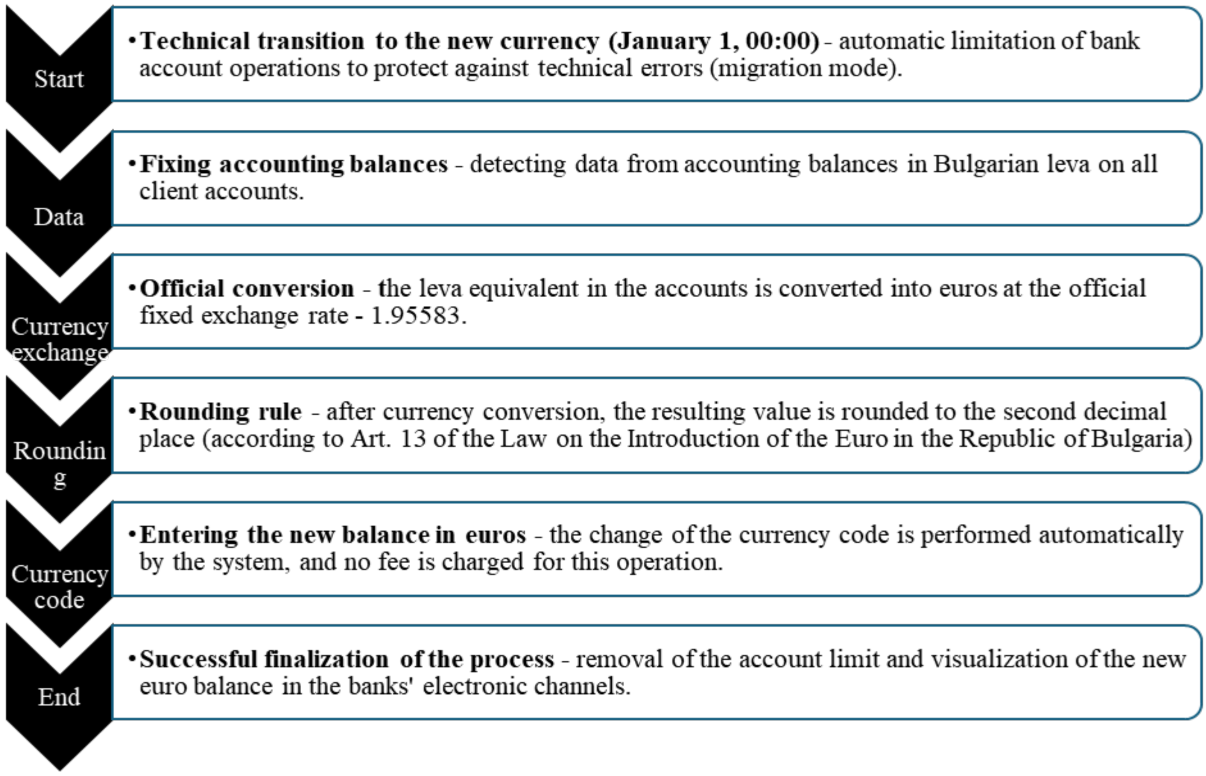


Figure 1: Bank account currency conversion algorithm
(Source: Own studies)

The other essential aspect of technical preparation concerns payment systems and their reorganization. The transformation of the payment infrastructure is not simply a replacement of the national currency with the European one, but represents a systematic and radical migration to the Eurosystem's payment platforms. The Eurosystem is an important component of the European System of Central Banks (ESCB), acting as the central bank for the euro area. It carries out continuous supervision and regulation of payment systems, and in fact it is also the creator of TARGET (Trans-European Automated Real-time Express Transfer System) (Chirtoc & Medar, 2017). "It is the most important payment system in Europe and the second most important payment system in the world." (Trifonova, 2015).

In order to deepen the integration of financial markets in Europe and offer harmonised payment and settlement services, the Eurosystem is introducing three important components: the consolidated platform TARGET2/T2S (TARGET2-Securities), the service for instant payments in central bank money TIPS (TARGET Instant Payment Settlement) and the single Eurosystem collateral management system - ECMS (Eurosystem Collateral Management System). The payment infrastructure operates according to the ISO 20022 standard (a global standard for electronic message exchange between financial institutions), approved by the European Central Bank. Figure 2 presents the migration of the national payment infrastructure to that of the Eurosystem.

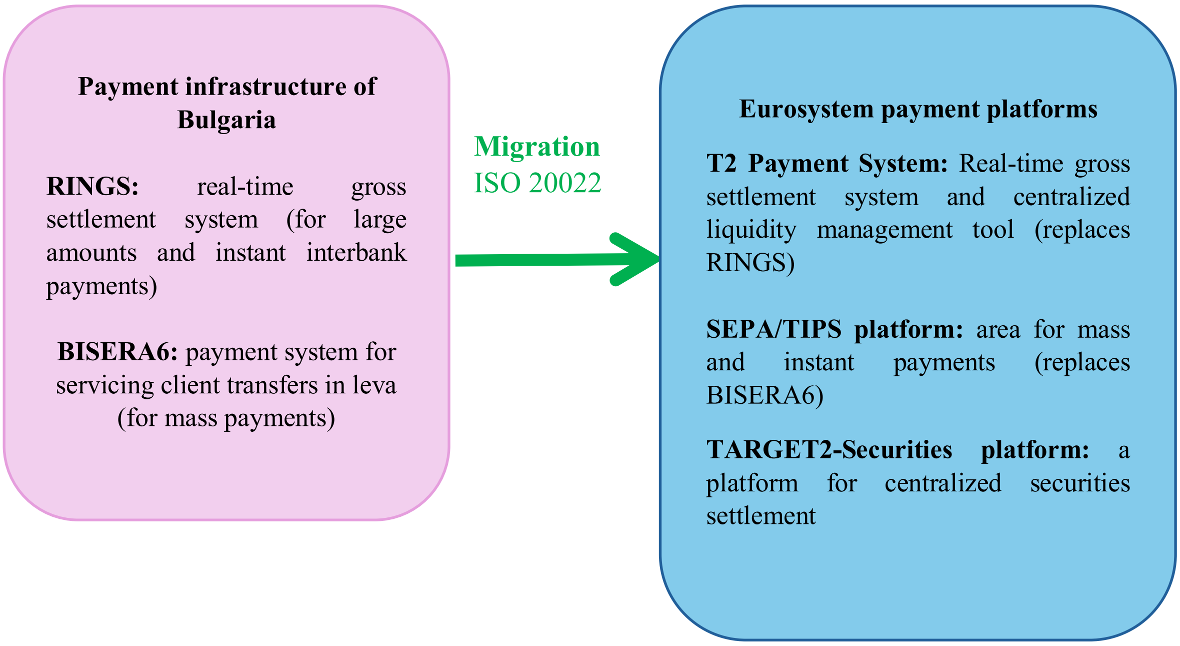


Figure 2: Payment system migration
(Source: Own studies and BNB)

The Bulgarian National Bank joined the real-time gross settlement system – TARGET2 (T2) in 2010, which provided Bulgarian banks and their clients with conditions for making payments in euro in real time. In 2023, it joins the consolidated TARGET platform – TARGET2-Securities (TS2) – this is the securities settlement system. The integration of payment systems with those of the Eurosystem continues in 2024 when the Bulgarian National Bank, the BISERA payment system and three financial institutions (two banks and one electronic money company) integrated into the TIPS (Target Instant Payment Settlement) platform. This enabled them to process domestic and international instant customer payments in euros 24/7/365. This process continues in 2025 with the addition of more local payment service providers. From January 1, 2026, with the adoption of the euro as the national currency, the operation of the currently used real-time gross settlement system in levs (RINGS) will be permanently terminated. Operations carried out up to this date are transferred to the consolidated TARGET services platform. "BORICA AD" is at the heart of the technological infrastructure of the payment industry in Bulgaria, which contributes significantly to the migration to the single European currency.

At the end of 2025, in connection with the introduction of the euro as legal tender in the Republic of Bulgaria, the Bulgarian National Bank amended the license of BORICA AD and gave consent to terminate the activity as an operator of the payment system for servicing client transfers in levs BISERA6, as of the date of membership.[8] Customer payments, including budget transfers, made by BISERA6 are transferred to the Single Euro Payments Area SEPA. From July 2024, BISERA ensures full SEPA reachability of payments in euro through the participation of the Bulgarian National Bank in the STEP2 system, operated by EBA Clearing. At the retail payments level, the technical readiness of the sector is expressed in the transformation of the national clearing systems managed by BORICA AD. The system for customer transfers in leva (BISERA6) is migrating entirely to the Single Euro Payments Area (SEPA). The operational changes are related to two areas - credit transfers (SEPA Credit Transfer - SCT) and instant transfers (SEPA Instant Credit Transfer - SCT Inst).

The migration of the card sector to the new currency requires precise software coordination. Within a three-hour transformation window (starting at 9:00 PM on December 31, 2025), the following are performed synchronously: issuance and acceptance configurations, system verification, and activation of euro processing. The other important point is ensuring availability in ATM devices. According to the Law on the Introduction of the Euro in the Republic of Bulgaria, the supply of euro banknotes and coins, as well as the deadlines for preparing and loading ATMs, is regulated. Additionally, Regulation No. 48 of the central bank sets out the specific requirements for commercial banks for powering devices in our country. Until the date of our admission to the eurozone, ATMs operate with Bulgarian banknotes, from January 1, 2026, only euro banknotes will be circulated. The principles set out in the Law on the Introduction of the Euro in the Republic of Bulgaria aim to guarantee the protection of consumers of banking services and to provide them with clear and timely information about the entire process related to the new currency. In practical terms, this institutional commitment is expressed through three main directions: the automatic currency conversion from levs to euros, the dual designation of prices for banking services and balances, and the transformation of interest rates under existing contracts. The relationship between the three areas ensures the maintenance of financial stability and confidence in the banking sector in the context of currency convergence. Table 2 summarizes the main stages and channels for informing the public during the transition to the new currency.

An important aspect of assessing the overall readiness of the banking sector in Bulgaria for membership in the eurozone is its financial sustainability. The current transition presents banking institutions with a new regulatory and market reality. Their role is to provide the necessary buffers - a solid capital position and a stable liquidity profile - with which the sector can meet possible shocks from currency convergence. The analysis of capital adequacy indicators provides an assessment of the reliability of banking institutions (Vatev, 2017). The other aspect of the financial condition of banks - liquidity - is also an issue of essential importance for the normal development and functioning of commercial banks. (Zahariev, 2022). The Liquidity Coverage Ratio (LCR) assesses the resilience of banking institutions in the short term. A year before Bulgaria's official accession to the eurozone, the banking sector maintains stable levels of capital adequacy and liquidity. Figures 3 and 4 present the values of the indicators for 2025 by quarter, respectively for the Bulgarian banking sector and the euro area.

[8] See BORICA AD - https://bit.ly/4uywCTx

Direction	Regulatory requirement	Commitment of the BNB and commercial banks
Automatic currency conversion	All funds in leva accounts (current, savings, deposit, etc.) are automatically converted on the day of the euro introduction. The process is free of charge and is carried out at the official fixed exchange rate of 1.95583 leva for 1 euro.	Banks must perform a mass IT migration and software reconfiguration of databases from all customer accounts within a few hours.
Double labeling	The final amounts for: account balances, bank statements, loan balances, interest, fees and commissions must be double-labeled (in BGN and EUR). The period of double-labeling is: from August 8, 2025 to August 8, 2026.	Their commitment is to provide visualization of both currencies in: mobile applications, ATMs, and paper documents.
Interest rates	With fixed interest rates - the agreed rate on deposits and loans does not change. Only the amount in the contracts is automatically converted into euros. With floating interest rates - the interest rate changes according to the provisions of the Euro Introduction Act.	The banks' commitment is to replace the current leva indices (OLP/LEONIA Plus) with approved European benchmarks. As well as not allowing the deterioration of customers' financial conditions. Recalculation of reference interest rates (replacing OLP/LIBOR with EURIBOR or internal indices).
Information campaigns	To provide clear, accurate and timely information to the public, explaining the main steps, rights and benefits of the transition to the new currency.	The BNB, through its website, should regularly publish information materials, analyses, questions and answers. In turn, commercial banks should provide information through mobile applications, online banking, through special sections on their websites and on site in the branch network.

Table 2: Stages of public information
(Source: Own research)

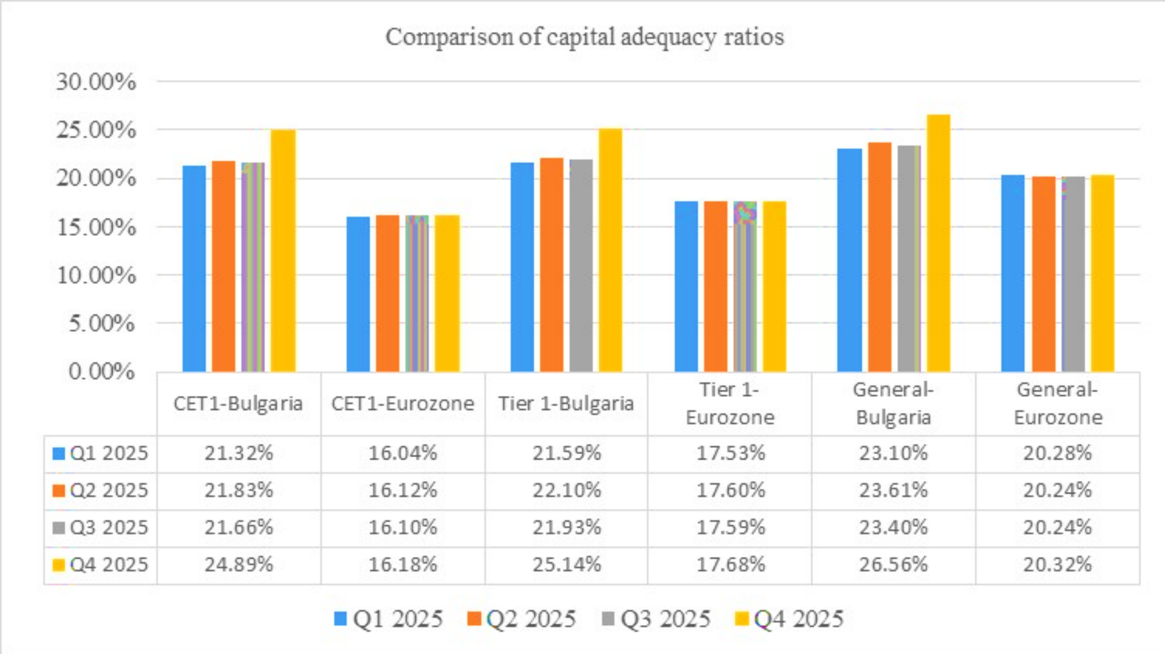


Figure 3: Capital adequacy ratios for Bulgaria and the euro area
(Source: BNB and ECB)

In the fourth quarter, an increase in the values of all three indicators was observed, as follows: CET1 ratio is 25%, Tier 1 Capital Ratio – 25% and total capital adequacy – 27%. For the period under review, the indicators for the euro area are relatively constant: CET1 ratio is 16%, Tier 1 Capital Ratio – 18% and total capital adequacy – 20%.

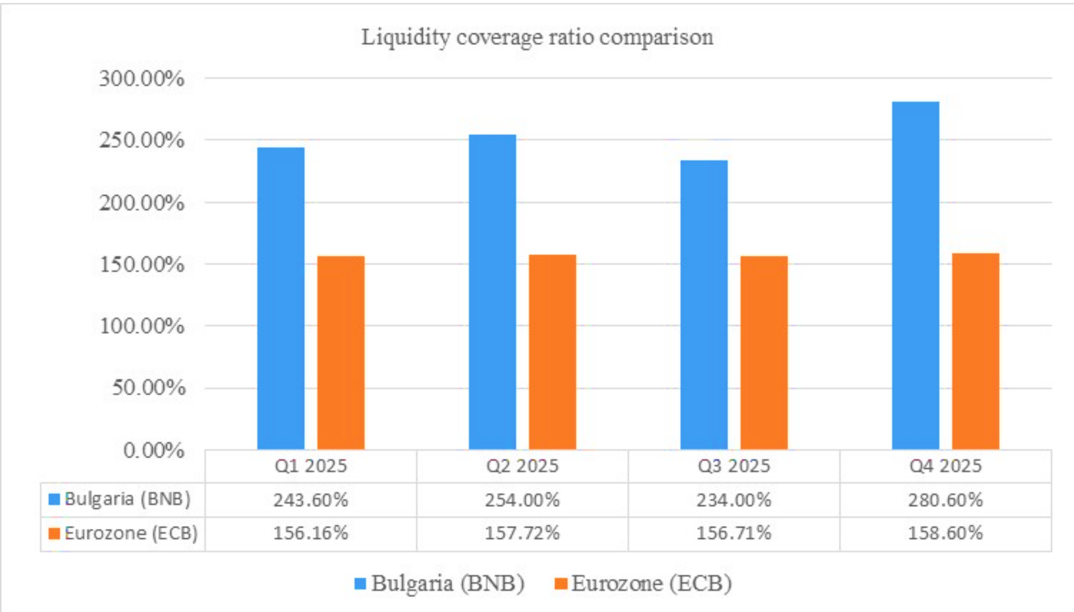


Figure 3: Liquidity Coverage Ratio (LCR) for Bulgaria and the Eurozone
(Source: BNB and ECB)

The Liquidity Coverage Ratio (LCR) for the Bulgarian banking sector in 2025 is well above the required minimum level of 100%. In all four quarters, its values were above 200%, with the coefficient at the end of the year being 281%, also influenced by the maintenance of cash balances in the central bank under the currency board regime.

The eurozone-wide indicator in the fourth quarter was 159%, up about 1.2% from previous quarters. The high degree of capitalization and liquidity for 2025 show that the banking sector in Bulgaria is structurally stable in the final stages of currency convergence. The capital and liquidity indicators of commercial banks in our country maintain significantly higher values than those in the euro area, which provides them with reliable protection against potential risks in the accession process.

3. FIRST RESULTS OF EUROZONE MEMBERSHIP

The introduction of the new currency in Bulgaria is a key moment for the entire economy and society. Much of the process requires operational and technological transformation on a national scale, ensuring smooth functioning of the systems from the first minute of accession. The transition from lev to euro is generally going extremely smoothly. An important point in the preparation is the initial replenishment of euro banknotes and coins, which was to ensure normal circulation on the first day of 2026. The Bulgarian National Bank began this process back in November 2025 to supply banking institutions with sufficient quantities of euro banknotes and coins. As of February 1, the first day of payment only in euros, the value of euro banknotes and coins in circulation was worth over €6.1 billion, and by the end of March their value was over €7.8 billion.[9] This ensures the sustainable functioning of payment systems and the effective service of economic agents. January was a period of parallel use of both currencies, which required the central bank and commercial banks to maintain sufficient reserves in both leva and euro. At the same time, the Bulgarian National Bank is organizing the smooth withdrawal of lev banknotes and coins.

The workload during the first days of dual circulation proves the importance of preliminary preparation, logistics, and synchronization between institutions. In the first month, 60% of leva banknotes and coins were withdrawn from circulation. As of March 2026, this percentage reached 91%, which equates to 2.9 billion leva in circulation. The migration of payment systems and processes is a particularly important moment, involving a huge volume of activities and requiring a certain duration and resource availability. The good coordination and preparation between the Bulgarian National Bank, BORICA AD and commercial banks, in the context of payment systems, ensured a smooth and unhindered transition to the new currency. National Infrastructure recorded over 930,000 card and ATM transactions processed in the first 48 hours. The transactions totaled around 42 million euros (BORICA AD, 2026). The Bulgarian banking sector invested over 200 million euros in preparations for the new currency. This includes investments in systems, logistics, and training to ensure the smoothest possible transition. Over 100 bank branches in the country worked overtime in the first month of 2026 (even on Saturdays) to ensure smooth customer service. During the first two working days, nearly 240,000 clients were served in the branches of commercial banks. (Association of Banks in Bulgaria, 2026). At the same time, the analysis of capital adequacy and liquidity of the Bulgarian banking sector showed that it is facing the transition extremely stable, liquid and well-capitalized. The capital ratios and liquidity coverage ratio are significantly above regulatory requirements and also much higher than the eurozone average. In the context of European integration, these results show that, thanks to timely regulatory adaptation and the responsibility of the banking sector, Bulgaria joins the eurozone in a state of overcapitalization and high liquidity.

[9] See Press release of the Bulgarian National Bank - https://bit.ly/4v9WGEs

4. CONCLUSION

The process of joining the eurozone is a complex reform that includes several aspects: legislative changes, technical readiness, institutional coordination, and constant communication with society. To summarize all of the above, the banking sector in Bulgaria enters the eurozone prepared and resilient. This is the result of a long process of preparation, coordination and communication between all parties involved in the process. The successful transition is due both to the operational readiness of Bulgarian banks, as well as to trust, awareness and open dialogue with society. This high level of preparation not only ensured the smooth transition to the new currency, but also laid the foundations for Bulgaria's full integration into the European space.

LITERATURE:

1. Association of Banks in Bulgaria. (2026). The banking sector ensured a successful and smooth transition to the euro. Retrieved from https://bit.ly/3RBWMGr
2. BORICA AD. (March 2026 r.). Bulgaria's Euro Day One - How BORICA Orchestrated a National Payments Cutover at Scale. Retrieved from BORICA AD: https://www.borica.bg/attachments/BobsNews/490/docs/Bulgaria-s-Euro-Day-One-23-03.pdf
3. Chirtoc, I.-E., & Medar, L.-I. (2017). Progress On The Development Of The Eurosystem Payment Systems And The European System Of Central Banks. Annals - Economy Series, 2, p. 63-68. Retrieved from https://bit.ly/3Q7jplG
4. Consolidated Version of the Treaty on the Functioning of the European Union, 326 (2012). Retrieved from https://bit.ly/3RzdG8F
5. Kaneva, A. (2025). Legal Framework for the Adoption of the Euro in Bulgarian Legislation. The Legal Principles and Their Role and Significance for the Development of the Law: Collection of Reports from International Scientific Conference Organized by the Faculty of Law of UNWE and Alumni Club of the Faculty of Law Graduates of UNWE, held on October 24, 2024 at the UNWE - Sofia, 2, pp. 274-291. Retrieved from https://www.ceeol.com/search/chapter-detail?id=1381263
6. Law on the Bulgarian National Bank, State Gazette, No. 13 (2024). Retrieved from https://bit.ly/4uEhdBi
7. Law on the introduction of the euro in the Republic of Bulgaria, State Gazette, No. 70 (2024). Retrieved from https://bit.ly/4edz3nR
8. Trifonova, S. (2015). Payment flows in the ECB's system TARGET2 - important indicator for the balance of payments' umbalances of the euro are member states. Economic challenges: growth, imbalances, sustainable development (pp. 196-205). Sofia: Publishing Complex - UNWE, Sofia, 2016 г. Retrieved from https://bit.ly/49Lxtbp
9. Vatev, Z. (2017). Banking analysis. Svishtov: Tsenov Academic Publishing House.
10. Zahariev, A. (2022). Financial Analysis. Svishtov: AI "Tsenov". Retrieved from https://www.researchgate.net/publication/365793801

FROM CONSUMER CONVERSATIONS TO STRATEGIC MANAGEMENT: AN INTEGRATIVE PERSPECTIVE ON E-WOM

Nikolina Plesa Puljic
Virovitica University of Applied Sciences, Matije Gupca 78
33000 Virovitica, Croatia
nikolina.plesa.puljic@vuv.hr

Marija Ham
Faculty of Economics in Osijek, Trg Ljudevita Gaja 7
31000 Osijek, Croatia
marija.ham@efos.hr

Vladimir Ham
Croatian National Theatre in Osijek, Županijska ulica 9
31000 Osijek, Croatia
vladimir.ham@gmail.com

ABSTRACT

Electronic word-of-mouth (eWOM) has become one of the most influential forms of digital communication, significantly shaping consumer attitudes, brand perceptions, purchase decisions, and online reputation management. Despite extensive research on individual dimensions of eWOM, existing literature remains fragmented and predominantly focused on isolated phenomena such as online reviews, influencer effects, message credibility, or purchase intention. Comprehensive frameworks that systematically integrate the strategic, technological, analytical, and ethical dimensions of eWOM management remain underdeveloped. This paper addresses this gap by providing an integrative literature review of eWOM management within contemporary digital marketing environments. The study synthesizes theoretical and empirical insights from the fields of digital marketing, social media communication, consumer engagement, online reputation management, and AI-supported analytics. The review is conceptually structured around four interconnected phases of eWOM management: researching the communication environment, strategic planning, implementation of communication activities, and evaluation and control. Particular attention is devoted to message design, platform-specific communication strategies, influencer engagement, management of negative eWOM through web care practices, and the growing role of artificial intelligence in sentiment analysis, predictive analytics, and real-time communication monitoring. The paper further emphasizes the ethical challenges associated with eWOM management, including transparency of influencer collaborations, user privacy protection, algorithmic bias, communication authenticity, and responsible use of AI-driven technologies. The findings suggest that effective eWOM management increasingly depends on the integration of strategic communication planning, continuous digital monitoring, platform-adapted engagement practices, and ethical governance mechanisms. By conceptualizing eWOM management as an integrated and adaptive managerial process rather than a set of isolated communication activities, the paper contributes to a more systematic understanding of digital consumer communication and offers practical implications for organizations seeking to manage online engagement, reputation, and consumer trust in increasingly complex digital ecosystems.

Keywords: *Electronic word-of-mouth (eWOM), eWOM management, Digital marketing communication, Social media marketing, Consumer engagement.*

1. INTRODUCTION

In contemporary digital environments, electronic word-of-mouth (eWOM) has become one of the most influential forms of consumer communication, significantly shaping brand perceptions, purchase decisions, and online reputations. In general, word-of-mouth marketing communication, can be understood as a strategic activity aimed at influencing the exchange of information among consumers in order to achieve predefined marketing objectives. Silverman (2001 according to Hubijar, 2016) points out that WOM can be generated and controlled to at least the same extent as other forms of marketing communication, such as advertising or public relations. With the development of digital technologies, traditional WOM has evolved into electronic word-of-mouth communication (eWOM), which enables the rapid dissemination of messages to a large number of users, their long-term availability and wider reach compared to traditional WOM (Konečnik Ruzzier and Petek, 2022; Ismagilova et al., 2017; Hennig-Thurau et al., 2004). Today, eWOM is considered the most important source of information in the purchase decision process, which makes it a strategically relevant area of marketing management. Recent studies show that eWOM significantly influences consumer attitudes and purchase intentions in social media contexts, serving as a mediating factor between brand engagement and behavioral outcomes (Pahlawan et al., 2025; Sharma et al., 2024). At the same time, the theoretical basis for managing eWOM remains relatively modest, and scientific approaches often address isolated segments of the phenomenon. Before the advent of social media, eWOM took place mainly between anonymous users, which made it difficult to evaluate the reliability of information (Schindler and Bickart, 2005 according to Erkan, 2016; Park et al., 2007). With the advent of social networks, communication began to take place through personal profiles, which significantly increased credibility and enabled the transfer of the sense of familiarity of traditional WOM to the digital sphere (Erkan, 2016). The integration of social media with mobile and AI tools further enhances the impact of eWOM on consumer behavior (Baltezarević et al., 2024). Although numerous studies examine individual aspects of eWOM, such as the impact on purchase intention (Park et al., 2007; Sharma et al., 2024), brand perception (Schivinski & Dąbrowski, 2016; Barreda et al., 2015), or message characteristics (Hennig-Thurau et al., 2004; Erkan, 2016), there is still a lack of integrative theoretical models that systematically connect these insights and systematize the entire management process – from research and strategy formulation to implementation and control.This paper develops an integrative overview of eWOM management by synthesizing contemporary theoretical and empirical insights across the phases of research, planning, implementation, evaluation, and control. Particular attention is devoted to the role of social media platforms, AI-supported analytical tools, and ethical governance in shaping effective and sustainable eWOM strategies. By bridging fragmented streams of literature, the paper contributes to a more systematic understanding of eWOM management in contemporary digital marketing environments.

2. METHODOLOGICAL APPROACH

This paper adopts an integrative literature review approach that investigates word-of-mouth marketing communication in a digital environment. The literature for this review was selected through a systematic search of major academic databases, including Scopus, Web of Science, and Google Scholar, using keywords such as ‘electronic word-of-mouth’, ‘eWOM marketing’, ‘digital marketing’, and ‘consumer engagement’. The AI-assisted literature discovery tool Elicit was used to support the identification and organization of relevant academic sources. The identified studies were evaluated according to their theoretical relevance, conceptual contribution, and practical implications for eWOM management.

The review focused primarily on peer-reviewed journal articles addressing eWOM communication, digital marketing, social media engagement, online consumer behavior, and eWOM management strategies published in the period from the early 2000s to 2025, thus ensuring both historical context and contemporary relevance. The reviewed literature was thematically organized according to the main phases of eWOM management, enabling the development of an integrated conceptual framework. In this paper, eWOM marketing is observed through a conceptual framework that includes four interrelated phases: researching the state of communication, planning activities, implementation, and evaluation and control.
Within each phase, key elements are identified, including consumer conversation analysis, target group definition, message design, strategy and media selection, negative content management, and impact measurement. To enhance the contemporary relevance of the analysis, the paper incorporates recent insights from digital marketing and social media research (Evelyn et al., 2025; Li et al., 2022; Kumar et al., 2021), thereby linking classical theoretical models of eWOM marketing with emerging trends and technological developments. As the paper adopts an integrative rather than fully systematic review approach, the findings should be interpreted as a conceptual synthesis rather than a bibliometric analysis.

3. EWOM MARKETING

Understanding eWOM requires a clear distinction between the digital communication environments in which consumer interactions take place. These are primarily social media, social networks, social networking and platforms for social networking (Pleša Puljić, 2025). Social media represent online platforms and tools that allow people to share content, personal profiles, attitudes, experiences and media materials, facilitating interactions among groups of users (Carr and Hayes, 2015; Boyd and Ellison, 2007). Among the most popular today are YouTube, Viber, WhatsApp, Reddit, Telegram and Discord (Wright, 2022). Social networks are a specific type of social media designed to connect users with similar interests or activities, for example Facebook, Instagram, LinkedIn and TikTok. Research shows that consumers are increasingly using social networks to gather information about brands, products and services (Schivinski and Dabrowski, 2016; Barreda et al., 2015; Naylor et al., 2012; Baird and Parasnis, 2011).Social networking platforms allow creating a public or semi-public profile within a closed system, managing a list of connections, viewing and monitoring one's own and others' connections, and sharing information (Ellison et al., 2007). Examples include Facebook, Yelp, X, Instagram, and TikTok. These platforms serve as technological tools for creating and maintaining social relationships. Furthermore, research shows that differences in social media platforms influence how customers share positive or negative eWOM, with platform characteristics shaping the direction and value of messages (Service Experience and Customers' eWOM Behavior, 2024). Given the growing complexity of digital communication environments, eWOM can no longer be understood solely as spontaneous consumer interaction but increasingly as a strategically managed communication process. eWOM can be viewed through a systematic management framework that includes four key phases: research, planning, implementation, evaluation and control. This approach enables professional management of communication among consumers, with strategic campaign design and monitoring of effectiveness (Kozinets et al., 2010).

3.1. Researching the state of eWOM

The process of managing eWOM begins with a systematic study of online communication among consumers. The goal of this phase is to understand the content of messages, communication participants, channels used, and motivations for engaging in discussions.

The research phase provides the analytical foundation for strategic eWOM management by enabling organizations to identify communication patterns, consumer sentiments, influential actors, and reputational risks across digital environments. According to Hubijar (2016), it is crucial to answer the questions of who generates eWOM, who the messages are intended for, through which channels they are disseminated, and what factors encourage consumers to participate. Contemporary eWOM research increasingly relies on social listening practices that enable organizations to monitor real-time consumer conversations across digital platforms (Liu, 2024). Research shows that eWOM predominantly takes place outside of a company's official websites, especially on social networks, blogs, forums, and online review sites. Monitoring these platforms allows companies to gain insight into customer and employee experiences and identify recurring complaints (Pleša Puljić, 2025). Additionally, modern sentiment analysis tools and AI-driven analytics enable quantitative and qualitative understanding of user experience, which significantly contributes to effective eWOM management (Kumar et al., 2021; Baltezarević et al., 2024). The research phase also includes an analysis of digital platforms and online communities to identify key elements that influence communication, including character narratives, communication forums, normative communities, and promotional characteristics (Kozinets et al., 2010). In addition, an analysis of market context, product characteristics, and market conditions helps determine the potential and effectiveness of eWOM (Mason et al., 2008). Consequently, the research phase serves as a critical input for strategic planning, enabling organizations to develop targeted, data-driven, and context-sensitive eWOM strategies.

3.2. Activity planning: from problem to strategy

Planning is a central stage in eWOM management because it bridges the gap between the current state and the desired outcomes.The planning phase translates analytical insights into strategic eWOM actions by aligning communication objectives, target audiences, digital channels, and engagement strategies. The process begins with defining the problem, which may relate to negative sentiment, recurring complaints, or a weaker reputational position compared to competitors. Precisely defining the problem allows for prioritization and direction of further activities, while SMART goals (increasing brand awareness, encouraging positive reviews, increasing engagement, or managing negative eWOM) facilitate subsequent evaluation of success. The next step is to identify the target audience, which represents the source of eWOM triggered by the company's actions, either directly or indirectly. It is important to understand the demographic and psychographic characteristics, behavior, values, and motivations of consumers, with a special emphasis on individuals with high reach and trust in their networks, such as influencers or active members of online communities. Generational affiliation and desirable characteristics of the target audience (propensity to share experiences, high levels of satisfaction, and loyalty) further shape the communication strategy (Pleša Puljić, 2025).

Planning also includes budgeting, which is seen as an investment in the long-term success of the company. Funds can be directed towards incentives, content development, collaboration with influencers, or communication monitoring tools. The integration of digital platforms and tools for automated KPI and ROI tracking optimizes campaign planning and evaluation (Li et al., 2022; Kumar et al., 2021). Planning also includes the selection of strategies and campaign design, including experiential sharing, information provision, highlighting benefits, and integration with broader marketing activities (Horbal & Nitsenko 2022; Karlíček et al., 2010). Compliance with ethical and legal guidelines is also an indispensable part, which allows maintaining community trust and authenticity of communication (Kozinets et al., 2010).

Ethical considerations should be integrated into the planning phase from the outset, particularly regarding influencer transparency, user privacy, authenticity of communication, and the responsible use of AI-driven targeting tools. Once communication objectives, audiences, and strategic priorities have been defined, organizations can proceed to the operational design of eWOM activities, including message development, channel selection, and engagement strategies.

3.2.1. Message shaping, media selection and eWOM promotion strategy

In digital communication environments, the effectiveness of eWOM depends not only on message content but also on its ability to stimulate engagement, interaction, and further dissemination across platform-based networks. Consequently, message design and media selection have become strategically interconnected elements of eWOM management, strongly influenced by platform algorithms, audience participation, and communication authenticity (Kozinets et al., 2010; Lou & Yuan, 2019). An eWOM message is a basic piece of marketing-relevant information that becomes eWOM only when consumers start sharing it. An effective message must be clear, concise, emotionally engaging, and tailored to the interests of the target audience, with narrative elements, positive emotions, and authentic experiences that increase the likelihood of sharing being particularly important. Perceived authenticity plays a particularly important role in eWOM effectiveness, as consumers tend to respond more positively to communication that appears spontaneous, credible, and experience-based rather than overtly promotional. The choice of media depends on the target group, message, and campaign goals and may include social media, blogs, video platforms, forums, or collaboration with influencers. Using platforms such as Facebook, Instagram, LinkedIn, and TikTok allows for the creation of intimacy and trust among users, which increases eWOM engagement. The combination of multiple channels and interactive digital tools further encourages message virality and strengthens brand engagement in the long term (Baltezarević et al., 2024). Contemporary digital platforms significantly shape the visibility and diffusion of eWOM through algorithmic recommendation systems, engagement-based ranking mechanisms, and personalized content distribution. As a result, organizations must adapt message formats and communication strategies to the specific dynamics of individual platforms. Strategies for driving eWOM include consumer engagement, delivering shareable content, forming communities, collaborating with influencers, developing brand advocates, transparent conversation, and co-creating content. Continuous feedback and consumer engagement in two-way communication are particularly important. Influencers increasingly function as intermediaries of trust within digital communities, facilitating the transfer of credibility and emotional connection between brands and consumers. Implementation includes activating campaigns, selecting and activating influencers, managing messages across networks, and adapting to platforms and their norms, with a flexible approach to implementation to effectively embed messages into community communications (Robledo et al., 2023; Kozinets et al., 2010). Effective eWOM strategies therefore require platform-sensitive communication approaches that consider audience expectations, interaction styles, content formats, and community norms characteristic of each digital environment. Authentic and emotionally engaging content, particularly when communicated through credible influencers and community-oriented interactions, increases consumer trust and the likelihood of message sharing (Lou & Yuan, 2019). However, excessive commercialization and overly promotional influencer collaborations may reduce perceived authenticity and weaken the effectiveness of eWOM communication.

3.2.2. Managing negative eWOM and the web care

In contemporary digital environments, negative eWOM represents not only a communication challenge but also a significant reputational risk due to the speed, visibility, and persistence of online interactions. Negative consumer experiences shared through social media platforms, review sites, and online communities can rapidly influence public perceptions, weaken consumer trust, and affect long-term brand relationships. Consequently, managing negative eWOM has become an essential component of strategic digital communication and online reputation management (Verma & Yadav, 2021). Based on the above, timely intervention is crucial. Web stewardship involves companies actively engaging in online interactions with the aim of resolving complaints and providing relevant information. Research shows that web stewardship positively impacts the credibility of reviews, the usefulness of reviews, and future consumer behavior. Three basic response strategies have been identified: inaction, proactive action (adaptive or defensive), and reactive response, with personalized, detailed, and timely responses being the most effective, especially in the case of negative eWOM (Pleša Puljić, 2025). Companies can combine manual and automated approaches, including social networking platforms, depending on the volume of communication. Recent insights suggest using AI tools to automatically recognize negative comments and respond in real time, thereby accelerating the response and minimizing reputational risk (Pleša Puljić, 2025; Kumar et al., 2021). However, overly automated, impersonal, or defensive responses may reduce perceived authenticity and negatively affect consumer trust. Organizations must therefore balance technological efficiency with human-centered communication in order to maintain transparency, empathy, and credibility in digital interactions. This highlights the growing importance of ethical and authentic web care practices in contemporary eWOM management (Appel et al., 2020). Recent developments in AI-supported analytics enable organizations to detect sentiment changes, identify emerging reputational threats, and prioritize critical consumer interactions in real time. Automated monitoring systems based on natural language processing and machine learning facilitate faster recognition of negative communication patterns and improve the efficiency of web care strategies across multiple digital platforms (Dwivedi et al., 2023). Overall, successful management of negative eWOM requires continuous monitoring, timely and transparent communication, personalized consumer interaction, and strategically coordinated web care activities that transform online complaints into opportunities for trust building and long-term relationship strengthening.

3.3. Implementation, evaluation and control

The implementation of activities can be viewed through the 3M model (man, money, minutes), which emphasizes the importance of adequate human resources, financial resources and time planning for the effective implementation of campaigns. Key performance indicators include reach and engagement, sentiment analysis, click-through rate, long-term customer value, message virality and return on investment, with the digital environment enabling more detailed monitoring of effects compared to traditional WOM, but requiring the systematic application of analytical tools. Performance measurement can be further structured through the Blackshaw framework, which includes financial, search, conversational and engagement elements (Bradley, 1998). The use of advanced digital analytical platforms and AI tools allows for the optimization of eWOM evaluation, strategy adaptation, content optimization and the development of crisis management plans (Baltezarević et al., 2024; Li et al., 2022). The evaluation includes the development of sophisticated measurement frameworks, the application of social network analysis, a combination of quantitative and qualitative methods, and a multidimensional analysis of campaign outcomes, which enables precise monitoring of reach, engagement, and impact on consumers (Srivastava & Sharma, 2017; Groeger et al., 2014; Kozinets et al., 2010).

Control is carried out through constant monitoring of campaigns, detection of negative emotions, adaptive management in accordance with changes in the community and ethical monitoring, ensuring that campaigns remain relevant, authentic and in line with community norms (Horbal & Nitsenko 2022; Kozinets et al., 2010; Meiners et al., 2010).

4. DISCUSSION

The findings of this integrative review confirm that eWOM management has evolved from a predominantly spontaneous form of consumer interaction into a strategically managed and technologically mediated communication process. Contemporary digital environments increasingly require organizations to combine communication strategy, platform-specific engagement practices, AI-supported analytics, and ethical governance in order to effectively manage consumer conversations and online brand reputation (Grewal et al., 2025). The literature review shows that managing eWOM is a complex process that requires the integration of analytical, communication and strategic activities, with a particular challenge in balancing between fostering communication and preserving authenticity. The ethical dimension plays a key role, especially in the context of transparency, protecting data privacy and avoiding manipulative practices. In this context, WOMMA (Word of Mouth Marketing Association, n.d.), which promotes ethical standards and codes of practice in the field of marketing WOM, plays an important role. In addition, research highlights the need for ethical design of AI and automated systems for monitoring eWOM, in order to avoid bias and ensure the protection of user privacy. Managing eWOM also requires systematic monitoring of digital platforms, including social networks, blogs and forums, in order to identify negative comments and potential crisis scenarios in a timely manner. A key ethical dilemma arises when interacting with influencers and brand advocates, where promotional activities must be clearly labeled and avoid manipulating user opinions, while maintaining the natural flow of communication among consumers (Kozinets et al., 2010). Implementation of AI systems for sentiment analysis and predictive modeling allows for more precise recognition of negative and positive eWOM, but at the same time requires setting clear ethical boundaries to prevent profiling or discrimination of certain groups of users. Systematic evaluation of eWOM impact includes a combination of quantitative measurement frameworks, social network analysis, and qualitative insight into message content, which allows for informed decisions on further shaping strategies, while respecting ethical standards and protecting user privacy (Groeger et al., 2014; Kozinets et al., 2010). In addition, companies must develop internal ethical guidelines and educate employees on the proper management of eWOM, in order to ensure consistency in communication and responsible use of technology for marketing purposes. Ultimately, the integration of ethical principles into all phases of eWOM management – from research, planning, implementation to evaluation and control – is essential to maintaining community trust, maintaining message authenticity and the long-term success of digital campaigns.

5. CONCLUSION

This paper highlights that eWOM has evolved into a strategically significant and technologically sophisticated form of digital communication that increasingly shapes consumer trust, brand reputation, and online engagement dynamics. The findings demonstrate that effective eWOM management can no longer be approached as a series of isolated communication activities, but rather as an integrated managerial process requiring continuous coordination between strategic planning, digital analytics, platform-specific communication, ethical governance, and relationship management.

The literature analysis shows that effective eWOM management requires the integration of multiple phases – researching the communication situation, planning activities, shaping and implementing messages, evaluating the impact, and controlling – with each step focused on preserving consumer authenticity and trust. This paper contributes to marketing communication theory by systematically presenting eWOM management across the three phases – thus filling a gap in integrative models of eWOM. By integrating fragmented streams of literature into a unified conceptual framework, the paper extends existing eWOM research beyond individual communication effects and emphasizes the interconnected nature of digital consumer interaction, strategic communication management, AI-supported analytics, and ethical responsibility in contemporary digital ecosystems. From a practical perspective, the paper provides guidelines for companies to effectively and ethically drive digital word-of-mouth advertising, including message shaping, channel selection, and negative communication management. Systematic eWOM research provides companies with insight into consumer needs, motives, and behavior, and the identification of potential problems and opportunities for improving communication. Target group planning and definition, along with setting SMART goals and ethically acceptable strategies, enables effective and focused interaction with consumers. Message design and media selection must be tailored to the interests of the target audience, while active sharing and two-way communication increase engagement and broaden the reach of campaigns. Managing negative eWOM and web care are key to preserving a company's reputation, with a combination of manual and automated approaches, including AI tools, enabling timely response and minimizing risk. Evaluation and control ensure continuous monitoring of campaign performance, content optimization and development of crisis strategies, while ethical guidelines ensure respect for user privacy and transparency of communication. The increasing integration of artificial intelligence, predictive analytics, and automated engagement systems will further transform the management of eWOM by enabling more precise personalization, real-time monitoring, and adaptive communication strategies. At the same time, these developments will intensify challenges related to transparency, authenticity, algorithmic bias, and consumer privacy, making ethical governance an increasingly important component of digital marketing management (Huang & Rust, 2021). Ultimately, the future effectiveness of eWOM management will depend on organizations' ability to strategically integrate technological innovation, consumer engagement, ethical communication practices, and relationship-oriented digital interactions. Companies capable of balancing data-driven communication efficiency with authenticity, transparency, and consumer trust will be better positioned to achieve sustainable competitive advantage in increasingly complex digital communication environments. Future research could further develop and empirically validate the proposed integrative framework across different industries, digital platforms, and cultural contexts. Additional attention should also be devoted to the long-term implications of AI-driven communication, algorithmic content distribution, and evolving consumer expectations regarding authenticity and privacy in digital interactions.

LITERATURE

1. Appel, G., Grewal, L., Hadi, R., & Stephen, A. T. (2020). The future of social media in marketing. *Journal of the Academy of Marketing Science, 48*, 79–95. https://doi.org/10.1007/s11747-019-00695-1
2. Baird, C. H. and Parasnis, G. (2011). From social media to social customer relationship management. *Strategy & Leadership*, 39(5), 30–37.
3. Baltezarević, R. and Kwiatek, P. (2024). The potential of artificial intelligence (AI) to improve electronic word-of-mouth's (eWOM) efficacy. *Baština,* 93–106.
4. Barreda, A. A., Bilgihan, A., Nusair, K. and Okumus, F. (2015). Generating brand awareness in online social networks. *Computers in Human Behavior*, 50, 600–609.

5. Boyd, D. M. and Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210–230.
6. Bradley J. (1998). Applied information quality: a framework for thinking about the quality of specific information. *Journal Urban Health,* 75(4), 864 -77. doi: 10.1007/BF02344514. PMID: 9854246; PMCID: PMC3456016.
7. Carr, C. T. and Hayes, R. A. (2015). Social media: Defining, developing, and divining. *Atlantic Journal of Communication*, 23(1), 46–65.
8. Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., Ribeiro-Navarrete, S., Giannakis, M., Al-Debei, M. M., et al. (2023). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management, 57*, 101994. https://doi.org/10.1016/j.ijinfomgt.2019.08.002
9. Ellison, N. B., Steinfield, C. and Lampe, C. (2007). The benefits of Facebook "friends": Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, 12(4), 1143–1168.
10. Erkan, I. (2016). *The influence of electronic word of mouth in social media on consumers' purchase intentions* (Doctoral dissertation). London: Brunel University.
11. Evelyn, P., Arief, M. and Baskara, I. (2025). The role of electronic word of mouth in mediating the influence of social media on brand image and brand trust. International *Journal of Economics* (IJEC), 4(1), 430–449.
12. Grewal, D., Satornino, C. B., Davenport, T., & Guha, A. (2025). *How generative AI is shaping the future of marketing*. Journal of the Academy of Marketing Science, 53(3), 702–722. https://doi.org/10.1007/s11747-024-01064-3
13. Groeger, L. and Buttle, F. (2014). Word-of-mouth marketing: Towards an improved understanding of multi-generational campaign reach. *European Journal of Marketing*. 48. 1186-1208. 10.1108/EJM-02-2012-0086.
14. Hennig-Thurau, T., Gwinner, K. P., Walsh, G. and Gremler, D. D. (2004). Electronic word-of-mouth via consumer-opinion platforms: What motivates consumers to articulate themselves on the internet? *Journal of Interactive Marketing*, 18(1), 38–52.
15. Horbal, N. and Nitsenko, D. (2022). Word-of-mouth marketing: Features and prospects of application. *Management and Entrepreneurship in Ukraine: The Stages of Formation and Problems of Development.*
16. Huang, M.-H., and Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science, 49*(1), 30–50. https://doi.org/10.1007/s11747-020-00749-9
17. Hubijar, A. (2016). Što je to marketing "od usta do usta"? Retrieved 22.02.2022.from https://intelektualno.com/sta-je-to-marketing-od-usta-do-usta/
18. Ismagilova, E., Dwivedi, Y. K., Slade, E. and Williams, M. D. (2017). *Electronic word of mouth (eWOM) in the marketing context: A state of the art analysis and future directions.* Cham: Springer International Publishing.
19. Karlíček, M., Tomek, I. and Křížek, M. (2010). Word-of-mouth marketing: An integrated model. *Ekonomika a Management.* 2010.
20. Konečnik Ruzzier, M. and Petek, N. (2022). Investigating the impact of television advertising and eWOM on brand equity creation. *Tržište,* 34(2), 127–143. Retrieved 12.07.2024 from https://repozitorij.uni-lj.si/IzpisGradiva.php?id=146707
21. Kozinets, R., de Valck, K., Wojnicki, A. C. and Wilner, S. J. S. (2010). Networked narratives: Understanding word-of-mouth marketing in online communities. *Journal of Marketing*. 74. 71-89. 10.1509/jmkg.74.2.71.

22. Kumar, V., Dixit, A., Javalgi, R. G. and Dass, M. (2021). Digital transformation and AI adoption in marketing and sales: Opportunities and challenges. *Industrial Marketing Management*, 95, 48–60.
23. Li, H., Fang, Y., Lim, K. H. and Wang, Y. (2022). Platform-based function repertoires, reputation, and sales performance of e-marketplace sellers. *Journal of Management Information Systems*, 39(2), 411–440.
24. Liu, H. (2024). Electronic word of mouth 2.0 (eWOM 2.0) – The evolution of eWOM research and practice. *Journal of Business Research*, 175, 114512. https://doi.org/10.1016/j.jbusres.2024.114512
25. Lou, C., & Yuan, S. (2019). Influencer marketing: How message value and credibility affect consumer trust of branded content on social media. *Journal of Interactive Advertising*, 19(1), 58–73. https://doi.org/10.1080/15252019.2018.1533501
26. Mason, R. B. (2008). Word of mouth as a promotional tool for turbulent markets. *Journal of Marketing Communications,* 14(3), 207–224. https://doi.org/10.1080/13527260701754258
27. Meiners, N., Schwarting, U. and Seeberger, B. (2010). The renaissance of word-of-mouth marketing: A 'new' standard in twenty-first century marketing management?! *International Journal of Economic Sciences and Applied Research*. 3.
28. Naylor, R. W., Lamberton, C. P. and West, P. M. (2012). Beyond the 'Like' button: The impact of mere virtual presence on brand evaluations and purchase intentions in social media settings. *Journal of Marketing*, 76(6), 105–120.
29. Pahlawan, M. R. R., Cahyono, S. E. and Yoestini, (2025). The role of social media marketing and e-WOM in influencing purchase intention. *Economic and Business Horizon*, 4(2), 353–364.
30. Park, D. H., Lee, J. and Han, I. (2007). The effect of online consumer reviews on consumer purchasing intention: The moderating role of involvement. *International Journal of Electronic Commerce*, 11(4), 125–148.
31. Robledo, S., Duque, P. and Grisales Aguirre, A. M. (2023). Word of mouth marketing: A scientometric analysis. *Journal of Scientometric Research*.
32. Schivinski, B. and Dąbrowski, D. (2016). The effect of social media communication on consumer perceptions of brands. *Journal of Marketing Communications*, 22(2), 189–214.
33. Service Experience and Customers' eWOM Behavior on Social Media Platforms: The Role of Platform Symmetry. (2024). *International Journal of Hospitality Management*, 119, 103735
34. Sharma, J., Agarwal, B. and Malati, N. (2024). Examining the factors influencing eWOM through social networking sites and the effect of eWOM on consumers' purchase intention. *Indian Journal of Marketing*, 54(6), 65–82.
35. Srivastava, D. and Sharma, R. (2017). Developing a model for studying the antecedents and effects of word of mouth (WoM) and e-WoM marketing based on literature review. *Jindal Journal of Business Research.* 6. 25-43. 10.1177/2278682117700307.
36. Verma, S., & Yadav, N. (2021). Past, present, and future of electronic word of mouth (eWOM). *Journal of Interactive Marketing, 53*, 111–128. https://doi.org/10.1016/j.intmar.2020.07.001
37. Word of Mouth Marketing Association. (n.d.). *WOMMA – Word of Mouth Marketing Association.* Retrieved 19.02.2026 from https://expertfile.com/organizations/WOMMA-Word-of-Mouth-Marketing-Association
38. Wright, G. (2022). Definition of social networking. Retrieved 18.06.2023 from https://www.techtarget.com/whatis/definition/social-networking

ORGANIZATIONAL CHALLENGES AND STRATEGIC APPROACHES IN SUSTAINABLE MANAGEMENT OF SOLID AND ENERGY MINERAL RESOURCES AT THE REGIONAL LEVEL – A CASE STUDY OF VARAŽDIN COUNTY

Melita Srpak
Varazdin County - Department of Physical Planning, Croatia
melita.srpak@gmail.com

Nikola Gizdavec
Croatian Geological Institute
ngizdavec@hgi-cgs.hr

Darko Pavlovic
Polytechnic of Međimurje in Čakovec, Croatia
darko.pavlovic@plinacro.hr

Igor Klopotan
Polytechnic of Međimurje in Čakovec, Croatia
igor.klopotan@mev.hr

ABSTRACT

Mining activity in Varaždin County is carried out within a complex regulatory framework that extends beyond mining legislation alone, encompassing laws and regulations in the fields of environmental protection, nature conservation, and the sustainable management of mineral resources. The purpose of this research is to analyse existing frameworks and challenges in mining activities at the regional level and to identify the factors influencing the exploitation of mineral resources. One of the key challenges is the lengthy, administratively complex, and often uncertain process of obtaining concessions for the exploitation of mineral resources, which significantly affects the dynamics and feasibility of mining projects. Given that the reserves and availability of mineral resources in the county are limited, prolonged procedures may further lead to shortages of certain raw materials and increase dependence on imports, particularly in the construction and processing sectors. Mineral resources play a fundamental role in industry and the economy; however, their perceived importance is often differentiated in public discourse and development policies. The aim of this scientific research is to systematically examine existing regulatory and governance frameworks of mining activities in Varaždin County, analyse the impact of administrative and procedural barriers on the exploitation of mineral resources, and develop scientifically grounded recommendations for integrating sustainable practices into regional policies and strategic documents. The obtained results indicate that sustainable management of mineral resources represents a key framework for the development of regional capacities, the minimization of risks related to land degradation, and the establishment of a balance between economic interests and the preservation of natural systems. In conclusion, the future development of mining activities in Varaždin County will depend on the integration of scientifically grounded sustainable practices, the optimization of administrative procedures, and increased awareness of the strategic importance of all categories of mineral resources.

Keywords: *concessions, mineral resources, sustainable management, mining activity, Varaždin County*

1. INTRODUCTION

Mining activity in Croatia, including Varaždin County, is regulated by the overarching Mining Act (Official Gazette No. 56/13, 14/14, 115/18, 98/19, 83/23), which defines and governs the exploration and exploitation of mineral raw materials. Exploration is understood as a set of works and investigations aimed at determining the existence, position, and form of deposits, as well as their quality, quantity, and exploitation conditions. When analyzing strategic documents, their themes, issues, content, and level of detail, the concept of sustainable development (sustainable management) is frequently evident and is continuously being integrated into legislative frameworks. Sustainability is inherently complex and must include fundamental natural, social, and technological components (Srpak & Pavlović, 2023). Sustainable management, as a multidimensional concept, encompasses natural, social, and technological aspects and seeks to establish a balance between economic needs and environmental protection. According to research by Tang & Qin (2024), sustainable mining in BRICS countries is significantly determined by the effectiveness of environmental regulations and incentive policies, confirming that the promotion of sustainable mining—characterized by minimal environmental impact—is essential for mitigating negative environmental effects caused by traditional mining practices. The development of mining activity in the Republic of Croatia represents a respectable economic sector and a significant share in the overall gross domestic product (Krasić & Mikulić, 2013). The promotion of sustainable mining, characterized by minimal environmental impact, is crucial for addressing environmental damage caused by traditional mining practices. In the era of digitalization, automation, and artificial intelligence, technology is no longer merely a support tool but a driver of productivity, safety, and quality. Concepts such as smart machinery, sustainable equipment, process optimization, and digital solutions are no longer future trends but present realities enabling increased efficiency and sector competitiveness. Mineral resources serve as a fundamental component of industrial production and have a significant impact on global economic development, strategic security, and international trade patterns (Ma et al., 2023; Tian et al., 2024). In November 2007, Varaždin County adopted the "Study of Potential and Basis for the Management of Mineral Raw Materials in Varaždin County" (Miko et al., 2007), and with the adoption of the Mining Act and the Ordinance on Mining and Geological Studies (Official Gazette No. 142/2013), the content of such studies was standardized. Based on this framework, the Mining and Geological Study of Varaždin County was adopted (Dedić et al., 2016), while the Spatial Plan of Varaždin County ("Official Gazette of Varaždin County" No. 8/00, 29/06, 16/09, 96/21, 20/24, 34/24 – consolidated text, and 29/25) and the Report on the State in Space of Varaždin County ("Official Gazette of Varaždin County" No. 104/24) identified the need to revise the study in order to assess the current state of mineral resources, the status of mining activities, and current and future needs for specific types of mineral resources. The territory of Varaždin County is rich in mineral resources (construction sand and gravel, technical-building stone, and brick clay), which has led to significant investor interest in opening new exploration areas and expanding existing exploitation fields. However, the Mining and Geological Study of Varaždin County indicates that existing reserves of construction sand and gravel and technical-building stone are sufficient until 2045, while brick clay reserves are sufficient until 2053 to ensure the necessary construction materials for planned infrastructure projects as well as for the processing industry (Srpak et al., 2025). The balance between spatial resources, the environment, and the social community in the present context—and for future generations—indicates the need for continuous control (monitoring) of spatial use through development strategies and spatial plans. This requires consideration of land use, resource exploitation, technological development, uncontrolled urbanization, and climate change. However, since space is continuously transformed by human activity, it is important to incorporate a fourth planning dimension into spatial plans—time—which characterizes these plans as permanently changeable.

Therefore, the most important feature of spatial planning is permanence, i.e., continuous planning. According to spatial planning regulations (Spatial Planning Act, Official Gazette No. 153/13, 65/17, 114/18, 39/19, 98/19, 67/23), the exploration and exploitation of mineral resources are of national importance and are planned through the National Spatial Development Plan of the Republic of Croatia, or, until its adoption, through county spatial plans. The Spatial Plan of Varaždin County therefore represents a key framework for managing the exploitation of mineral resources, while local spatial plans must align their solutions with the provisions of the County Spatial Plan in order to ensure lawful and sustainable exploitation. The specificity of management in mining is based on the integration of knowledge, skills, and disciplines essential for successful planning and organization under the conditions of the green transition, thereby ensuring the competitiveness and sustainability of the mining sector (Tošović, 2017). Accordingly, this paper aims to scientifically analyze the regulatory and spatial framework of mining activity in Varaždin County, assess the current state and challenges in the sustainable management of mineral resources, and provide recommendations for improving administrative procedures and integrating sustainable and technologically advanced practices into regional mineral resource exploitation policy.

2. MATERIALS AND METHODS

Varaždin County is in the extreme northwestern part of the Republic of Croatia. According to the 2021 census, Varaždin County, with an area of 1,261.29 km² (adjusted according to data from the Croatian Bureau of Statistics, “Census of Population, Households and Dwellings, Statistical Regions Level 2 and Counties,” CBS, 2021), is one of the smaller counties in Croatia. However, it is characterized by a population density of 139.42 inhabitants/km² (161,820 inhabitants recorded), which is above the national average (71.5 inhabitants/km²). Together with Međimurje County (155.99 inhabitants/km²) and Krapina-Zagorje County (98.41 inhabitants/km²), it is among the most densely populated counties in the Republic of Croatia. Harjač et al. (2018) emphasize that the transport system is well developed as a result of high population density and the number of settlements, as well as the significant transport-geographical importance of the area. Settlement patterns in Varaždin County are closely linked to the development of road infrastructure; therefore, in addition to dispersed settlements, the county is characterized by linear settlement forms that are well connected to urban centers (Spevec, 2009). Varaždin County comprises 6 towns and 22 municipalities (Figure 1).

Figure 1: Administrative-territorial division of Varaždin County (
(Source: Authors’ work, 2025.)

In recent years, there has been growing interest within the mining industry in issues related to risk assessment and risk management, as evidenced by a significant number of publications and reports addressing these topics. However, theoretical and applied studies indicate that risk in mining should be analyzed not only from the perspective of the human factor, but also from strategic (environmental impact) and operational aspects (Tubis et al., 2020). For the purposes of this research, and with the aim of obtaining a more concrete insight into organizational problems and challenges in the management of solid and energy mineral resources in Varaždin County, a written request (in the form of a questionnaire) was sent to all local self-government units (cities and municipalities), asking for cooperation in providing the necessary information. All stakeholders (respondents) directly and indirectly influence the exploitation of mineral resources, especially local self-government units, which have the right and obligation to participate in and decide on the future of this activity within the county. By selecting this sample (respondents), the aim was to achieve sample representativeness, which is ensured through the proper selection of units, where each unit has an equal probability of selection and the selection must be unbiased (Horvat & Mijoč, 2012). The questionnaire was structured according to key thematic areas: management and organization of exploitation, coordination with higher levels of government, logistical and administrative challenges, and assessment of needs and priorities in mineral resource management. The questions were designed using a combination of closed (quantitative) and open-ended (qualitative) formats, enabling both statistical analysis of responses and detailed descriptions of experiences and perceptions of local authorities. The collected data were used to identify key problems and challenges in the implementation of sustainable mineral resource management and to formulate recommendations for improving administrative and organizational procedures at the regional level. The analysis was conducted using descriptive statistics for quantitative data and content analysis for qualitative data, enabling a systematic, scientifically grounded insight into the state of mineral resource management in Varaždin County. The questionnaire was designed to obtain information not directly related to legal regulations, but rather to the practical implementation of mineral resource management in each local self-government unit. The questionnaire consisted of the following questions:

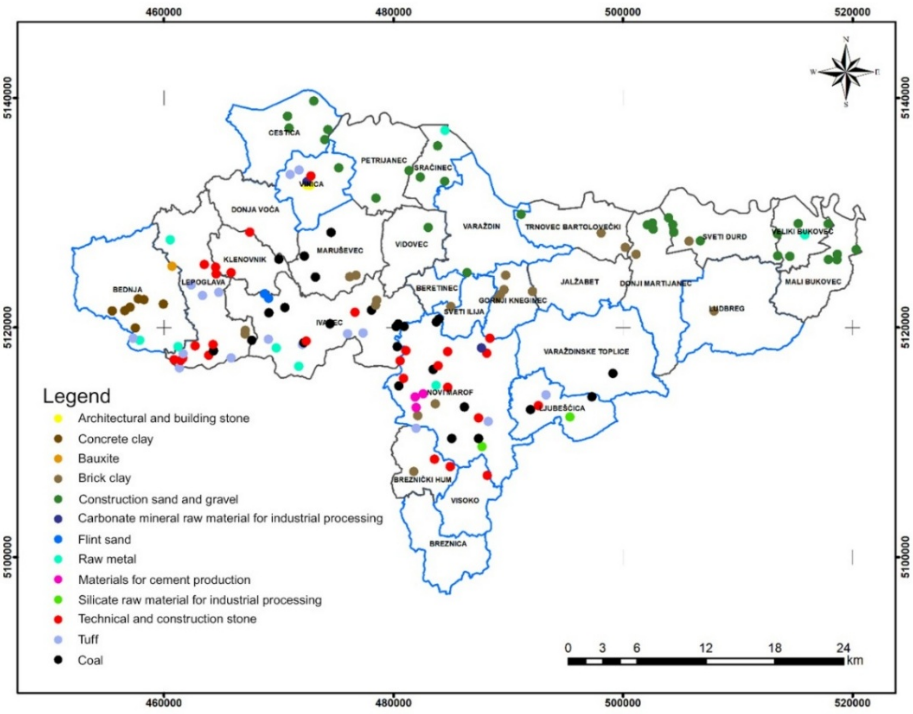
1. What is your general attitude towards the exploitation of mineral resources in your local self-government unit (LSGU) area? (*Offered answers: positive or negative; optional – short description)*
2. Are you familiar with the applicable legal and subordinate regulations in the field of mining that govern the exploration and exploitation of mineral resources (solid and energy minerals), as well as with your rights and obligations arising from them, with particular emphasis on the reclamation of areas where mining activities are or have been carried out? *(Offered answers: yes, no, partially; optional – short description)*

   Are you aware of the current plans and activities related to the exploration and exploitation of mineral resources in your local self-government unit (LSGU)? If so, what are they? Are there any companies interested in the exploration and exploitation of mineral resources, and for which type of mineral resource? *(Offered answers: yes, no, partially; type of mineral resource; optional – short description)*
3. Are there expectations and objectives of the local community regarding the exploration and exploitation of mineral resources? *(Offered answers: yes, no, partially; optional – short description of expectations and objectives)*
4. How does your local self-government unit (LSGU) participate in decision-making regarding the exploration and exploitation of mineral resources? *(Offered answers: public consultations; public hearings; decision-making at sessions of the municipal or city council; optional – short description of roles and procedures)*

5. . Are you aware of the potential economic benefits and challenges that the exploitation of mineral resources may bring to your municipality/city? *(Offered answers: yes, no, partially; optional – short description)*
6. During the planning of exploration and exploitation of mineral resources, is transparency ensured and is the local population adequately informed about all phases of exploration and exploitation of mineral resources? *(Offered answers: yes, no, partially; optional – short description)*
7. Do your residents/citizens participate in environmental impact assessment procedures that precede the issuance of a location permit, and ultimately the concession agreement with a mining company? *(Offered answers: yes, no, partially; optional – short description*
8. Do your residents/citizens express their negative attitudes (opinions, suggestions, objections, etc.) to the municipal services? *(Offered answers: yes, no, partially; optional – short description).*

3. RESULTS

Out of 28 local self-government units (cities and municipalities), 13 (Figure 2 and Table 1) responded to the questionnaire. More detailed responses were received from the City of Varaždinske Toplice and the Municipality of Ljubešćica. Since the remaining 15 local self-government units did not provide responses to the questionnaire, it can be concluded that the main organizational problems and challenges in the management of solid and energy mineral resources are not recognized, and that there are no negative attitudes towards the exploration and exploitation of mineral resources.



0

Figure 2: Map of solid mineral resources of Varaždin County. The boundaries of municipalities and cities that submitted responses to the questionnaire are outlined in blue.
(Source: HGI, EPSG: 3765., 2025)

Table1. Submitted responses to the questionnaire

Question no.	Municipality of Gornji Kneginec	City of Novi Marof	City of Varaždinske Toplice	Municipality of Ljubešćica	City of Varaždin	Municipality of Vinica
1	Positive.	Positive.	The City of Varaždinske Toplice provided detailed explanations of the questionnaire responses; therefore, the full responses are included in the text of this “Study” as an example of good practice.	Responses were provided in more detail, very similar to those of the City of Varaždinske Toplice.	Since no mineral resource exploitation is planned in the City of Varaždin, the answers are mostly not applicable.	Positive.
2	Yes	Yes				Partially.
3	Yes, brick clay...	Yes, construction stone.				No.
4	Yes.	Partially.				No.
5	Public hearings.	Through spatial planning adoption.				Public consultations, public hearings, and decision-making at municipal council sessions.
6	Yes	Yes				Partially
7	Yes.	Yes				No.
8	Yes.	Partially...				No.
9	Yes.	Yes				Partially.

Pitanje br.	Municipality of Breznica	Municipality of Bednja	Municipality of Beretinec	Municipality of Sveti Ilija	Municipality of Cestica	Municipality of Visoko
1	Currently there is no exploitation planned, but the general attitude would be positive.	Positive.	Currently there is no exploitation of mineral resources planned.	The municipality has neither a positive nor negative stance; mining is not foreseen in the spatial plan. Local population should be included in any potential project.	Positive.	There is currently no exploitation of mineral resources.
2	No.	Partially...	No.	Partially.	Yes.	
3	No.	No.	No.	No.	Yes	
4	No.	Partially.	No.	Not applicable.	Yes	No.
5	No decisions on exploration or exploitation of mineral resources have been made so far.	No decisions on exploration or exploitation of mineral resources have been made so far.	No decisions on exploration or exploitation of mineral resources have been made so far.	Not applicable...	The municipality of Cestica participates in public review and public hearings announced on the notice board.	There is currently no exploitation of mineral resources.

6	Partially.	Yes.	No.	Partially.	They are informed; the most important factor is an appropriate material price.	
7	No exploitation activities were planned.	No exploration was conducted.	Exploration and exploitation of mineral resources is not planned.	Not applicable.	Yes, to the extent requested (website/notice board announcements).	
8	No EIA procedures were conducted.	Not applicable...	No participation	Not applicable.	Informed, but no feedback received.	
9	Yes.	Partially.	No.	Yes.	No comments, suggestions, or objections were received.	

On June 26, 2025, responses to the questionnaire were received from the City of Ludbreg. The response to question 1 was "Positive", to question 5 "Public insights", and to all other questions "YES".

4. DISCUSSION

Poor land management leads to environmental problems such as land degradation, soil erosion, and pollution, as well as serious social and economic tensions. The extraction of mineral raw materials, their production, processing, and distribution have a direct impact on the environment and host communities (Naibbi & Chindo, 2020). In Varaždin County, the attitudes of local self-government units toward the exploration and exploitation of mineral raw materials differ significantly. Some units with active exploitation, such as Varaždinske Toplice and Ljubešćica, demonstrate a thoughtful approach, seeking to balance economic benefits such as employment, revenues, and infrastructure development with responsible resource management, protection of water sources, and landscape preservation. In these communities, exploitation is not viewed solely as an economic process, but also as a matter of spatial identity and long-term sustainability. On the other hand, units without active exploitation approach this issue more formally their responses are often reduced to stating that “there is no exploitation” or that decisions have not yet been made. This suggests that, in such cases, mining activity is not considered part of development topics, but rather a potential that could be activated in the future, depending on circumstances. Furthermore, an uneven level of awareness is observed: while some units are well informed about the legal framework and actively participate in procedures, others acknowledge that they are only partially familiar with their own rights and obligations. This diversity of attitudes is not unique to Varaždin County but can also be observed in Central Europe. For example, in Slovenia, municipalities with active extraction sites, such as Trbovlje or Litija, have developed a very similar approach to that of Varaždinske Toplice: they accept extraction activities but place strong emphasis on environmental protection and the involvement of local communities. On the other hand, rural municipalities without a mining tradition often remain passive, like some smaller municipalities in Varaždin County. In Hungary, local governments tend to play a more significant role in decision-making, as the legal framework requires more extensive public consultations, particularly when interventions are carried out on agricultural land or near settlements. Because of this, local communities are more inclined to openly consider both the benefits and risks of exploitation. In contrast, in Croatia a more formalistic approach can still be observed in some municipalities.

Austria, on the other hand, provides an example of a long-developed system of public participation: local communities have the right to take part in a wide range of consultations before mining concession decisions are made, and “round table” discussions are often organised with investors, citizens, and government representatives. Such practices contribute to greater transparency and trust, although the process can be longer and more demanding. Germany goes even further: in addition to formal public consultation, digital platforms are increasingly used, allowing citizens to monitor projects in real time, submit comments, and propose alternative solutions. These tools enable active participation by younger generations and strengthen the sense of shared ownership of space. Compared to these examples, public participation practices in Croatia remain limited and often reduced to the legal minimum. Varaždinske Toplice and Ljubešćica demonstrate some awareness of the importance of citizen involvement and increased transparency, but existing communication channels are often insufficient information is formally published but difficult for the wider public to access and understand. In some municipalities where there is currently no need for active engagement, mining activity is still viewed merely as a future option. In other words, while Central European countries such as Austria and Germany are developing participatory models that balance the interests of industry and local communities, Varaždin County is characterized by an ambiguous approach: some units actively consider sustainability and long-term consequences, while smaller municipalities observe mineral resources from a distance, without a clear strategy or vision. This difference suggests that the next step should involve strengthening education, increasing transparency, and systematically involving citizens, so that mineral resource exploitation develops as a strategic decision rather than merely a formal procedure. The collected data reveal a surprising trend: as many as 15 local self-government units in Varaždin County, although mineral resources are present in their territories including active extraction sites did not provide responses to the questionnaire.

This raises a key question: why are local authorities silent on an issue that directly shapes the territory and the everyday lives of residents? The reasons are likely multiple: ranging from a lack of professional staff and resources to the perception of exploitation as an exclusive responsibility of the state and concessionaires, and the view that mineral resources are not a priority for local development. Regardless of the motivation, such passivity can create an impression of insufficient interest and vision. More importantly, this lack of engagement represents a missed opportunity for discussion on issues of common interest jobs, revenue from fees, as well as environmental and spatial protection. When the local community does not actively participate, decisions are left to others, and both benefits and burdens are often distributed unevenly. Therefore, it is essential to encourage systematic dialogue and the involvement of local authorities and citizens, since mineral resources are not only an industrial asset but also an element in shaping the future of the community—from landscape appearance, through communal infrastructure, to the quality of life of residents. Mining requires governance that integrates environmental protection and business operations, where companies consider natural, social, economic, and political factors, while negative externalities push the sector to expand the focus of corporate governance beyond mere economic efficiency (Domínguez-Gómez, González-Gómez, 2021). Alexandru et al. (2025) emphasize that improving green mining technologies, recycling initiatives, and sustainability-oriented innovations are key to aligning national practices with the environmental and economic goals of the EU, where transparency, good governance, and procedural justice open new insights into national governance structures in the context of the green transition.

5. CONCLUSION

The survey of local self-government units in Varaždin County revealed significant diversity in approaches to the management of mineral raw materials. While some units with active exploitation, such as Varaždinske Toplice and Ljubešćica, demonstrate a thoughtful and development-oriented approach aimed at balancing economic benefits with environmental and landscape protection, many other surveyed units remain passive or adhere only to formal procedures, despite mining activities taking place within their territories. Such heterogeneity confirms previously identified challenges—limited involvement of local authorities and insufficient citizen participation—which may, in the long term, restrict the effectiveness and sustainability of mining activities. Comparisons with Central European practices indicate that governance and participation models can be developed in ways that better balance the interests of industry, local communities, and environmental protection. Based on the analysis of the collected questionnaire data, it can be concluded that improving mineral resource management in Varaždin County requires systematic strengthening of local government capacities through education and provision of professional resources, more active inclusion of citizens in decision-making processes, and the integration of sustainable and long-term practices into regional and spatial planning frameworks. In conclusion, effective and sustainable mineral resource management is only possible through a combination of clear regulations, strategic planning, and active involvement of local communities. Such an approach ensures long-term resource availability, fair distribution of benefits, and environmental protection, while simultaneously supporting the economic and social development of the region.

LITERATURE:

1. Alexandru, D.-G., Balan, E., Berceanu, I.B., Iftene, C., Varia, G. (2025). Green Initiative and Mineral Governance: The Interplay of EU Policies and Romania's Regulatory Framework. *Sustainability,* 17(10), p.4512. https://doi.org/10.3390/su17104512
2. Dedić, Ž., Kruk, B., Kruk, Lj., Kovačević Galović, E. (2016.). *Rudarsko-geološka studija Varaždinske županije*, Hrvatski geološki institut, Zagreb, Fond stručne dokumentacije 055/16
3. Horvat, J., Mijoč, J. (2012/2014). *Osnove statistike.* 1st ed. Zagreb: Naklada Ljevak. ISBN 978-953-303-415-7.
4. Harjač, D., Gašparović, S. Jakovčić, M. (2018). Prometno-geografska obilježja Varaždinske županije-stanje i perspektive razvoja. *Acta Geographica Croatica*, 41/42(1), 19-50.
5. Domínguez-Gómez, J.A., González-Gómez, T. (2021). Governance in mining: Management, ethics, sustainability and efficiency. *The Extractive Industries and Society*, 8(3), p.100910. https://doi.org/10.1016/j.exis.2021.100910
6. Državni zavod za statistiku Republike Hrvatske (2021). Popisane osobe, kućanstva i stambene jedinice, prvi rezultati popisa 2021. prema statističkim regijama 2. razine i županijama.
7. Izvješće o stanju u prostoru Varaždinske županije ("Službeni vjesnik Varaždinske županije" br. 104/24)
8. Pravilnik o rudarsko-geološkim studijama (NN 142/2013)
9. Prostorni plan Varaždinske županije ("Službeni vjesnik Varaždinske županije" br. 8/00., 29/06., 16/09., 96/21. i 20/24. i 34/24. –pročišćeni tekst i 29/25)
10. Ma, S., Zhang, M., Ma, L., Tian, Z., Li, X., Su, Z. & Bian, S. (2023). Experimental investigation on stress distribution and migration of the overburden during the mining process in deep coal seam mining. *Geoenvironmental Disasters*, 10, 24. https://doi.org/10.1186/s40677-023-00253-6
11. Miko, S., Kruk, B., Bukovec, D., Kastmuller, Ž., Pencinger, V., Crnogaj, S., Mesić, S., Dedić, Ž., & Kruk, Lj. (2007.). *Studija potencijala i osnove gospodarenja mineralnim sirovinama*

na području Varaždinske županije. Hrvatski geološki institut, Zagreb. Fond stručne dokumentacije 059/07.
12. Naibbi, A.I., Chindo, M., (2020). Mineral Resource Extractive Activities in Nigeria: Communities Also Matter! *Journal of Geoscience and Environment Protection*, 8, pp.212–229. https://www.scirp.org/journal/gep
13. Krasić, D., Mikulić, A. (2013) Rudarska djelatnost u Republici Hrvatskoj, Klesarstvo i graditeljstvo, 24(1-2), 47-58.
14. Srpak, M. i Pavlović, D. (2023). Mineralne sirovine Varaždinske županije – potencijal održivog gospodarskog razvoja i prosperiteta u vremenu energetske tranzicije. Nafta i Plin, 43. (178.-179.), 66-76. Preuzeto s https://hrcak.srce.hr/311505
15. Srpak, M., Pavlović, D., Novak Mavar, K. & Zelenika, I. (2025). Methodological Approach in Selecting Sustainable Indicators (IPREGS) and Creating an Aggregated Composite Index (AKI) for Assessing the Sustainability of Mineral Resource Management: A Case Study of Varaždin County. *Mining,* 5(4), p.67. https://doi.org/10.3390/mining5040067
16. Spevec, D. (2009). *Starenje stanovništva Varaždinske županije od 1961. do 2001.* Migracijske i etničke teme, 25(1-2) 125-152.
17. Tang, Z., Qin, D. (2024). Sustainable mining and the role of environmental regulations and incentive policies in BRICS. *Resources Policy*, 89, 104718. https://doi.org/10.1016/j.resourpol.2024.104718
18. Tian, Z., Huang, J., Xiang, J. & Zhang, S., 2024. Suspension and transportation of sediments in submarine canyon induced by internal solitary waves. *Physics of Fluids*, 36, 022112. https://doi.org/10.1063/5.0191791
19. Tošović, R. (2017). Menadžersko utvrđivanje poslova u preduzećima mineralnog sektora. U: *VIII Međunarodna konferencija Ugalj 2017*, Zlatibor, 11–14. oktobar 2017.
20. Tubis, A., Werbińska-Wojciechowska, S., Wroblewski, A., 2020. Risk Assessment Methods in Mining Industry—A Systematic Review. Applied Sciences, 10(15), p.5172. https://doi.org/10.3390/app10155172
21. Zakon o rudarstvu (NN 56/13, 14/14, 115/18, 98/19, 83/23)
22. Zakon o istraživanju i eksploataciji ugljikovodika (NN 52/18, 52/19, 30/21)
23. Zakon o prostornom uređenju (NN 153/13, 65/17, 114/18, 39/19, 98/19, 67/23)
24. Watts, B.A., Palmeira Zago, V.C., Gopakumar, L., Ghazaryan, K. & Movsesyan, H. (2023). Uncharted risk measures for the management of sustainable mining. Integrated Environmental Assessment and Management, 19(4), pp. 949–960. https://doi.org/10.1002/ieam.4769

MEĐIMURSKO VELEUČILIŠTE U ČAKOVCU
MMVIII

Faculté des sciences juridiques économiques et sociales-salé

UNIWERSYTET WARSZAWSKI
WYDZIAŁ ZARZĄDZANIA

ENCGT
ENCG TANGER
École Nationale de Commerce et de Gestion

govcopp
universidade de aveiro