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Vilnius University Kaunas Faculty Council considered and recommended the publishing of peer-reviewed proceedings (e-version) of the 19th Prof. Vladas Gronskas International Scientific Conference, which was organized by the Institute of Social Sciences and Applied Informatics in Vilnius University Kaunas Faculty.
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Foreword

In keeping with the scholarly traditions of Vilnius University Kaunas Faculty, the 19th "Prof. Vladas Gronskas International Scientific Conference" was held in November 2024. This international conference is an arena for cooperation and scholarly fellowship, with young researchers, bachelor, master, and doctoral students from Lithuania as well as Latvia, Turkey, Bulgaria, participating in the different conference sections.

The main goal of this scientific gathering has always been to contribute to a reliable, safe, effective, and sustainable economy and business development. Thus, the organizing committee strives to create a suitable platform for well-grounded and open discussion where young researchers have the opportunity to present and share their insights.

Encouraging entrepreneurship is a crucial condition for economic growth, and this puts forward a new approach to business, creativity, value creation, and the implementation of innovations. It is precisely in this context that business and science should interact. To reinforce this relevant bond, the guest speakers of the plenary session were selected amongst scientists and experienced practitioners – Prof. Vlado Dimovski (Distinguished expert in management and organizational theory at the University of Ljubljana, Faculty of Economics, Slovenia), Stepas Telešius (Co-founder, shareholder and board member of ACME Grupė and Chairman of the Board of "Vesta Consulting", a sustainable business consultancy, Lithuania), Edgaras Abromavičius (Head of esports and games of the Lithuanian Football Federation, working on projects together with UEFA, FIFA and other international organizations, Lithuania).
This conference encourages internationalization and closer cooperation between science and business. Hopefully, there has been some useful takeaway for both academia and business conference participants: new insights and inspirations for further scientific research.

On behalf of the Scientific Committee

Assoc. Prof. Dr Ingrida Šarkiūnaitė

Towards Understanding the Application Areas of Zero Knowledge Proof: A Comprehensive Analysis

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Abstract. As privacy and security concerns increase, Zero Knowledge Proof (ZKP) technology offers a promising solution for secure digital verification. ZKP addresses key privacy and security challenges across individual, business, and public sectors by enabling data protection without revealing sensitive information. The aim of this study is to analyse ZKP's application areas by reviewing current literature and case studies, examining its strengths, limitations, and potential risks. Findings highlight the capability of ZKP to enhance privacy, security, and verification processes across various fields, including blockchain technology, identity authentication, secure data sharing, and digital voting systems. The paper provides a balanced perspective on ZKP's benefits and challenges, including computational complexity and scalability issues. By suggesting practical use cases, this work aims to contribute to a deeper understanding of how ZKP technology can support innovation across various industries while addressing critical privacy and security needs.

Key words: zero knowledge proof, ZKP, blockchain, data privacy, digital identity.

Introduction

Relevance of the article

As digital interactions across the world expand, privacy and security challenges become increasingly critical, driving the need for innovative solutions to protect sensitive information. Among the technologies emerging to address these concerns, Zero Knowledge Proof (ZKP) offers a unique approach that enables secure verification without revealing sensitive data. It is particularly significant for organizations managing sensitive data and complying with data protection regulations. Although ZKP is built on a strong theoretical foundation, its practical application is still in its early stages, with challenges such as scalability and computational efficiency limiting its broader implementation. The exploration of this technology not only advances scientific understanding but also holds great potential for solutions in different fields, such as blockchain, identity verification, and secure communication.

Problem investigation level

In authentication systems, ZKPs are recognised for enhancing security by allowing user verification without exposing sensitive data, as demonstrated by Jaafar and Samsudin (2010). Similarly, noninteractive ZKPs have been explored to improve efficiency in cryptographic operations like key exchanges and secure communications (Wu, & Wang, 2014). In blockchain technology, ZKPs have shown promise in balancing privacy and transparency, notably in applications such as tax document validation and anonymous cryptocurrency transactions (Sasson et al., 2014). ZKPs have also been applied to secure voting systems, providing solutions for voter anonymity while maintaining election integrity (Neziri et al., 2022), and in physical security scenarios like nuclear warhead verification (Philippe et al., 2016). While research on ZKPs has addressed critical privacy and security challenges, significant gaps remain in fully exploring their potential and limitations.

Scientific problem

What are the key application areas of ZKPs, and what are the current challenges and opportunities in their practical implementation across these areas? Can ZKPs, successfully applied in cryptocurrencies, also be used in other fields such as social sciences, healthcare, education, and related areas?

Object of the article is the application areas of ZKP.

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***Aim of the article* is** to analyse ZKP's application areas by summarising current literature and case studies.

***Objectives of the article*:**

1. To examine the foundations of ZKPs and their role in addressing privacy and security concerns.
2. To apply SWOT analysis for ZKPs, highlighting its strengths and weaknesses.
3. To analyse application areas of ZKPs and identify priority fields.

***Methods of the article*:** This study employs a review of the literature and case studies to explore the foundations and advancements of ZKPs. SWOT analysis is applied to highlight its strengths, weaknesses, opportunities, and threats across applications. Case studies are analysed to evaluate their benefits and challenges.

1. The foundations and concepts of Zero-Knowledge Proofs

1.1. Introduction to Zero-Knowledge Proofs

ZKPs are cryptographic protocols that enable a prover to demonstrate the truth of a statement to a verifier without revealing any additional information. Introduced by Goldwasser, Micali, and Rackoff in 1985, ZKPs have become a cornerstone of modern cryptography, offering robust privacy and security across a range of applications (Groth, 2010; Fisch et al., 2014).

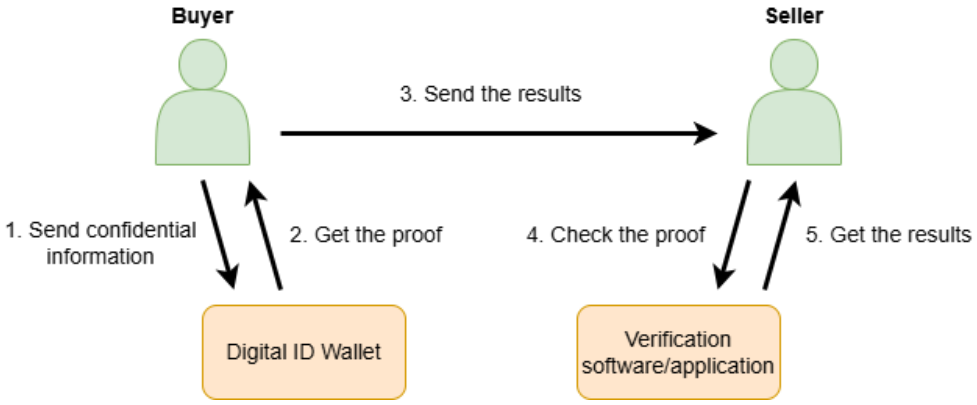
The fundamental properties of ZKPs can be categorised into three key attributes: completeness, soundness, and zero-knowledge. These properties ensure that ZKPs can be reliably used in scenarios requiring both security and privacy.

1. Completeness ensures that an honest prover can always convince an honest verifier of the truth of a statement if the prover possesses the correct information. This property guarantees that the protocol functions as intended under normal circumstances (Robert et al., 2020; Groth, 2010).
2. Soundness ensures that no cheating prover can convince the verifier of a false statement, except with negligible probability. This property is essential for maintaining the integrity of the proof system, as it prevents dishonest behaviour from succeeding (Backes, & Unruh, 2010; Escala, & Groth, 2014).
3. The zero-knowledge property is the most defining characteristic of ZKPs. It ensures that the verifier learns nothing beyond the validity of the statement. This attribute is vital for preserving privacy, as it allows the prover to demonstrate knowledge of a secret without disclosing any information about the secret itself. Applications of this property include secure authentication protocols and privacy-preserving transactions in cryptocurrencies like Zcash (Li et al., 2010; Gabay et al., 2019; Sasson et al., 2014).

These properties ensure privacy and trust of the protocol. To address different practical use cases' needs, researchers have developed distinct types of ZKPs, each optimised for specific applications and constraints. ZKPs are generally categorised into interactive ZKPs, and non-interactive ZKPs (NIZKs).

Interactive ZKPs involve a back-and-forth communication process between the prover and the verifier. For instance, the Schnorr protocol relies on iterative challenges, making it suitable for secure authentication where dynamic exchanges enhance proof integrity (Yue, 2023). In contrast, NIZKs eliminate the need for interaction by enabling the prover to generate a single proof that can be verified independently. This is often achieved using cryptographic hash functions or the Fiat-Shamir heuristic, which streamlines the process and reduces communication overhead (Blum et al., 2019). NIZKs are widely used in scenarios requiring efficiency, such as blockchain systems and cryptocurrencies. For example, Zcash employs zk-SNARKs to ensure transaction privacy while maintaining computational efficiency (Sasson et al., 2014; Bünz et al., 2018).

Figure 1 illustrates an example of an NIZK. In this scenario, the buyer transmits confidential data to a digital identity wallet, which generates a proof. This proof is subsequently forwarded to the seller's verification software, where it is validated, ensuring the authenticity of the data without disclosing the underlying information.



Source: created by the authors.

Fig. 1. Zero Knowledge Proof in retail

1.2. Cryptographic foundations and recent innovations

ZKPs rely on mathematical principles and computational hardness assumptions, such as the discrete logarithm problem (DLP) and the difficulty of factoring large integers. These foundations secure ZKP systems by making it infeasible to derive secrets from public data (Bellizia et al., 2021), (Roy, 2018). Commitment schemes, essential to ZKPs, ensure binding (preventing alteration) and hiding (concealing values until revealed), enabling applications like secure voting and authentication (Escala & Groth, 2014; Benhamouda et al., 2015). While more rigorous mathematical details may be essential for specialised applications, this section focuses primarily on conceptual and practical aspects relevant to privacy and security.

Advanced techniques like elliptic curve cryptography (ECC) enhance ZKP efficiency, offering strong security with smaller key sizes and faster computations (Damgård et al., 2012). Recent innovations such as zk-SNARKs (Zero-Knowledge Succinct Non-Interactive Arguments of Knowledge) and zk-STARKs (Scalable Transparent Arguments of Knowledge) have transformed ZKP applicability.

Zk-SNARKs are lightweight, producing compact proofs independent of the complexity of computations. They are well-suited for blockchain applications, where minimising on-chain data is crucial (Chen et al., 2022). Their non-interactive nature simplifies verification by eliminating the need for back-and-forth communication between the prover and verifier, reducing computational overhead in decentralized systems (Ben-Sasson et al., 2015). However, zk-SNARKs require a trusted setup phase, introducing potential vulnerabilities if the setup process is compromised.

Zk-STARKs address this limitation by eliminating the need for trusted setups. Instead, they employ collision-resistant hash functions, enhancing transparency and security (Thibault et al., 2022). Zk-STARKs are highly scalable, handling large computations efficiently without increasing proof size or verification time, and are considered resilient to quantum attacks due to their independence from elliptic curve cryptography (Thibault et al., 2022). These features make zk-STARKs particularly suitable for high-throughput applications, such as decentralised finance and privacy-preserving smart contracts.

Both zk-SNARKs and zk-STARKs support private transactions, enabling user anonymity while maintaining blockchain integrity. Their ability to reduce computational demands facilitates faster and more cost-effective blockchain operations (Bespalov et al., 2021).

2. SWOT analysis and application areas of Zero-Knowledge Proofs

This section combines a SWOT analysis with an integrated discussion of the key application areas of ZKPs, providing a comprehensive view of the strengths, weaknesses, opportunities, and threats related to this technology. The analysis demonstrates how each SWOT factor is displayed in different contexts.

2.1. SWOT analysis

ZKPs, like all technologies, come with both strengths and weaknesses. Therefore, a SWOT analysis is applied to examine these factors, offering a clearer understanding of the potential impact of ZKPs on privacy, security, and emerging applications, while also addressing the challenges they face.

ZKPs excel in privacy preservation by allowing users to prove knowledge or identity without revealing sensitive information (Dieye et al., 2023). They also enhance security, as users can prove possession of a secret without exposing it, which is essential in financial transactions and access control (Park & Chang, 2022). In practice, the privacy-enhancing features of ZKPs benefit numerous application areas: for instance, healthcare platforms can safeguard patient records, and financial services can verify transactions without disclosing sensitive details. Non-interactive ZKPs (NIZKPs) further improve efficiency by reducing communication rounds, making them ideal for IoT and other high-latency environments (Wu & Wang, 2014).

ZKPs are also robust against spoofing attacks, ensuring the authenticity of users and data (Tangka et al., 2022). Their flexibility allows integration in various fields, such as secure blockchain transactions and privacy-preserving systems (Dieye et al., 2023). Finally, they foster trust in decentralized applications by enabling secure verification without revealing private data (Tangka et al., 2022).

Despite their advantages, ZKPs face complexity and high computational overhead, which can be prohibitive in resource-constrained environments like IoT (Gabay et al., 2019). This complexity primarily stems from the advanced cryptographic operations required to generate and verify proofs, demanding significant processing power, specialised expertise, and carefully chosen parameters. In large-scale or time-sensitive contexts such as payment networks or supply chain tracking, these computational demands can increase costs and reduce performance, creating further risks for deployment. In domains such as healthcare or regulated finance, where compliance and resource constraints intersect, even minor misconfigurations can undermine both security and performance. As a result, adopting ZKPs often involves specialised training, robust testing, and ongoing maintenance to mitigate these risks.

They also require a trusted setup for certain variants like zk-SNARKs, posing a risk if the setup is compromised (Banerjee, 2020). ZKPs rely on security assumptions, such as the hardness of computational problems, which may be threatened by advances in quantum computing (Broadbent et al., 2020). Furthermore, ZKPs may not be expressive enough to handle more complex assertions (Li et al., 2010), and traditional models with multiple interactions can introduce latency issues (Groth, 2010). Finally, their implementation complexity requires careful design to prevent vulnerabilities (Backes & Unruh, 2010). In domains such as healthcare or regulated finance, where compliance and resource constraints intersect, even minor misconfigurations can undermine both security and performance. Thus, adopting ZKPs often involves specialised training, robust testing, and ongoing maintenance to mitigate these risks.

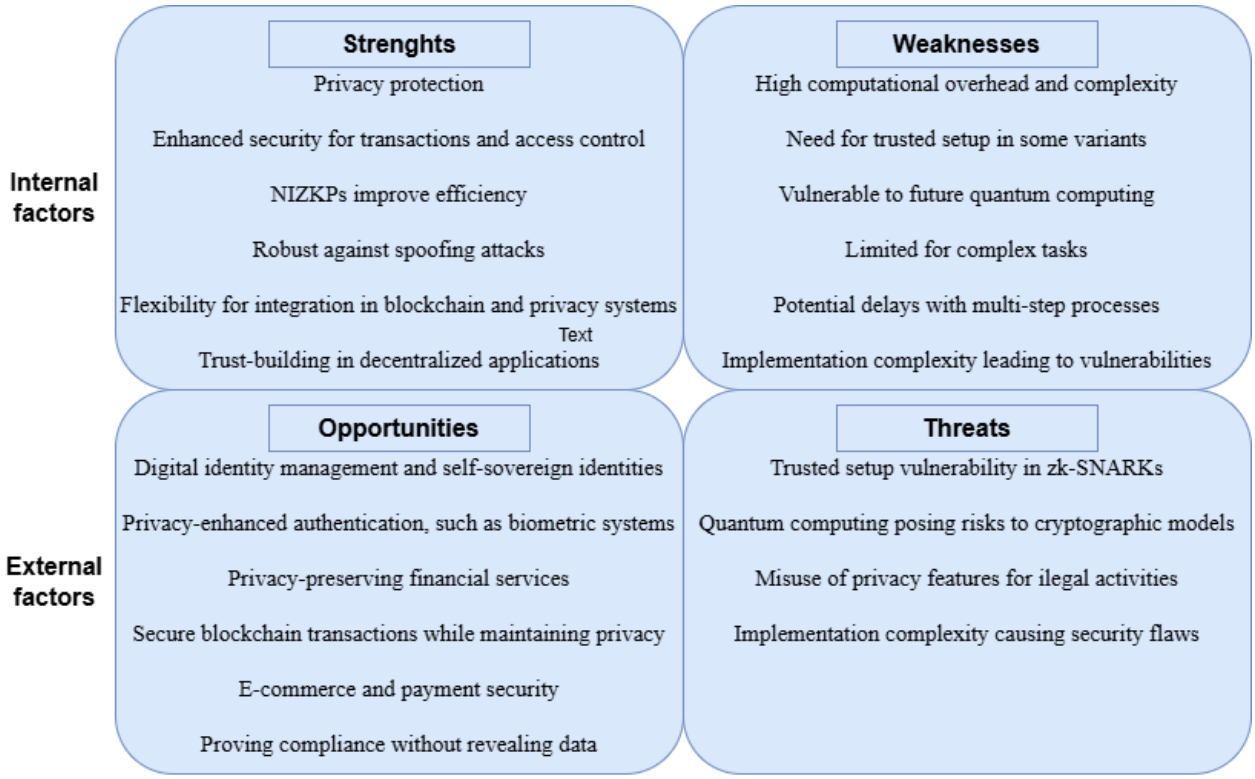
ZKPs offer significant potential in digital identity management, enabling self-sovereign identities without exposing sensitive data (Dieye et al., 2023). They can enhance authentication by providing private proofs, as in biometric systems (Guo et al., 2022). In financial services, ZKPs enable privacy-preserving credit checks or transaction verification, allowing institutions to confirm creditworthiness without disclosing full financial histories (Yuan et al., 2021).

They are also pivotal for secure blockchain transactions, enabling privacy while maintaining transparency (Bai et al., 2022). In e-commerce and payment security, ZKPs ensure confidentiality during digital transactions (Broadbent et al., 2020), and organisations can use them for regulatory compliance by proving adherence to regulations without revealing sensitive data (Takaragi et al., 2020). Supply chain management is another growing area: ZKPs can enhance trust, traceability, and product authenticity while safeguarding competitive or proprietary information.

A major threat to ZKPs is the trusted setup vulnerability, particularly in zk-SNARKs, where a compromised setup can expose the system to attack (Broadbent et al., 2020). Advances in quantum computing threaten the security assumptions underlying ZKPs, as quantum algorithms

could potentially break current cryptographic models (Broadbent et al., 2020). ZKPs also have a potential for misuse, as their privacy-enhancing capabilities can be exploited for illicit activities (Tangka et al., 2022). Lastly, implementation complexity remains a barrier, as flawed deployments can lead to security vulnerabilities (Backes & Unruh, 2010). Complexity risks vary across sectors: in IoT, low-power devices may struggle with intense cryptographic computations; in enterprise systems, integrating ZKPs with legacy software may require major architectural changes (Hamadeh & Tyagi, 2021).

The SWOT analysis of ZKPs revealed that this protocol has various potential applications, but also has its challenges, as shown in Fig. 2.



Source: created by the authors.

Fig. 2. SWOT analysis of ZKPs

2.2. Application areas and case studies

This subsection delves deeper into how ZKPs have been adopted in practice across multiple domains. It shows how the strengths, weaknesses, opportunities, and threats discussed in the SWOT analysis occur in practice, highlighting both the benefits and the challenges faced in actual application areas.

One of the earliest and most impactful uses of ZKPs has been in **cryptocurrencies**. Zcash, one of the most well-known cryptocurrencies, launched in 2016, uses zk-SNARKs to enable transactions without revealing sensitive details like the sender, receiver, or amount (Banerjee et al., 2020), (Zhang et al., 2020). This approach ensures confidentiality while maintaining transaction validity, exemplifying the role of ZKPs in cryptocurrency privacy (Biryukov & Feher, 2019).

ZKPs also play a vital role in **digital identity systems**. Decentralized identity platforms, such as Microsoft ION, implement selective proof-sharing mechanisms (DIF, 2024). Self-sovereign identity systems allow users to control and selectively disclose their personal data (Dieye et al., 2023). Guo et al. (2022) proposed a zk-SNARK-based biometric identification system, ensuring user authentication without exposing sensitive biometric information. These solutions demonstrate the privacy advantages of ZKPs in real-world contexts, but they also underscore the complexity challenge that arises when integrating with legacy identification systems.

In **healthcare**, ZKPs facilitate secure identity management and data sharing. The Health-zkIDM system integrates blockchain and ZKPs to protect medical records and identity verification (Bai et al., 2022). Similarly, ZKPs in financial services enable privacy-preserving creditworthiness verification, enhancing user privacy during financial transactions (Yuan et al., 2021). Such deployments demonstrate the opportunity to maintain patient confidentiality but also reveal potential weaknesses if cryptographic overhead strains medical IT systems with limited resources.

ZKPs also enhance privacy-preserving **voting systems**. Miao (2023) proposed a voting system ensuring voter eligibility and ballot secrecy. Protocols like DEMOS-2 and mix-nets provide cryptographic guarantees for vote secrecy and verifiability without compromising privacy (Kiayias et al., 2015), (Buchmann et al., 2013). Locher and Haenni (2015) further enhanced online voting systems with ZKP-based anonymity and result integrity. The ability to prove voter authenticity without revealing personal data exemplifies the technology's strengths, while complexities, such as usability and large-scale deployment, can pose a threat to reliability.

In **supply chain management**, ZKPs have been utilized to enhance privacy while ensuring traceability and authenticity. Multi-chain frameworks and zk-SNARK-based protocols verify product authenticity and ensure secure ownership transfers without revealing sensitive data (Zhang et al., 2023), (Vijayalakshmi et al., 2022). Applications like PrivChain address food fraud and enhance trust in supply chain transactions (Malik et al., 2021). This combines the opportunity to maintain proprietary data secrecy with the threat of implementation errors in complex cross-border supply networks.

In **Internet of Things (IoT) security**, ZKPs improve authentication and data integrity. ZK-rollups enable efficient batch verification while maintaining confidentiality (Xin et al., 2023). Electric vehicle authentication and IoT fog computing frameworks use ZKPs to ensure secure, resource-efficient operations (Gabay et al., 2019), (VG, 2024). Privacy-preserving data provenance models further enhance IoT network security (Hamadeh & Tyagi, 2021). However, high computational costs on low-power IoT devices demonstrate the weaknesses related to ZKP complexity.

Overall, ZKPs demonstrate significant potential across diverse fields by enhancing privacy and security while enabling verification without revealing sensitive information. As highlighted in the SWOT analysis, their success hinges on addressing complexities, preparing for emerging cryptographic threats, and leveraging new opportunities (such as scalable proof systems) in real-world implementations. In digital identity, they address critical privacy challenges, such as age and credential verification, proof of identity, passwordless authentication, ownership and income verification, and secure transactions. These capabilities highlight their promise for privacy-preserving digital identity solutions. Future work will be focused on identifying the most suitable proof systems for practical deployment in real-world digital identity applications.

Conclusions

1. The theoretical analysis confirms that ZKPs significantly enhance digital privacy and security, especially in scenarios requiring confidential verification. The study confirms that ZKPs are well-suited for applications where confidential verification is critical. The study shows that non-interactive approaches, like zk-SNARKs and zk-STARKs, effectively address scalability and computational efficiency, making them promising for blockchain and DeFi implementations. Additionally, zk-STARKs incorporate quantum-resistant properties, strengthening their capacity to secure future-proof privacy solutions. This underscores ZKPs growing importance as a foundation for privacy-preserving systems across diverse sectors.
2. The SWOT analysis highlights ZKPs' strengths in privacy preservation and data security, demonstrating particularly effective integration within digital identity and blockchain environments. However, the weaknesses – such as high computational costs, trusted setup vulnerabilities, and emerging quantum threats – remain serious challenges. Despite these obstacles, the analysis indicates significant opportunities for ZKPs in areas like privacy-preserving financial services and regulatory compliance, provided that careful design and

robust implementation minimize potential risks.

3. Based on the case studies and literature review, digital identity stands out as the most critical application domain for ZKPs, driven by escalating demands for secure, private authentication methods. The ability to prove credentials or transaction validity without divulging sensitive information positions ZKPs as a transformative solution for identity verification. While cryptocurrency, voting systems, and supply chain management also present notable opportunities, digital identity emerges as the top priority for advancing ZKP research and deployments, reflecting the urgent need for strong privacy protection in contemporary identity systems.

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The Process of Empowering the Artist in the Art Market

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Abstract. The accessibility and purchase of artwork these days open up more opportunities for artists to exhibit, sell their work on a larger scale and gain recognition. However, simultaneously, there is high competition between all participants in the art market. Not knowing how to start, the creator faces challenges and obstacles to becoming a well-known art representative. In this case, artists can be helped by art galleries, which allow creators to show their creations and provide other support. In that instance, the gallery plays a role in empowering the artist to participate in the art market. Thus, this study aims to explore the process of empowering an artist to participate in the art market. It is important to understand how this process works and helps artists' careers, so the presentation includes the results of research on artists and galleries, models, the empowerment process and emerging problems.

Key words: empowering process, gallery, artist, empowerment, art market.

Introduction

Relevance of the article

It can be argued that globalisation has positively impacted the art world. Works of art are more easily accessible and purchased, and artists have more opportunities for recognition and sales. However, the prevailing high competition makes it more difficult for artists to establish themselves in the art market. Artists want to make themselves visible by participating in exhibitions, competitions, projects and other activities, in which art galleries play an essential role by allowing artists to showcase their work and by providing other kinds of support. Galleries seek out and invite artists who want to present their work. Research is needed to understand more about what actions and processes art galleries are doing to have a positive impact on creators and how this can be used to strengthen and improve those processes.

Problem investigation level

An analysis of the available scientific literature on the topic of empowerment in social sciences is presented. Interviews were also conducted with Lithuanian galleries and artists from different disciplines. The collection of this theoretical and practical information gave a broader understanding of the impact of galleries on artists and their work cycles, and allowed for a deeper understanding of this topic. The combination of theory and practice provided the opportunity to create a more accurate model.

Scientific problem

It is noted that in Lithuania, the problem of empowerment has been studied in scientific fields such as education and social sciences, but in the field of art, it has not been possible to find. Thus, given the lack of development and research on this topic in the field of art in Lithuania, this study seeks to begin a broader development of the critical topic of art management, which analyses the process of empowering the artist in the art market.

Object of the article – the gallery's empowerment process for the artist.

Aim of the article is to disclose the process of empowering the artist in the art market.

***Objectives of the article*:**

1. To analyse the concept of gallery, art market and empowerment;
2. To provide an overview of how the process of empowerment helps artists and galleries;
3. To discuss the model of the gallery's role in empowering the artist to participate in the art market, created by empirical research and theoretical material.

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Methods of the article

The theoretical part uses comparative analysis and synthesis of scientific literature with a summary. The other part uses qualitative research and analysis of responses received during interviews from representatives of Lithuanian galleries and artists.

1. Theoretical aspects of the process of empowering the artist in the art market

The concept of the gallery and the art market

A gallery is defined as one of the leading organisations that presents artists and their work to the public, buyers, and other persons involved in the field of art. It is stated that galleries represent artists, participate in developing their careers, participate in the market, and provide spaces for exhibition. It can be stated that, according to the concepts, the goals of galleries are to provide assistance to the artist and shape public perception. According to Tulytė (2014), the main functions of art and cultural institutions have not changed to date – museums, galleries exhibit and show artists' work.

In galleries, visitors to exhibitions can get acquainted with the exhibited works of artists, which can have a significant impact on the artist's career. Among these gallery visitors are not only art lovers, but also potential buyers, collectors, investors and other participants in the art market. It can be said that the gallery brings all these individuals together in one space, where artists can be observed, evaluated and expand their career opportunities. Moureau & Sagot-Duvauroux (2012, p. 48) state that the gallery becomes a "centre of the art economy" and becomes, as Novelskaitė, & Timinskienė (2016, p. 220) write, "an intermediary between the artist and the buyer of the artwork".

It is essential to mention that the Lithuanian art market, compared to the leaders of the world art market, is extremely small, still forming and growing. Specific and chaotic – this is how Mockutė (2013) describes the Lithuanian art market and states that supply exceeds demand, there is a lack of large collectors and independent art critics, trade is disproportionately increasing in the primary market, and shadow trade is taking place and auction functions are being taken over by galleries. These problems affect various market participants, such as artists, gallery owners, etc. However, Mockutė (2013) notes that the Lithuanian art market is not lagging behind the trends of the global art market. Nagrockaitė (2020) states that as digitalisation accelerates, a number of cultural institutions are moving to online spaces. More and more different art platforms are being presented virtually, making them more accessible to investors from other countries and familiar to the younger generation.

The concept of empowerment

Empowerment is associated with power. According to Parsons, "power is the ability of a social system to achieve its goals by allocating resources, responsibilities and ensuring commitments of institutions and actors" (Ruškus, 2013, p. 11). Jurevičienė (2011) describes the process of empowerment as an encounter between the empower and the empowered with a problematic situation and an attempt to overcome it in an interaction of equivalence, in other words, mutual communication, working and creating with a belief in the other person is important (Venclovienė, 2015).

The authors have different emphases on the aspects of empowerment that are important. Some of them refer to the power to rule and control others or to the possession of power in general, which highlights the extrinsic motivation for empowerment. Others present empowerment as the ability to be autonomous, the freedom to fulfil oneself, to use the resources available and provided, thus focusing more on the internal empowerment of the individual. According to the research on the empowerment process of Lord, & Hutchison (1993), empowerment is an individual and continuous process. Ruškus (2013) also mentions that empowerment itself has neither an end nor a starting point from which to begin, as it is an ongoing effort. This process takes place as individuals become more aware of their abilities and of alternatives to the experience of powerlessness, and thus create new directions for themselves.

However, noting both the definitions of empowerment and the discussed observations by the other authors, one can agree with Imbrasaitė (2015), who argues that the concept of empowerment

is multifaceted and varies depending on the unit of analysis and the context presented. Empowerment can be defined in general terms as having the power to perform certain actions, but in addition to power, empowerment through skills, independence, working with the person in general, and the provision of social support are very important. The scientific literature identifies 5 levels of empowerment:

1. **Individual empowerment.** Venclovienė (2015) describes personal empowerment as helping (mediating) someone to develop their potential through concrete actions – to begin to increasingly take more control, to manage one's own mental and social reality, when one is no longer able to help oneself, to change and improve one's current situation. Individual empowerment is said to reduce the powerlessness of a person in a problematic situation, encourages change and transformation of one's environment, critical and responsible thinking and action, and provides freedom of choice, the necessary knowledge, skills, resources and encouragement to take responsibility for one's actions and lifestyle. Venclovienė (2015) identifies the following factors: encouragement, motivation, training (education), self-esteem building, individual, community and societal relationships and resources.
2. **Group empowerment.** Sadan (2004) identifies it as an important empowerment tool, due to its excellent education of critical awareness, as a self-help tool (Ruškus, 2013). Donaldson (2004) argues that social action-oriented groups have the ambition to change the systemic barriers affecting the lives of group members. It contributes to the self-confidence and self-efficacy of participants, improving personal skills. Groups are seen as an ideal tool for promoting individual empowerment: they provide social and emotional support and the skills needed for future socio-political action.
3. **Community empowerment.** Sadan (2004) describes it as better control over environments and decision-making in community-based environments. The community teaches people to make decisions in a group, to solve common problems, and to mobilise resources for the common good. People jointly formulate and set the goals they need, the means to achieve them and evaluate the results.
4. **Organisational empowerment** is linked to the organisational context and is defined as "a practice or set of practices involving the delegation of responsibility downwards, providing employees with a greater role in their primary job tasks" (Leach et al., 2003, based on Imbrasaitė et al., 2015). Organisational empowerment refers to the fact that social service organisations are ideal for the formation of empowerment-oriented social groups. Ideal because of the professionals involved, the presence of a social service network and the availability of organisational resources, which are valuable in raising critical awareness, developing education on strategies and tactics for action, organising and mobilising joint action. In empowerment theory, Zimmerman (2012) argues that organisations that empower individuals to take control of their lives are empowering organisations. Those organisations that are successful in creating, influencing decisions or offering effective service alternatives are empowered organisations. They can thrive among competitors, achieve their objectives and develop through efficiency gains.
5. **Psychological empowerment.** It has been argued that psychological empowerment can make a significant contribution to the creativity of an employee, positively influencing intrinsic motivation (Amabile, 1996; Spreitzer, 1995). Intrinsic motivation is seen as one of the mediating elements linking empowerment between leadership and creativity. According to the authors, it acts as a link between psychological empowerment and creative outcomes (Zhang & Bartol, 2010). Spreitzer (1995) defines empowerment as a process or psychological state manifested in four cognitions: meaning, competence, determination and impact.

2. Analysis of the research results

The start of the empowerment process: gallery and artist

Galleries use various routes to engage with artists, which helps them discover new creators. There are **2 main ways** that galleries have put forward: **Artists are sought by the gallery itself.** It observes, participates in the Lithuanian and international art field, participates in the defence of Bachelor and Master diplomas, discovers at exhibitions or through recommendations from other art professionals. **Artists contact the gallery.** They come by themselves, provide information, send their portfolio to the gallery.

Collaboration is executed step-by-step, often with the gallery assessing, observing and testing the artist before offering them a contract. Therefore, if the artist himself addresses the gallery with both talent and works of high artistic value, but does not match the visual image of the gallery, this does not necessarily guarantee that the gallery will accept the artist or that he or s/he will be included in the list of artists represented by the gallery. The analysis of the interviews also shows a different scenario, where the gallery provides a place for the artist to exhibit, but does not try to present his/her work, to engage with dissemination, which, especially for a young artist who does not yet know how things work in the field of art, is a difficult way to start his career path. In the opinion of the artist, a gallery has to work, to create its audience, its field of people, to advertise, to provide information about openings, etc. Others collaborate because it is difficult for the artist himself to do commercial activities, let alone to get into art fairs and other places, which is what a gallery does. It could be argued that the support of the gallery helps the artist to be more concentrated on the creative activity if the gallery carries it out.

For an artist to sign a contract with a gallery means that the gallery chooses to represent the artist, but artists point out that some clauses in the agreement may prevent them from signing it. According to the artists, it is essential to note whether the gallery allows collaborations with other galleries, whether the gallery puts enough work into sales, whether the artist also sells well from his studio, and it is not necessary for him to have a gallery as an intermediary between him and the buyer. It is essential to consider whether the gallery is able to accelerate and enhance the process for the artist, whether the promises and plans of the gallery are realistic, feasible, and will be realised, or if they are just between the lines of a contract. It could be argued that artists find it essential that the gallery does not restrict their freedom, but rather that it seeks to give the artist the broadest possible access to the art field.

The analysis of the responses of the galleries has highlighted the following criteria for galleries in their choice of artists:

1. **Career of an artist.** Continuity, potential and attractiveness of the artist.
2. **Human factors.** Consideration is given to whether the artist is open to collaboration and the trusting relationship between the gallery and the artist.
3. **Reaction of the audience to the creativity.** Galleries test, see if the artist they are planning to collaborate with is suitable for the gallery, and receive positive reactions and interest from gallery visitors, collectors and art lovers.
4. **Corresponding to the face and style of the gallery.** Galleries develop their activities, strategies, vision, which corresponds to the list of artists.
5. **Contemporary art tendencies.** Galleries follow and observe what is happening in the field of contemporary art, what the trends are, and they choose and look for new talents based on that.

These criteria help galleries to assess and select the best artist for them in advance and to offer them the next stage of their collaboration.

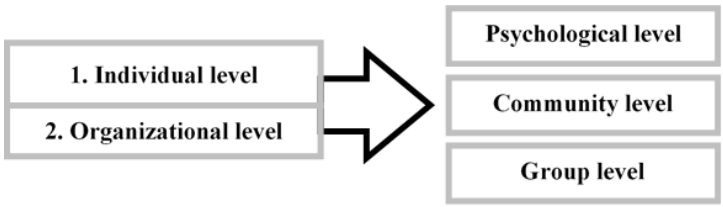
The collaboration between the gallery and the artist can best be described as a mutual collaboration in which both sides help and communicate with each other in one way or another. The gallery shares, introduces its contacts, its art field, its projects, tries to overcome, presents its work, writes projects for fairs, exhibitions. Artists also share their contacts with collectors, curators, museums, media, journalists. The representative argues that it is not so much an appointment as

a collaboration with the artist, with a shared commitment to complete projects, so there is a responsibility for both the gallery and the artist.

Artists unanimously say that galleries have had a significant influence on them. They get the opportunity to become more visible in the media and the art world. The gallery is like a first step into the art field and market; it helps them to understand how things are going, motivates them, and financially contributes to the development of creativity and making friends and contacts. Galleries have highlighted that young artists often lack technical, self-presentation skills, the creation of a portfolio, metrics, how the work has to be submitted to the gallery, what form to receive it in, signature, dimensions. The galleries introduce them to the market and management processes, pricing, how the gallery works, etc.

Levels of empowerment, ways and measures used by galleries for artists

The empowerment levels according to the galleries are all used, stating that the empowerment levels are all closely linked, and what is missing is apparent when you start working with the artists, and then you try to get everything in order. It is stressed that the gallery works specifically for the artists and seeks to have a personal relationship with them, motivate them, and stimulate their creativity. The representative of the gallery stresses that individual empowerment comes first, followed by collaboration at the **organisational level**. The others he calls nonessential, as they may be used more by some artists and less by others. Based on the responses received, Fig. 1, compiled by the galleries, shows the order of importance of the levels of empowerment to the gallery to empower the artist.

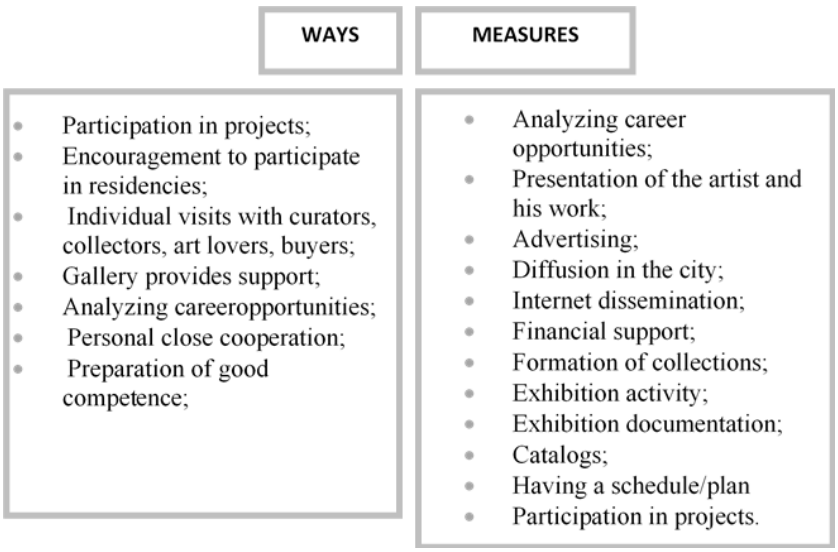


Source: created by the authors.

Fig. 1. The importance of levels of empowerment when collaborating with an artist

Galleries empower the artist in the local primary market and the international market. The artist starts in the local market (national) and then in other markets, depending on the plan of the gallery, strategy and programme for that year. So, different options can accelerate the expected success and results. The international market gives the artist a stronger and more reliable hold and opens up other opportunities, as it is a more inclusive art market. The distinction is that markets are different, with trends varying depending on whether the market is local or international. Therefore, the representatives of the gallery say that in shaping the gallery programme, they have to think about what they will present at art fairs and exhibitions in Lithuania, which is due to the difference in audience and demand.

An analysis is being made of where it could be shown, and targeted exhibitions suitable for one or another artist are being sought. Gallery representative claims that by holding an exhibition in a gallery, the artist is already empowered for further steps, and it is important for the artist to take advantage of the given opportunity to be noticed by other galleries and to be active, announce, and inform that he has been presented by one or another gallery. The most important thing for an artist is to create their own biography. This is helped by active participation in projects and encouragement to participate in residencies, which open up many experiences and paths by releasing creative potential. Galleries representatives distinguished the following successful ways and measures in the empowerment process were highlighted (Fig. 2).



Source: created by the authors.

Fig. 2. Ways and measures of the empowerment process

Ways and measures of empowerment that helped artists are dissemination, advertising on internet pages, competitions for art graduates, fairs, obtaining contacts, catalogues, schedule/ plan, documentation for projects of exhibition, prizes and funding. The benefits for artists if they are empowered in the art market are awareness, visibility, audience, contacts, direct and indirect acquaintances with artists, with other galleries, with collectors, art fairs. A gallery is said to have a certain authority that can help generate more interest in the presentation of the artist to an audience. Artists point out that more galleries are needed for smoother empowerment, more open ones adapted to young artists, more open doors, easier access, so that you do not have to wait 1-2 years in line.

Process of gallery empowerment

The process of empowerment is not permanent; the representative of the gallery says that this process can stop the creative path of the artist for some time or forever. However, another representative of the gallery points out that this is a constant process, because when working with artists they have and need to be empowered differently and specifically, and the scale is different, but sometimes there can be creative pauses and then it stops empowerment, renewed motivation to work and empowerment is continued. And this empowerment is present in all phases of the artist's growth. Gallery monitors the impact and results of the empowerment, because it simply adds to the gallery process itself. And it can be seen from the results whether the artist is invited to exhibitions and elsewhere, when asked whether his works are bought, purchased for collections. Plans are being prepared for 1–2 years, how many exhibitions and fairs of local international projects will be held. The number of international shows, museum acquisitions, involvement in private collections, and travelling and sold works is measured. Those results consist of financial, publications, establishment of international relations. Regarding the goals set, the gallery claims that such goals are not final, the main general goal of the gallery is that if the work is worthwhile, it is important to do more for it, because, as the representatives of the galleries say, there are many side circumstances that arise that do not know in which way it can turn everything. It is important to constantly support an active and well-creating artist by participating in that "cauldron".

The representatives of the galleries distinguish that the main powers granted to the artist are the power and freedom left for creation by removing the managerial, informational and technical part, and in this way the artist can be less hindered and concentrate more on his creative process. The gallery provides the opportunity to use the name of the gallery, network, contacts, receive recommendations for residencies, acquire a certain status of the gallery, state and international scholarships, the ability to be recognised and to be visible in its own field by having a connection with the gallery. An artist can manage himself and often does, but there are certain limitations, such

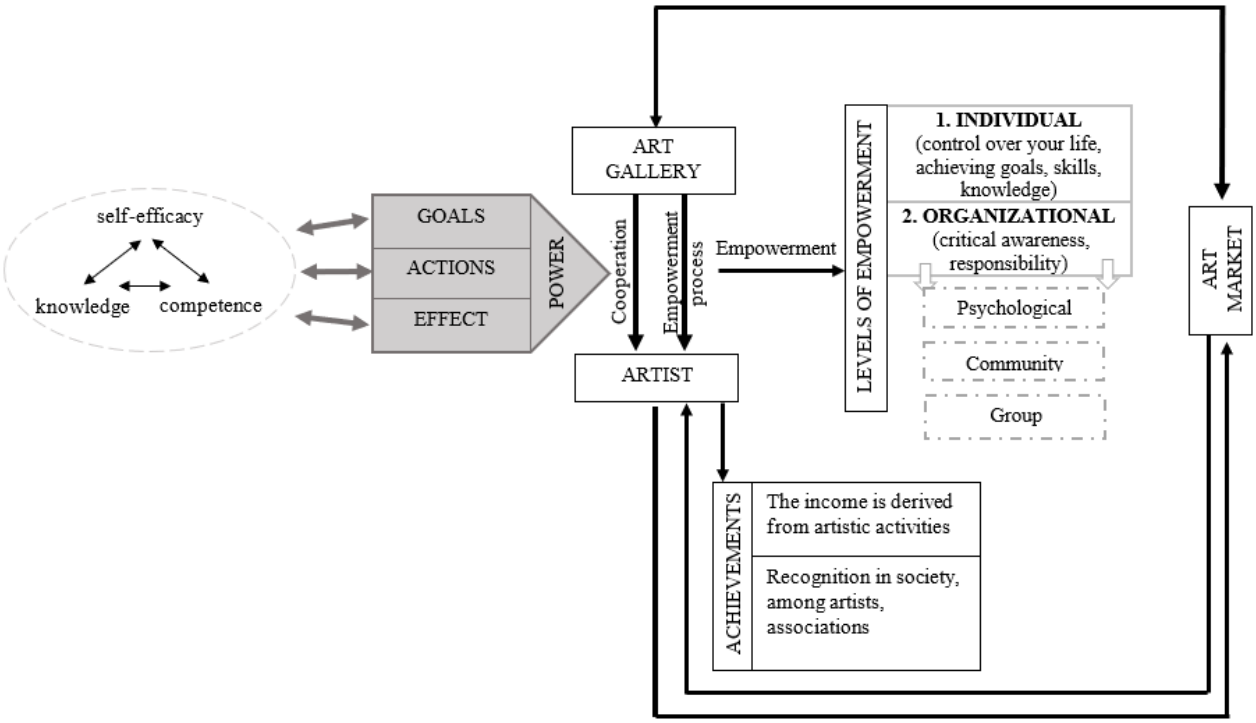
as the fact that only galleries participate in most contemporary art fairs. Therefore, although an artist can participate in various platforms, they need to work with a gallery to get into big, recognised projects. The gallery claims that it is a guarantor for the collector, museum, etc., because it is also a legal guarantor, where everything is done officially with documents, attestations, certificates, etc.

The artists who participated in the study unanimously say that although it can be difficult to enter the art market on your own and the gallery has a huge role in empowering the artist, it is not a complete guarantee. The most important thing is the talent and work of the artist. These things are inseparable because the gallery seeks to empower the talented artist. Gallery highlights the talent of the artist, communicates and creates a marketable product, but without talent, the gallery can be powerless. Nowadays, with the existence of the virtual world, the artist has many opportunities to realise and represent himself in various spaces, and he can be more successful in entering that international market, attracting an audience that can invest in his works of art. However, if the creator creates something that is not suitable for the eyes of the galleries or the audience, it may mean that it will be necessary to look for alternatives for the artist himself. They notice that what is important and sought after now is what stands out, is unique, authentic and unrepeatable. It is said that it is very good when a good artist meets a good gallery, and there is a mutual interaction.

A theoretical model of the role of the gallery in empowering the artist to participate in the art market

Based on the collected and analysed scientific sources, interviews with gallery representatives and artists, a theoretical model was created (Fig. 3). This article will focus more on how the empowerment process is reflected in the model.

The **empowerment process** in the model begins with gallery and artist familiarity and collaboration, which was evident in the responses of the survey from both galleries and artists. In the course of **collaboration**, contracts and other agreements are signed, indicating the beginning of their joint activities. Only two empowerment levels are primary. First, the **Individual level** of empowerment, in which the collaboration between the artist and the gallery begins, when there is a personal discussion, the possibilities of the artist in the gallery. Second, the **Organisational level** of empowerment is used to empower an artist when they are already represented by a gallery and are part of that organisation, in this case, the gallery. The remaining three levels of empowerment, psychological, community and group levels of empowerment, are complementary. This is where the gallery plays an important role, using one or more levels of empowerment depending on what the artist needs at the time to gain the missing knowledge, skills, motivation, etc. During empowerment, the gallery monitors the impact of actions based on whether the artist gains knowledge, competence related to the goal and self-efficacy. After the gallery and the artist discuss the effectiveness of the **empowerment process**, the empowerment continues to participate in the primary, regional, and national art market. The artist and gallery evaluate the results of the empowerment, and if there is a need, then the process of empowerment is continued.



Source: created by the authors.

Fig. 3. A model of the role of the gallery in empowering the artist to participate in the art market

Conclusions

1. The gallery is one of the main localised places where the art market operates and the public is introduced to the work of artists. The art market is an economic and cultural space consisting of various art representatives, where exchange takes place, and supply and demand are formed. Galleries provide information about exhibitions, represented artists and engage in the sale of works of art.
2. Empowerment is a multifunctional, multifaceted and changing concept. There are 5 levels of empowerment that can be used, one or more levels depending on the need. Empowerment is an ongoing process that is used to set a goal that is beneficial to the individual.
3. The research showed that the empowerment process consists of levels of empowerment that are used in all phases of an artist, from a young to an established artist. The activation process can be stopped, but it keeps repeating and restarting when needed. All 5 levels of empowerment that was described in the theoretical part are also used in practice, but galleries are distinguished by the fact that 2 of them are used to initiate collaboration with the artist – individual and organisational, which help the gallery create a personal relationship with the artist and involve them in the activities of the gallery. Empowerment levels are divided into basic and non-basic. This individual level is the first level through which the empowerment process takes place; the gallery will start communicating with the artist. The next is the organisational level, which occurs when the gallery and the artist collaborate or sign a contract, and the gallery represents the artist. The other three, psychological, community and group, are also used, but depending on the artist's needs, some may need more, others less. Another process is collaboration, because after the research, it became clear that collaboration starts with the creation of further activities of the gallery and the artist.

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Team Viability Relationship with Quiet Quitting and Career Satisfaction in Knowledge Workers Teams

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Abstract. This study analyses the role of team viability in quiet quitting and career satisfaction. Understanding the core principles of viable teams and disengaged team members or being satisfied with their careers could enable organisations to be more adaptable to the workforce. An empirical study was conducted on a sample of 207 knowledge workers from various organisations. The results of the multiple regression analysis suggest that team viability has a significant negative relationship with quiet quitting, and a significant positive relationship with career satisfaction. The mediation analysis results showed that career satisfaction mediated the relationship between team viability and quiet quitting. The study provided insights about viable team members participating in lower quiet quitting behaviours, and if those team members feel satisfied with their careers, quiet quitting behaviours are even lower.

Key words: team viability, career satisfaction, quiet quitting, knowledge workers teams.

Introduction

Relevance of the article

There is increasing concern about the phenomenon of quiet quitting, where workers intentionally restrict their job-related activities to the absolute minimum required by their position's specifications (Serenko, 2024). These disengaged team member behaviours can affect team dynamics and overall organisational performance. In addition, while quiet quitting may help individual employees avoid burnout and prioritise their well-being (Serenko, 2024), it can also jeopardise their professional careers, team effectiveness, and team viability. Career satisfaction is an additional individual outcome that can be affected by team viability and, in turn, lower team members' quiet quitting behaviours. Knowledge workers in organisations tackle difficult tasks to concentrate on solving problems, generate information, share it, and apply it to get results (Surawski, 2019). These teams are essential for fostering innovation and adaptability within a rapidly changing economic landscape. Understanding the links between team viability, career satisfaction, and quiet quitting is vital for maintaining effective and sustainable teams of knowledge workers in today's work environment. This group and individual outcome connection covers the complexity of managing modern workplaces, and is an important research topic.

Problem investigation level

There are studies on factors that affect team viability (Tekleab et al., 2009; Maynard et al., 2019; Sniffen et al., 2019); however, the impact of team viability on other team dynamics or individual team members has only been studied in the context of performance (Xue et al., 2022; Hu & Liden, 2015). In this research field, the mechanisms that may account for the relationship between team viability, career satisfaction, and quiet quitting remain largely unexplored, thus limiting our understanding of these relationships.

Scientific problem: How does team viability affect quiet quitting and career satisfaction in a knowledge worker team?

Object of the article: The impact of team viability on quiet quitting and career satisfaction.

The aim of the article is to investigate the relationships between team viability, quiet quitting, and career satisfaction in knowledge worker teams.

Objectives of the article:

1. To analyse the scientific literature and develop hypotheses on the relationship between team viability, quiet quitting, and career satisfaction.
2. To conduct an empirical study on the links between team viability, quiet quitting, and career satisfaction.
3. To evaluate the strength of the relationship between team viability, quiet quitting, and career satisfaction.

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***Methods of the article*.** Analysis of literature sources, synthesis, and comparative data analysis were employed. For the empirical study, an online questionnaire survey was chosen and data analysis was carried out using IBM SPSS and JASP 0.19.1.

1. Literature review

The knowledge possessed by work teams is a significant asset for a variety of organisations (Lewis, 2004). According to Davenport (2005), knowledge workers have a high degree of expertise, education, and experience. His descriptions and theoretical explanations of knowledge workers are widely used in the scientific literature, this article being no exception, for it adopts the same conceptualisation. Davenport (2005) states that knowledge workers "think for a living" and "any heavy lifting on the job is intellectual, not physical." According to Todericiu, & Beca (2022), in modern organizations, knowledge workers' teams are characterised by creativity, a drive for change, problem-solving abilities, and a focus on opportunities for development. In addition, these teams perform complex tasks (Lewis, 2004; Surawski, 2019) where members must create, apply, and combine their expertise to achieve effective performance (Lewis, 2004). The productivity of knowledge worker teams is important not only for organisation (Todericiu, & Beca, 2022), but also for generating goods or services (Lewis, 2004).

For organisations to achieve their objectives and maintain long-term sustainability, the effectiveness of teams, especially team viability, is a crucial foundational element. Team viability emerged in the scientific literature as a part of team effectiveness research. Hackman's group effectiveness model (Hackman, 1987) introduced three aspects of effectiveness, including a new criterion, "capability of members to work together in future is maintained or strengthened", which was later named team viability. Subsequently, the concept of team viability gained increased attention in the field. Later, Sundstrom et al. (1990) viewed team effectiveness as two elements of performance and viability, and described team viability as "members' satisfaction, participation, and willingness to continue working together". Other authors have defined team viability as members' willingness to continue functioning as a team (Barrick et al., 1998), or a "team's capacity to adapt to internal and external changes, as well as the probability that team members will continue to work together in the future" (Aubé, & Rousseau, 2005). In the modern context, team viability is described as "a team's capacity for the sustainability and growth required for success in future performance episodes" (Bell, & Marentette, 2011).

Members' participation in quiet quitting behaviours is one negative aspect that can affect team dynamics and viability. As posited by Formica and Sfodera (2022), the term quiet quitting can refer to the "limited commitment of employees to carry out the assigned duties and to relinquish from any other task not specified in their job description." Participating in quiet quitting behaviours can prevent burnout and help set boundaries between work and personal life (Boy & Sürmeli, 2023; Hamouche et al., 2023). Quiet quitting also entails being disengaged from work and doing the minimum to cope (Scheyett, 2023). The negative consequences of being a quiet quitter can include leaving the job, getting demoted, denying promotions and increased salaries (Serenko, 2024), or positive promotions and/or increased salaries (Serenko, 2024).

Individual team members' satisfaction with their careers could affect team dynamics, or vice versa. A construct of career satisfaction is the degree to which individuals believe that their career advancement is in accordance with their objectives, values, and preferences (Barnett, & Bradley, 2007). The most commonly used scale to measure career satisfaction was developed by Greenhaus et al. (1990), where career satisfaction is viewed as a career outcome. Employees' subjective assessment of their professional accomplishment is referenced in the term "career satisfaction" (Chang et al., 2020) and can be evaluated both objectively (salary, title, promotions, etc.) and subjectively (feeling of accomplishment and satisfaction). Career satisfaction differs considerably from job satisfaction. According to Chang et al. (2020), job satisfaction refers to satisfaction with a specific job, rather than a long-term career. Having theoretically framed the concepts of team viability, quiet quitting, and career satisfaction, further analysis guides the research and possible relationships.

2. Hypothesis development

Team viability involves a plethora of aspects. According to Sundstrom et al. (1990), it can consist of members' satisfaction, participation, and willingness to continue working together. However, no scientific studies have shown the direct impact of team viability on quiet quitting behaviours. Team viability, as a positive team state, can help reduce disengagement from one's work.

Various studies have found a connection between quiet quitting and factors, such as workplace ostracism, knowledge hiding (Dutta et al., 2024), dissatisfaction, and disengagement (Hamouche et al., 2023). Several studies have discovered that job burnout is statistically significant for quitting and has a positive effect (Lu et al., 2023; Xueyun, Yang, et al., 2024; Thu Trang, & Thi Thu Trang, 2024). Results from a study conducted by Bansal, & Garg (2024) showed that workplace conflict (relationship and task conflicts) can lead to higher quiet quitting intentions in the workplace. Since members of viable teams were found to be flexible (Afolabi, & Osayawe 2005), have trust and respect (Jehn et al., 2008), team cohesion (Barrick et al., 1998), satisfaction (Poulton, & West, 1994), and other positive states that promote positive emotions as well as team member well-being, these states should reduce the aspects of dissatisfaction, disengagement, burnout, and conflicts experienced by members, thus lowering quiet quitting behaviours. In addition, some studies have shown that employee well-being lowers quiet quitting (Lu et al., 2023; Prentice et al., 2024). This leads to the following hypothesis:

Hypothesis 1: team viability is negatively related to quiet quitting.

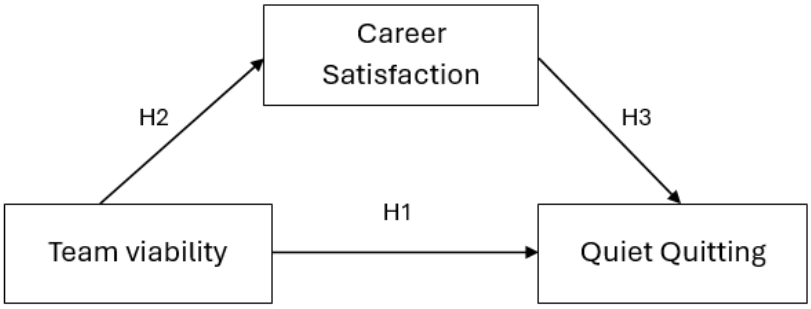
Team viability can strongly influence various aspects of team members' experiences. Nevertheless, research is yet to explore the direct influence of viable teams on team members' career satisfaction. A study by Foo et al. (2006) found that open communication and intrateam processes of social integration were positively related to team viability and member satisfaction. According to Latan et al. (2022), career satisfaction is strongly related to trust in superior members and a positive work environment. This leads to the following hypothesis:

Hypothesis 2: team viability is positively related to career satisfaction.

Quiet quitting implies low investment in work activities; therefore, employees are disengaged at work and do not intend to go above or beyond their line of duty (Formica, & Sfodera, 2022). There is statistical evidence that satisfaction affects quiet quitting, because there is a negative relationship between quiet quitting and job satisfaction (Galanis et al., 2023; Suhendar et al., 2023; Xueyun et al., 2024; Karadas, & Çevik, 2024), demonstrating that employees with lower levels of job satisfaction may have higher levels of quiet quitting (Galanis et al., 2023). Talukder and Prieto (2024) found that a moderate level of job satisfaction co-exists with a moderate level of quiet quitting. Although job satisfaction and career satisfaction are different constructs, there is no direct evidence that career satisfaction can affect quiet quitting. Various studies have demonstrated a negative correlation between career satisfaction and the intention to quit (Verbruggen, & van Emmerik, 2018; Chan et al., 2016), which suggests that it could also affect quiet quitting. Keeping in mind that team viability consists of satisfaction, cohesion, and other positive states, there is a possibility of a mediating relationship in which team viability influences quiet quitting behaviours through career satisfaction. Thus, the following hypothesis was formulated:

Hypothesis 3: career satisfaction mediates the relationship between team viability and quiet quitting.

The conceptual framework of the study's hypotheses is presented in Fig. 1.



Source: created by the author.

Fig. 1. Conceptual research model

3. Research methodology

This study aims to statistically examine the relationships between team viability, career satisfaction, and quiet quitting in knowledge worker teams. **The objectives of this study are as follows**: (1) to describe sociodemographic characteristics of the study sample; (2) to determine the impact of team viability on quiet quitting; (3) to determine whether team viability impacts career satisfaction; and (4) to identify whether career satisfaction mediates the relationship between team viability and quiet quitting.

Research methods. The research employs quantitative empirical research (online survey), statistical data analysis using BM SPSS Statistics 30.0.0 software and JASP 0.19.1.0, with the application of statistical analysis methods: descriptive, multiple regression, and process analyses.

Survey sample. This study focuses on knowledge worker teams in Lithuania. Data were collected from September to November 2024 using an online Qualtrics survey. The target group was approached through Facebook and LinkedIn using the purposive sampling method. To qualify for the study, participants were required to be 18 years or older, be a knowledge worker, and to work in the team. Before answering the questionnaire, the respondents were provided with a description of a knowledge worker based on Davenport's (2005) conceptualisation: *"A knowledge worker is a person whose main resource is what he/she knows. A popular expression would be 'an employee who works with his head, not his hands' or 'does mental, not physical work'. For example, administrative staff, managers, consultants, engineers, analysts, architects, researchers, accountants, medical workers, or educational specialists".* Subsequently, an additional question was posed to ascertain whether the respondents were currently engaged as knowledge workers. An additional requirement for managerial positions was to be part of the team where they were the team members and not managers, since the study focused on the team member perspective. An additional question was posed to ascertain this requirement. Only after reading the informed consent form and confirming their willingness to participate did respondents take part in the study and answer the questionnaire.

Data were obtained from 207 individuals, and the full profile of the research respondents is shown in Table 1. In terms of gender, women accounted for 71.5 %. In terms of age, the majority of employees were aged 27–35 (69.57 %). In terms of educational level, the highest proportion of respondents had a master's degree (46.86 %). Most of the participants worked in large organisations with 250 or more employees (41.55 %). A high percentage of the respondents (58.94%) worked in a hybrid work environment. As for the organisational tenure, most respondents had worked for 1–3 years (37.68%) and 5–10 years (31.40 %). These findings revealed a reasonable distribution of respondents in the study.

Table 1

Profile of research respondents

	N	%		N	%
Gender			**Size of the organisation**		
Male	59	28.50	Very small (up to 9 employees)	11	5.31
Female	148	71.50	Small (10 to 49 employees)	66	31.88
			Medium (50 to 249 employees)	44	21.26
Age group			Large (250 or more employees)	86	41.55
18–26	17	8.21			
27–35	144	69.57			
36–45	35	16.91	**Organisational tenure**		
46–64	11	5.31	Up to 3 months	15	7.25
			3 months – 1 year	19	9.18
Education			1–3 years	78	37.68
Secondary	7	3.38	3–5 years	26	12.56
Bachelor's degree (college)	19	9.18	5–10 years	65	31.40
Bachelor's degree	65	31.40	More than 10 years	4	1.93
Bachelor's degree (college)	19	9.18			
Master's degree	97	46.86	**Work Environment**		
Doctorate degree (PhD)	19	9.18	Hybrid	122	58.94
			Remote	16	7.73
			Office	69	33.33

Source: created by the author.

Measures. In this research, the scales of team viability, career satisfaction, and quiet quitting were used to measure the variables. Double translation was applied to verify the consistency of the questionnaire in Lithuanian. Each statement was rated on a 5-point Likert scale (1 = "completely disagree", 5 = "completely agree"). Cronbach's alpha was used to test the scale reliability of all constructs used in the data analysis.

The scale developed by Demir, & Ergün (2023) was used to assess team viability. The scale consisted of seven items. Examples of items include "The members of this team could work for a long time together" and "This team has the capacity for long-term success". As the number of points collected in the questionnaire increased, so did the perceived team viability. The overall internal consistency coefficient of the scale (Cronbach's α) is 0.86.

To assess career satisfaction, the scale developed by Greenhaus et al. (1990) was used. This scale consists of five items; an example is "I am satisfied with the success I have achieved in my career". As the number of points collected in the questionnaire increases, the more satisfied with their careers the employees are considered to be. The overall internal consistency coefficient of the scale (Cronbach's α) is 0.81.

A quiet quitting scale (QQS) was used to assess quiet employees quitting. The QQS consists of nine items that measure detachment, lack of initiative, and lack of motivation. The scale was developed by Galanis et al. (2023). An example of an item is "I do the basic or minimum amount of work without going above and beyond". Two items were removed from the scale for higher reliability, after which the overall internal consistency coefficient of the scale was (Cronbach's α) = 0.71.

Control variables. Consistent with prior research (Wang et al., 2019; Galanis et al., 2024), the following control variables are selected: age, gender, education, work environment, organisational tenure, and organisation size.

4. Results

Descriptive statistics and correlations. The descriptive statistics for all the study variables are presented in Table 2. As can be seen in the table, the mean for team viability is 24.22 (SD = 4.15) and the mid-point is 17.5, indicating that employees are working in teams with a perceived high viability. The results indicate that career satisfaction is high, with a mean sum score of 18.25 (SD = 3.44) and a mid-point of 12.5, suggesting that knowledge workers are more satisfied with their careers. Quiet quitting, with a mean sum score of 15.17 (SD = 3.93) and a mid-point of 17.5,

shows that knowledge workers demonstrate lower participation in quiet quitting behaviours. In addition, as shown in Table 2, team viability was found to be significantly correlated with age ($r = -0.15$, $p < 0.05$) and education ($r = -0.235$, $p < 0.01$). Career satisfaction was significantly correlated with team viability ($r = 0.26$, $p < 0.001$). Quiet quitting, as seen in Table 2, was significantly correlated with work environment ($r = 0.20$, $p < 0.05$), organisational tenure ($r = -0.18$, $p < 0.05$), education ($r = -0.27$, $p < 0.001$), age ($r = -0.18$, $p < 0.05$) and career satisfaction ($r = -0.28$, $p < 0.001$).

Table 2

Correlation matrix with means and standard deviations

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Age	—								
2. Gender	0.02	—							
3. Education	0.33***	-0.11	—						
4. Org. size	-0.13	-0.12	-0.13	—					
5. Org. tenure	0.29***	-0.03	0.04	0.19**	—				
6. Work Environment	0.13	-0.02	-0.06	-0.14*	-0.10	—			
7. TV	-0.15*	0.08	-0.24***	0.08	0.06	0.03	—		
8. CS	0.00	0.06	0.06	0.13	0.09	-0.10	0.26 ***	—	
9. QQ	-0.18**	0.121	-0.27***	-8.26×10^{-4}	-0.18**	0.20**	-0.12	-0.28***	—
Mean	2.19	1.71	3.49	2.99	3.58	1.74	24.22	18.25	15.17
Standard deviation	0.66	0.45	0.91	0.98	1.27	0.93	4.15	3.44	3.93

Note. N=207, * p < .05, ** p < .01, *** p < .001, CS – career satisfaction, QQ – quiet quitting TV – team viability.

Source: created by the author.

Variance tests were used to compare the differences between age groups, education, organisational tenure, and work environments for significant differences in quiet quitting using the recommended post hoc analysis tests.

Study respondents aged 36–45 scored significantly lower in quiet quitting than younger respondents aged 18–26 (t-value= 3.005, $p = 0.02$) and respondents aged 27–35 (t-value= 2.895, $p = 0.02$). A significant difference in quiet quitting behaviours was found between respondents with a master's degree and those with a doctorate (t-value= 3.200, $p = 0.01$), whose scores were significantly lower. In comparison, respondents with a master's degree and a bachelor's degree scored significantly higher in quiet quitting (t-value= -3.928, $p < 0.01$). Respondents with a doctorate scored significantly lower in quiet quitting than those with a bachelor's degree (t-value= −5.492, $p < .001$) or a bachelor's degree (college) (t-value= −2.919, $p = 0.03$). Organisational tenure of 3 months and 1 year was significantly higher in quiet quitting than tenure of 5–10 years (t-value= 3.202, $p = 0.02$) and tenure of more than 10 years (t-value= 3.511, $p = 0.01$). A significant difference was found when comparing the work environment of hybrid and office workers (t-value= −2.957, $p = 0.01$), with office workers scoring significantly higher in quiet quitting.

Hypothesis testing. This hypothesis was tested using a multiple regression analysis. Model 1 is the base model testing the relationship between the control variables and the dependent variable (see Table 3). Model 2 tested the relationships between the independent and dependent variables quiet quitting (H1) and career satisfaction (H2).

Hypothesis 1 states that team viability is negatively related to quiet quitting. The regression Model 2 was significant ($R^2 = 0.21$, $F = 6.547$, $p < 0.01$). The results in Table 3 confirm Hypothesis 1: team viability negatively affects quiet quitting ($\beta = -0.21$, $p < 0.01$).

Hypothesis 2 states that team viability is positively related to career satisfaction. Regression analysis shows that Model 2 was significant ($R^2 = 0.04$, $F = 3.290$, $p < 0.001$). As shown in Table 3, the team viability effect on career satisfaction was positive and significant ($\beta = 0.28$, $p < 0.001$).

Table 3

Regression of team viability on quiet quitting and career satisfaction

Model		Quiet Quitting			Career Satisfaction		
		β	R^2	R^2 change	β	R^2	R^2 change
M_1							
	Control variables		0.17			0.04	
M_2							
	Team viability	-0.21**	0.21	0.04**	0.28***	0.11	0.7***

Note. ** p < .01, *** p < .001. Control variables: age, gender, education, org. size, org. tenure, work environment.

Source: created by the author.

Hypothesis 3 was tested using the PROCESS macro in the JASP software with 5,000 bootstrapped samples. The path coefficients showed that career satisfaction significantly predicted quiet quitting (p = < 0.001); the higher the career satisfaction, the lower the quiet quitting behaviours (see Table 4). Team viability significantly positively predicted career satisfaction (p < 0.001). The higher the team viability, the higher the career satisfaction, which is consistent with H2. Furthermore, to assess the mediation effect, the direct and indirect paths were analysed (see Table 4). The indirect effect of team viability on career satisfaction was statistically significant, indicating that career satisfaction mediates the relationship between team viability and quiet quitting. The 95% CI of the indirect effect was [-0.128, -0.021], p < 0.01. Thus, the results support Hypothesis 3.

Table 4

Direct and indirect effects

									95% CI	
Paths					Estimate	SE	z-value	p-value	Lower	Upper
TV	→	QQ			-0.051	0.065	-0.783	0.434	-0.195	0.084
CS	→	QQ			-0.308	0.079	-3.905	< .001	-0.484	-0.133
TV	→	CS			0.215	0.056	3.878	< .001	0.103	0.337
TV	→	CS	→	QQ	-0.066	0.024	-2.752	0.006	-0.128	-0.021

Note. Confidence intervals are percentile bootstrapped. Standard errors, z-values and p-values are based on the delta method. CS – career satisfaction, QQ – quiet quitting TV – team viability.

Source: created by the author.

The final relationships can be summarised as follows from the hypothesis testing: team viability has a significant negative impact on knowledge workers' quiet quitting behaviours. Team viability has a significant positive impact on knowledge workers' career satisfaction. Career satisfaction plays a mediating role in the impact of team viability on quiet quitting behaviours in knowledge worker teams. Team viability can increase employees' career satisfaction and reduce quiet quitting behaviours.

Conclusions

1. Team viability is conceptualised as a team's capacity for long-term success and stainability, while quiet quitting is conceptualised as limited commitment of employees to carry out their assigned duties. The theoretical knowledge about these two variables is unexplored; thus, the hypothesis was formulated as H1: team viability is negatively related to quiet quitting. Additional variable individual outcome (career satisfaction) was included, and H2 and H3 were formulated accordingly: (H2) team viability was positively related to career satisfaction, and (H3) career satisfaction mediated the relationship between team viability and quiet quitting.

2. An empirical study with an online questionnaire was carried out. The sample consisted of 207 knowledge workers. Statistical analysis methods (descriptive, regression, and process analyses) were used to test the hypothesised relationships.
3. This study found a significant negative relationship between team viability and quiet quitting. A significant positive relationship was observed between team viability and career satisfaction. The mediating role of career satisfaction in team viability and quiet quitting relationship was found to be significant. These findings demonstrated that team viability can directly or indirectly influence quiet quitting when team members experience career satisfaction. The results of this study offer practical implications for organisations that focus on building and fostering viable knowledge worker teams that could help decrease quiet quitting.

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The Influence of Digital Advertising on Financial Service Purchase Intentions: The Role of Consumer Emotions and Trust Theoretical Model

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Abstract. The influence of digital advertising on financial service purchase intentions, mediated by consumer emotions and trust, is crucial in today's digital landscape. Intense online competition requires financial service providers to understand digital advertising, emotions and trust impact on consumer intentions. The purpose of this study is to introduce this conceptual model, illustrating how digital advertising, viewed through message and source characteristics, impacts purchase intentions via consumer emotions and trust. Drawing on the RAIA model, the study conceptualises the consumer intention journey in the digital space, acknowledging the evolving information adoption landscape. The model differentiates between fear and greed as instantaneous emotional responses to advertising, rather than inherent consumer traits. Furthermore, it distinguishes mistrust as a separate construct from low trust, highlighting its significant impact on purchase intentions. The findings offer practical implications for marketers, researchers, and financial institutions seeking to develop effective digital advertising strategies grounded in the RAIA framework.

Key words: digital advertising, financial services, emotions, greed, trust.

Introduction

Relevance of the article

The digital age has created the right conditions for businesses to reach potential customers in significantly more effective ways than before. The application of the digital space in everyday life is also reflected in the "EU's Digital Decade Policy Programme 2030", which focuses on the digital market, digital services, and the use of innovative digital tools by small businesses. All of these areas are already affecting consumers, as companies collect increasing amounts of personalised data about them. Consumers can purchase not only goods but also services faster, and artificial intelligence is already creating specialised content for them. Most people use financial services on a daily basis, and many of them have moved to the digital world. It is precisely because of the complexity and uniqueness of the financial services sector that there are also risks due to misleading advertising, growing distrust of the sector itself, and financial fraud in the digital space (Global Report: Trust in Financial Services, 2021; Europol, 2023; Statista Research Department, 2023).

This article is relevant for organisations, both from a scientific and practical point of view. For financial institutions, it provides insights into consumer behaviour in the digital space, the influence of advertising elements, emotions, and trust on financial services purchase intentions, and will help create more effective advertising campaigns. From a scientific point of view, this article provides a conceptual model that helps to understand the interaction of these factors. The article is also relevant for state institutions, encouraging them to review the regulation of financial services advertising in order to protect consumers from manipulation.

Problem investigation level

In scientific databases (*Web of Science and Scopus*, 2025), the subject of digital advertising is studied 5 times less often than the subject of digital marketing. Technological progress has divided marketing into two types: traditional and digital marketing. With the development of digital marketing, not only advertising channels and tools are changing, but also the process of consumer information adoption, which can affect their intentions when they see advertising in an ever-growing stream. Two areas of marketing, the importance of which has been discussed by authors Vargo, & Lusch (2004), Fisk et al. (1993), Bartels (1988), and Hotchkiss (1933) for a long time, are

https://doi.org/10.15388/Gronskis.2025.4

advertising and services marketing (Shaw, & Jones, 2005). Nowadays, it is important to review a separate marketing component: advertising, which has rapidly changed in the digital context.

Emotions have long played an important role in consumer behaviour and the decision-making process (Pham, 1998; Bagozzi et al., 1999; Leone et al., 2005). Engvall (2017) identifies greed and fear as the two primary emotions influencing people's decisions in financial trading. Like many other emotions (e.g. envy, anger, etc.), greed can be considered as a personal trait, characteristic, motivation or emotion (Forgays et al., 1997; Lange, & Cruisius, 2014; Seuntjens, 2015; Zeelenberg et al., 2022), but this article analyses situational greed, which is classified as an emotion. It is important to note that the emotions of greed and fear in the financial sector are most often examined through their influence on the financial market. However, there has been observed a lack of analysis from the consumer perspective when intending to purchase financial services, specifically after seeing digital advertising, where emotions can influence irrational decision-making.

Scientific discussions offer different views on the trust construct. Some authors (Mayer et al., 1995; McKnight et al., 1998; Sauedu et al., 2022) argue that trust is a single construct (high trust and low trust), whereas others argue that distrust is different from low trust and it plays a much more important role in consumer intentions than trust (Wu et al., 2006; Komiak, & Benbasat, 2008; Dimoka, 2010; Chang, & Fang, 2013).

Understanding consumer behaviour and the influence of advertising on their intentions to purchase financial services requires combining knowledge from marketing, psychology, finance, and communication. However, financial services in the context of the digital space are usually analysed from an economic rather than a managerial perspective. Thus, this article aims to theoretically assess the influence of digital advertising on consumer intentions, rather than on the financial market, and to develop a conceptual model to explain this.

Scientific problem

What is the impact of digital advertising on consumers' intention to purchase financial services?

Object of the article

The influence of digital advertising on consumers' intention to purchase financial services through the influence of emotions and trust.

Aim of the article

To determine the influence of digital advertising on consumers' intention to purchase financial services through emotions and trust.

Objectives of the article

1. To analyse the concept and elements of digital advertising and consumer behaviour in the digital space;
2. To analyse the role of consumer emotions (greed and fear) and trust;
3. To create a theoretical model of the influence of digital advertising on consumers' intention to purchase financial services through the influence of emotions and trust.

Methods of the article

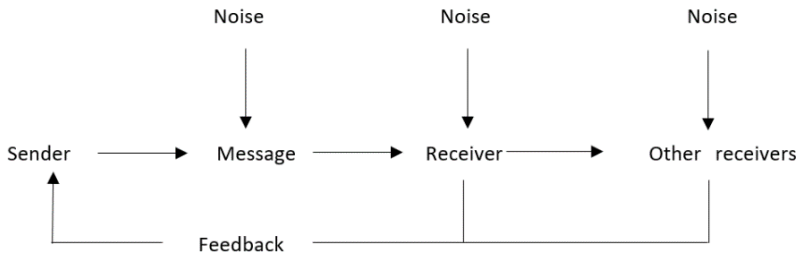
When examining the object of the study, the following research methods are used: scientific analysis of foreign and Lithuanian authors, analysis of primary data, as well as conceptual analysis in order to clarify the definitions of concepts and their connections with other concepts of the work. When examining scientific literature, abstraction and synthesis analyses were applied in order to identify regularities and trends, as well as to distinguish the authors' perspectives and discover contradictions in the concept under study.

1. Literature review

1.1. The concept of digital advertising and consumer behaviour

Traditionally, the advertising communication process model is based on the idea that the message is one-way: the sender sends the message, the message travels through the noise and reaches the recipient (Shannon-Weaver, 1949). However, with the development of the digital space,

the advertising process is transforming into two-way communication, because the senders themselves can also be the recipients of the message (Fig. 1).



Source: created by the author, based on Burcher (2012).

Fig. 1. A Transformed Shannon-Weaver digital advertising process model

The most recent theoretical discourse on the evolution of marketing includes the postmodern marketing paradigm (the 1980s), which marks the transition from traditional to modern approaches (Kotler, 2017). In traditional marketing, the customer's journey from product awareness to purchase was explained by the AIDA model (Lewis, 1989), but in the digital environment this model is transformed into the RAIA model (Visser et al., 2022), which is based on the funnel of the traditional system (Table 1).

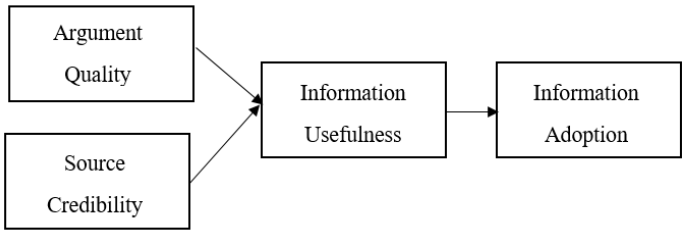
Table 1

The concept of AIDA and RAIA models

AIDA model	RAIA model
A – advertisements; grab awareness; keyword importance; design; visual appeal; number of unique visitors	R – reaching the target audience via **digital advertising** channels: social media, SEO, e-mail, marketing, etc.
I – promotional activities; interest development; **message** decoding; ease of use; average duration of visits; bounce rate	A – informing those who have been reached about the brand or the offer using ad creative and clear, valuable and attractive **message**
D – foster desire; **trustworthiness**; most visited pages	I – generate interest for those that have been paying attention to the message before, reduce **mistrust**, and increase **trust**
A – personal selling, storytelling, facilitate action; value proposition; discounts; promotions; vouchers; promoting **purchase decision**; number of clicks	A – motivate interested people to **take the desired next step**: filling form, follow social media, make a purchase, etc.

Source: created by the authors, based on Banerjee (2022), Visser et al. (2022).

Digital transformation provides users access to any information, at any time of the day and in any location. For this reason, there is a need to understand how users adopt information available on the internet and how they change their intentions or behaviour when using digital platforms. This approach is supported by Sussman's (2003) Information Adoption Model (IAM), which combines the TAM and ELM models and uses argument quality as a central path, source credibility as a peripheral path, and perceived usefulness of the information as a mediator (Fig. 2).



Source: Wang, & Tseng (2016).

Fig. 2. Information adoption model

Christy et al. (2008), Cheung et al. (2008), and Filieri and McLeay (2014) distinguish four dimensions of argument quality: (1) relevance, (2) timeliness, (3) accuracy, and (4) completeness, and two dimensions of source credibility: (1) source expertise and (2) source trustworthiness, based on organisational behaviour. Having analysed the aforementioned theoretical models, it is worth distinguishing two main elements of digital advertising: the advertising message and the source through which that message is transmitted. The advertising message and the source can affect consumer intention and behaviour through the interaction between information processing, credibility, emotions, motivation, and social influences. These elements have a greater impact on consumers in the digital space than in the traditional one, as they can perform the purchase action with the click of a few buttons and even turn a rational intention into a quick, irrational action. According to Ashley, & Tuten (2015), Belch, & Belch (2018), and Sheiner et al. (2021), an advertising message consists of two main elements: (1) the main message, representing the benefits offered to the consumer, and (2) the creative appeal of the message. These elements are also explained by the ELM model, which examines the relationship between psychology and behaviour in perceiving advertising content and is often used in the context of social media (Geng et al, 2021; Segev, & Fernandes, 2022). However, the authors evaluate the components of the message differently (Table 2).

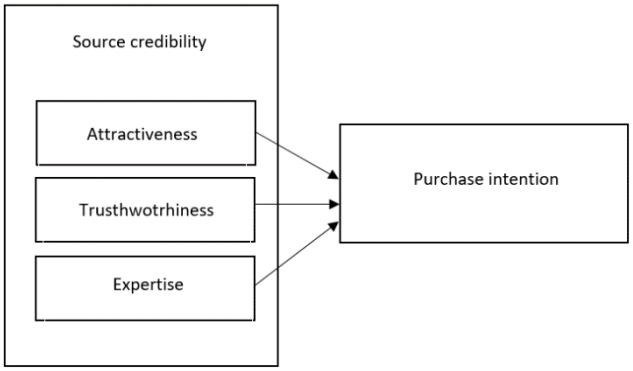
Table 2

The authors' views on the components of the message

Authors	Component of message
Ashley, & Tuten (2015); Belch, & Belch (2018); Sheiner, & Kol (2024)	1) The main message representing the benefit offered to the consumer 2) The creative appeal of the message
Arens, & Weigold (2022)	1) Meeting consumers' psychological, safety, self-actualization, esteem or social needs
Kotler (1967); Cialdini (2006); Cappela (2006; 2023)	1) Content of the message 2) Form of the message
Johnson et al. (2005); Park et al. (2007)	1) The strength of the argument
Plelienė, & Grigaliūnaitė (2015)	1) The source of message
Stewart, & Furse (2000); Geng et al. (2021); Kim et al. (2021); Wajid et al. (2021); Segev, & Fernandes (2022)	1) Message strategy and its impact 2) Creative prompt
Sheiner, & Kol (2024)	1) Personal gain 2)The benefit of shared experience 3) Creative prompt
Sussman et al. (2003); Christy et al. (2008); Cheung et al. (2008); Filieri, & McLeay (2014); Wang (2016)	1) The quality of the argument

Source: created by the authors

Another essential element in the context of digital advertising is the source, which determines how consumers receive and interpret a digital message. An advertising source can be a person, organisation, or platform that transmits information about a service. However, the type of advertising can differently affect the perception of the credibility of the source and the intention to purchase (Weismueller et al., 2020). Shareef et al. (2019) argue that the credibility of the source affects the value of digital advertising, as visible advertisements on the Internet are considered more trustworthy than traditional media advertisements. The credibility of the source helps the recipient of the information to associate the information with a positive or negative connotation and determines how the source of information can affect the recipient's attitude towards the information itself (Petty et al, 1983; Cheung et al., 2008). Source credibility encompasses three main effects: purchase intention, brand attitude, and advertising (Hovland et al, 1953; Dholakia & Stemthal, 1977; Amos et al., 2008; Wang, & Scheinbaum, 2018; Phua et al., 2018).



Source: created by authors, based on Weuismueller et al. (2020)

Fig. 3. A model of the relationship between advertising source attributes and consumer purchase intentions

In conclusion, clear motives of the advertising message can increase the credibility of the source, which is very important in the service sector, since trust is a key element that shapes the strength of consumer intention. Pornpitakpan (2003), Gunawan, & Huarng (2018), and Wang, & Scheinbaum (2018) argue that there is a positive relationship between source credibility and purchase intention. Yet, according to numerous authors, there is a lack of scientific analysis in the IAM model studies, adding additional variables and assessing their relationship with source credibility and argument quality.

1.2. The role of consumer emotions and trust

Emotions and trust are two essential factors that influence consumers' intentions and decisions when purchasing services. In this context, the concepts of emotions and trust are intrinsically linked, as positive emotional responses can increase trust or reduce distrust, and trust can induce positive emotions that strengthen consumers' intentions. Emotions have long played an important role in consumer behaviour and decision-making (Bagozzi et al., 1999; Luce, 1998; Ruth, 2001, Holbrook, & Hirschman, 1982; Pham, 1998; Leone et al., 2005).

Lavidge, & Steiner (1961) described the hierarchy of effects model (HEM) that details the logical process of consumer purchasing behaviour. The HEM model consists of three main components: cognitive, affective, and conative elements. These components are described as a "think-feel-do" approach, in which the cognitive component consists of rational, mental thought-related elements; the affective component refers to emotional and feeling states; and the conative component includes the tendency to act or behave (Koshkaki, 2013). However, other authors (Dewey, 1910, 1938; Schachter, & Singer, 1962; Cialdini, 1984, 2016) argue that emotions are an element that arises after cognition, rather than a determinant of cognition. According to this view, behaviour can occur faster than cognitive and emotional information processing. Consumers may act on impulse or instinct, and only rationalise their decisions after the action is taken. According to Koshkaki (2013), many consumers are unable to logically explain their attitude towards certain brands or products, in such cases emotions play a crucial role and their influence on consumer attitudes is undeniable.

Financial institutions are increasingly using technology to manipulate customers and encourage emotional buying in order to gain power and control. Engvall (2017) highlights greed and fear as two of the main emotions that influence people's decisions in financial trading. Greed can be conceptualised as a personality trait, characteristic, motivation or emotion (Forgays et al., 1997; Lage, & Cruisius, 2014; Seuntjens, 2016; Zeelenberg et al., 2008, 2022). Consumer greed can manifest in different ways, from a momentary emotion after seeing an advertisement, to a persistent dissatisfaction with the profits or financial well-being already available. Greed, as an emotion, can be studied if we are not talking about dispositional greed, which is treated as a personal characteristic, but about situational greed (Krekels, & Pandelaere, 2015; Seuntjens, 2016; Lambie, & Haugen, 2019; Zeelenberg, & Breugelmans, 2022). However, from an advertising perspective,

this study considers greed as an emotional response, assuming that exposure to advertising can trigger greed even in individuals who do not typically exhibit this emotion as a daily trait.

Within the academic literature, fear in the financial sector is often analysed in relation to market activities. However, it is crucial to understand the influence of fear on consumers intending to purchase financial services within the digital landscape. Common consumer fears related to online financial service acquisition include concerns about personal information security and financial losses (Haddad, & Aimeur, 2018).

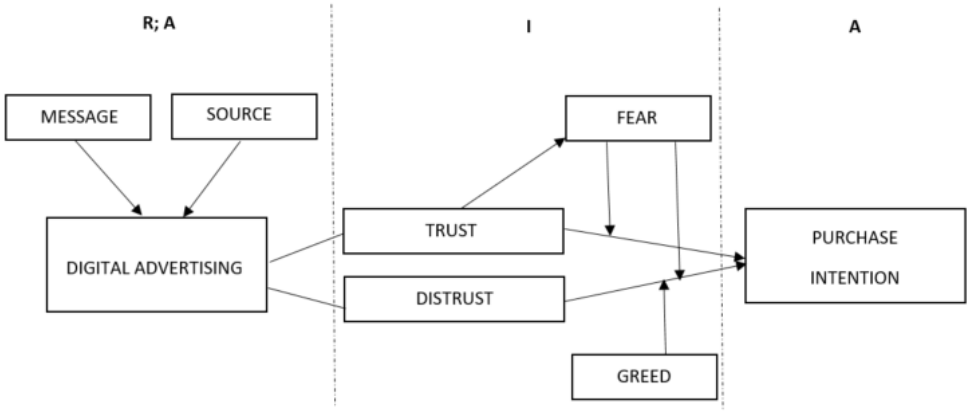
Trust and distrust are considered to be crucial constructs in online trustor-trustee relationships (Moody et al., 2013). Although some studies suggest that trust and distrust are opposite ends of the same spectrum (Mayer et al., 1995; McKnight et al., 1998; Moody et al., 2014), more recent studies argue that they are separate, dual constructs. Moody et al. (2014) and Chang et al. (2013) emphasise that distrust has a much greater influence on trustor intentions than trust. Mayer et al. (1995) and McKnight et al. (1998) argue that distrust is a form of low trust, and can be overcome by building trust. However, newer approaches argue that distrust is different from low trust and that distrust plays a much more important role in consumer intentions than trust (Wu et al., 2006; Komiak, & Benbasat, 2008; Dimoka, 2010; Chang, & Fang, 2013).

2. The impact of digital advertising on consumers' intention to purchase, mediated by emotions and trust conceptual model

The analysis of scientific literature revealed the changes in marketing that have occurred due to technological advances not only for businesses, but also for consumer behaviour, whose information-receiving process in the digital space is different from the traditional space. The authors also argue that emotions and trust are essential factors that influence consumers' intentions when purchasing services. Engvall (2017) identifies greed and fear as the main emotions that influence people's decisions in financial trading. It is important to note that greed and fear in the financial sector are usually assessed through their influence on financial markets, rather than on consumer intentions.

In the presented model, the most important elements of information transmission in the digital space are the advertising message and the advertising source, which can influence consumers' emotions (greed and fear). In the model, emotions are assessed from the user's perspective and play a significant role in the process, especially in the interest part of the RAIA model, when the user is closest to the purchase intention.

Trust in this model is divided into separate constructs: trust and distrust, when intending to purchase services. The model shows that fear can increase distrust and reduce trust. However, the element of trust can also affect the emotion of fear by reducing it. Meanwhile, greed can affect distrust by suppressing it. All these elements can influence consumers' intentions to purchase financial services after seeing digital advertising (Fig. 4).



Source: created by the authors.

Fig. 4. Conceptual model of the digital advertising impact on consumers' intention to purchase, mediated by emotions and trust

In this model, RAIA is a process that helps to explain the coherence of the elements presented in the conceptual model. Reach (R) and Attention (A) include digital advertising, since the following is important in these stages of the funnel: (a) reaching the target audience via selected channels and sources, and (b) informing the already reached users using advertising creatives and clear, valuable, and attractive messages. The Interest (I) stage aims (a) to stimulate interest in those who have paid attention to the message before, (b) to reduce distrust or increase trust, and (c) to arouse emotions in users, since an emotional connection increases interest and persuasiveness. Meanwhile, the goal of the Activation (A) stage is to encourage users to take the desired action, which can include making a purchase or filling out a form. At each stage of the model, it is important to assign elements of the RAIA process to help adapt advertisements to reinforce user intentions.

The impact of digital advertising on consumers' intention to purchase, as mediated by the emotions and trust conceptual model, will help researchers to evaluate digital advertising from both a strategic prism and the consumer's perspective. This approach distinguishes trust from distrust and considers greed as an emotion rather than a consumer trait. The model is also important for further research and can be used to identify cases of online financial fraud (e.g. money laundering and extortion). Practitioners of financial institutions will be able to rely on this model when developing digital advertisements, but it is very important to note that the element of greed should be used responsibly.

Conclusions

1. In the digital space, the customer journey from product or service ignorance to making a purchase has changed, transforming from the AIDA model to the RAIA model. The consumer's information acceptance process (IAM) has also changed in the digital world, so it is important to understand how the advertising messages and sources can affect consumer intentions.
2. This article presents a different approach to the concepts of greed and trust. Greed can be analysed as an emotion (situational greed) rather than a personal trait (dispositional greed), while trust can be viewed as two separate constructs: trust and distrust.
3. The conceptual model integrates digital advertising and the RAIA process, trust and emotions into a single system, demonstrating how these factors interact and determine purchase intention. This is particularly important because the inclusion of emotions provides a new perspective on the impact of digital advertising on consumers and their purchase intentions. A conceptual model helps to evaluate digital advertising from both strategic and consumer perspectives, differentiating between trust and distrust, and framing greed as an emotion, while most financial services research analyses greed as a trait.

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Impact of Digital Technologies on the Labour Market

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Abstract. Such innovations as blockchain, artificial intelligence, and the Internet of Things exhibit an increasing impact on different sectors of the economy. These changes are creating new jobs while simultaneously changing the nature of work, demanding new skills, and reducing the demand for traditional jobs. The aim of the research is to identify the impact of digital technologies on the labour market. The results show that the implications of digital technologies for the labour market and employment of workers are analysed from different perspectives. The rapid development of digital technologies promotes innovation, leading to faster job creation in the labour market. On the other hand, technological processes lead to fewer jobs, which will increase unemployment. There are also those who believe that society will not notice major changes in the labour market because technological progress will create as many jobs as it will eliminate.

Keywords: digital technologies, labour market, employment, trends.

Introduction

Relevance of the article

In recent decades, digital technology has become an integral part of our daily lives. Rapid globalisation and demographic challenges are increasing the society's need for change and improvement, which consequently leads to more rapid developments in digital technologies. The use of these technologies in the business environment provides a competitive advantage, increases productivity and helps ensure smoother task performance. Innovations such as block-chain, the next generation internet, quantum computing, artificial intelligence, and the Internet of Things exhibit an increasing impact on different sectors of the economy and the way they organise their activities. These changes are creating new jobs while simultaneously changing the nature of work, demanding new skills, and reducing the demand for traditional jobs. However, there are diverging forecasts for the future in terms of employment trends and work itself. Some believe that digital technologies will perform a significant part of employee tasks, which will result in a decrease in employment and a change in the nature of work itself in the market. Others believe that new jobs will be created with the help of digital technologies, so employment trends in the market will not have significant changes. Therefore, it is important to analyse the changes in the labour market caused by digital technologies.

Problem investigation level

The literature highlights the power of digital technologies to create competitive advantages, improve services and products, and develop markets (Digital Economy and Society Index, 2022). Åström, Reim, & Parida (2022) emphasise that these technologies play a key role in creating and amplifying disruptions occurring at societal and industry levels. Pascucci, Savelli, & Gistri (2023) note that digital technologies are essential for markets and society, and digital transformation is becoming a key area of business innovation. Meanwhile, Orishev, & Achilov (2023) argue that "digital" encompasses the active use of information technologies in all areas, emphasising data as a key resource. Davronovich, & Mansurjonovich (2023) outline the transition from digitised e-learning resources to the mass use of digital technologies in various areas of the economy and society that enhance or replace traditional products and services. The digital transformation of society is significantly changing industrial and economic structures and introducing new elements in civil, entrepreneurial, governmental, and international circuits. Mohsen (2023) argues that the emergence of digital technologies has profoundly affected business activities, consumer habits, and the relationships between different parts of the economy. As a result, the mobile internet has contributed to an always-online mentality and hyperconnectivity between people, businesses, and machines in the global digital

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economy. Finally, Light, Panicker, Abrams, & Huh-Yoo (2024) stress that such technologies are critical not only for work tasks, but also for relationships and communication with others, professionally and personally. The impact of technology on employees' employment is examined from different perspectives in academic literature. Some scholars believe that the rapid development of technology contributes to process and product innovation in firms, resulting in faster job creation in the market. Still, others believe that it can have a negative impact, with technological processes destroying jobs and increasing unemployment (Karaliūtė, 2017). However, there are also those who believe that technological progress will create as many jobs as it eliminates so that society will not see significant changes in the labour market (Peters, Jandric, & Means, 2018).

Scientific problem

How digital technologies affect the labour market?

Object of the article – impact of digital technologies on the labour market.

Aim of the article – to identify the impact of digital technologies on the labour market.

***Objectives of the article*:**

1. To investigate the positive and negative impacts of digital technologies on the labour market.
2. To assess the importance of digitalisation for employment trends and the demand for new skills.

***Methods of the article*:** a comparative analysis of the scientific literature is used to analyse the concept of digital technologies as defined by different authors, as well as their views on the links between digital technologies and labour market. A synthesis approach is used to combine the components identified by several authors. Statistical data analysis is used to examine trends in digital technologies, their significance for employment and the demand for new skills.

1. Theoretical framework for the digital technologies impact on the labour market

The first digital technologies appeared in the mid-20th century. Some of the first digital devices were electronic computers, designed to perform large-scale computations, an essential process for military and scientific purposes (Weik, 1961). Later, the Intel company developed the first computer microprocessor using integrated circuits. This innovation led to the development of computer technology for businesses and home users (Moore, 1996). These and other similar technologies became the foundational basis for the development of further digital technologies.

As globalisation spreads, companies have started to deploy various systems to improve their data management, business operations, and infrastructure. One of the first statistical analysis software was SPSS (*Statistical Package for the Social Sciences*), which enabled fast and efficient statistical analysis, thus simplifying data analysis in the social sciences, medicine, and other sectors (Subramani, & Rajiv, 2016). *Microsoft Word* and *Excel* are among the programs that have become mandatory in every office and have revolutionised administrative work and calculations. *Microsoft Word* has made the word processing process more intuitive, while *Excel* has made it possible to quickly perform financial calculations and analyse data (Rosenberg, 2024). Later, other systems emerged that required specific skills to install and operate, contributing to the growth in demand for and supply of skilled labour.

Digital technologies include the Internet of Things (IoT), digital currencies, big data, artificial intelligence, 3D printing and other similar technologies. The basic operating principle of these technologies is the storage or transmission of information in a digital formati.e., the conversion of information into numbers, such as "zeros and ones" (Pullen, 2009). Various definitions of digital technologies can be found in the literature (Table 1).

Table 1

Definitions of digital technologies

Year	Author/organisation	Definition
2022	Åström, Reim, & Parida (2022)	Digital technologies play a central role in the creation and the reinforcement of disruptions that take place in society and the levels of industry.
2022	Digital Economy and Society Index	Digital technologies enable businesses to gain competitive advantage, improve their services and products, and expand their markets.
2023	Pascucci, Savelli, & Gistri (2023)	Digital technologies are now imperative for markets and society, and digital transformation is becoming a key area of business innovation.
2023	Orishev, & Achilov (2023)	Digital technologies are information and communication services in educational and production facilities. The term "digital" refers to the active use of information technologies in all of these areas. If material goods are considered the main resource in the economy, in digital technologies, this means information data that can be processed and transmitted.
2023	Davronovich, & Mansurjonovich (2023)	It defines the transition from digitised e-learning resources to the mass use of digital technologies in various sectors of the economy and society that improve or replace traditional products and services. The digital transformation of society not only significantly changes industrial and economic structures, but also introduces new elements in civil, entrepreneurial, state and interstate circulations.
2023	Mohsen (2023)	It is undeniable that the advent of digital technology has profoundly affectedthe workings of businesses, the habits of consumers, and the relationships between different parts of the economy. Consequently, the mobile Internet has contributed to the always-online mentality and the hyperconnectivity of people, businesses, and machines in the global digital economy.
2024	Light, Panicker, Abrams, & Huh-Yoo	These technologies are now critical not only to work tasks, but also in connecting and communicating with others, professionally as well as personally, including providers of medical and psychological services.

Source: created by the authors.

As presented in Table 1, digital technologies are defined in many ways, but they all highlight their fundamental importance for transforming society, business, and the economy. In summary, digital technologies are described as a key driver of modern societal and economic transformation. They foster innovation, reshape traditional models, provide businesses with a competitive advantage, and expand markets. Moreover, these technologies are becoming indispensable in various fields, where data and information serve as the primary resource, while digital transformation impacts not only industrial and economic structures but also everyday life.

The development of digital technologies is driven by factors at the individual, organisational, and macroeconomic levels. Human aspects such as leadership and workforce skills play a critical role in facilitating or hindering digital transformation in enterprises. At the organisational level, strategic alignment between digital initiatives and business objectives is crucial. In addition, the macro-level environment, including regulatory frameworks, market dynamics, and technological infrastructure, significantly impacts the pace and scale of digital development. The continuing trend towards globalisation has also lowered the barriers to entry for new entrants, encouraging greater competition and innovation in digital solutions (Feliciano-Cestero et al., 2022).

Digital technologies are significantly impacting the labour market, creating both new opportunities and serious challenges. On the one hand, technology drives economic growth, increases productivity, and creates new jobs that require innovative solutions and high skills. Automation and artificial intelligence allow routine work to be done more efficiently, focusing on more creative tasks while simultaneously lowering production costs. On the other hand, these changes can lead to job losses in less skilled sectors, increase income inequality, and make it harder for older or less skilled workers to adapt. Therefore, these technological transformations pose economic and social dilemmas that need to be addressed to ensure labour market stability and equality (Eurofound, 2021).

Technology has a moderate positive effect on employment, and technological advances tend to create new job opportunities rather than mass unemployment (Dağlı, 2021). This change is evident as automation and digital tools increase productivity, reduce production costs, and lead to the emergence of new industries that require different skills from the traditional workforce. However,

this transition is not without its drawbacks. The author's study shows that many workers may have difficulty finding new job opportunities after losing their jobs to automation.

A study by Li et al. (2023) highlights that the introduction of IoT into healthcare has changed clinical workflows by automating routine data collection while at the same time increasing the need for professionals capable of interpreting complex datasets and managing cloud computing infrastructures. However, the study also highlights challenges such as ensuring data security. While advanced solutions highlight the role of IoT in moving towards proactive, patient-centered models of care, they also require healthcare professionals to adapt to hybrid clinical-technological roles. IoT automates routine tasks such as manual patient monitoring and data collection, which may reduce the importance of the roles of nurses and technicians performing these functions. However, there is still a growing need for professionals capable of managing IoT ecosystems, including biomedical data analysts, IoT system administrators, and cybersecurity experts, to ensure the protection of sensitive health data. Thus, integrating the Internet of Things (IoT) into healthcare has a twofold impact on employment: it disrupts traditional roles and increases the need for new skills.

Haleem et al. (2021) contradict the authors and argue that blockchain technology is transforming healthcare by increasing data security, transparency, and streamlining processes. The application of blockchain creates demand for skilled professionals, such as blockchain developers, data analysts, and cybersecurity experts, thus leading to new job opportunities. However, the authors note that this may reduce jobs that rely on traditional systems or manual processes, as automation and decentralised systems reduce the need for middlemen. Integrating the blockchain into healthcare is changing the workforce dynamics, as it requires retraining and adaptation to new technologies. This innovation, therefore, also significantly impacts employment and unemployment in the industry.

IoT has the potential to increase productivity and create new work opportunities by automating routine work, allowing workers to focus on more complex and creative aspects of their work. This change can lead to higher salaries for those working in high-skilled occupations, as the IoT is mainly designed for tasks that require education and more knowledge. In addition, the IoT can help to reduce wage inequalities among less skilled workers by replacing high-wage jobs, which could lead to a more equitable distribution of income in different sectors of the economy (European Commission, 2024).

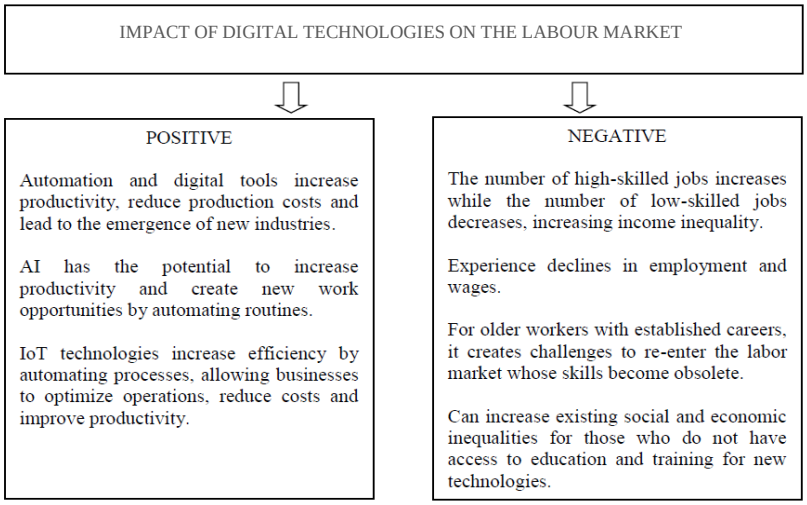
However, historical evidence shows that occupations exposed to automation technologies, such as the IoT, often experience a decline in employment and wages. For example, while the IoT can replace high-skilled jobs in the medical and engineering fields, it can exacerbate job losses in less-skilled sectors, leading to higher unemployment rates in vulnerable populations. In addition, the substitution effect may disproportionately affect older workers with established careers, making it challenging to re-enter the labour market for those whose skills have become obsolete. Overall, while the IoT has the potential to positively reshape the labour market by stimulating innovation and efficiency, it also poses risks of job losses and rising inequalities, which need to be carefully managed through policy interventions and workforce development strategies (Webb, 2019).

The impact of IoT technology on the labour market is also multifaceted. IoT technologies increase efficiency by automating processes, allowing businesses to optimise operations, reduce costs and improve productivity. This can create new jobs related to data management and analysis, thus stimulating innovation and economic growth. In addition, efficiency gains can increase the demand for goods and services, opening up additional employment opportunities in various areas. However, the negative impacts are also significant. The automation driven by IoT may destroy traditional jobs, especially in sectors that rely on manual operations. Workers in these areas may face the risk of unemployment due to technological change. In addition, the shift towards a more technology-intensive labour market is creating a need for advanced skills knowledge, which may increase socio-economic inequalities for those who do not have access to education and training in new technologies. Thus, while IoT has the potential to positively transform business practices, challenges need to be addressed in order to mitigate negative labour market developments (STRATA, 2023).

Artificial Intelligence (AI) has a dual impact on employment, disrupting traditional labour markets and creating new opportunities. While specific sectors may experience job losses due to automation, AI is driving the growth of new areas such as educational technology development,

data analysis, and maintenance of AI systems. In education, IoT-based learning systems and innovative learning platforms automate administrative tasks and personalise training, which can reduce the demand for roles involving routine tasks but increase training efficiency (Ahmad et al., 2021). However, as highlighted in the studies of the researchers discussed above, this change requires a retraining of the workforce. According to Ahmad et al. (2021), the introduction of the IoT highlights the importance of digital literacy and adaptability. Maria et al. (2025) add that the IoT simultaneously promotes both job destruction and the creation of new opportunities, as well as changing the workforce structure. Based on the analysis of trends in different industries and qualitative interviews, the dual impact of the IoT highlights both challenges and opportunities that require a coordinated societal response.

Summarising the scientific literature, Fig 1 shows digital technologies' positive and negative effects on the labour market.



Source: created by the authors, based on STRATA (2023), Webb (2019), Dağlı (2021).

Fig. 1. Impact of digital technologies on the labour market

Thus, digital technologies are a key factor in transforming modern society and economies. It drives innovation, changes traditional business models, gives businesses a competitive edge, and expands markets. They are also becoming indispensable in a wide range of areas where data and information are becoming key resources, and digital transformation is changing not only industrial and economic structures but also everyday life. Digital technologies have both negative and positive impacts on employment and work. The creation of new jobs, new forms of business organisation and the promotion of self-employment thanks to digital technologies are boosting employment. However, digital technologies have negative effects, such as unemployment, the disappearance of certain occupations, and a reduction in the demand for low-skilled workers in the labour market.

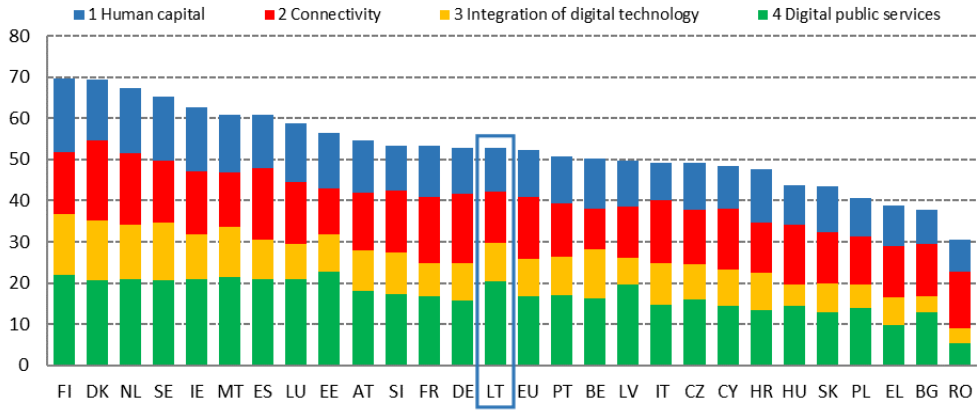
2. The digital progress and labour market

The Digital Economy and Society Index (DESI) has been the main tool used to measure the digital progress of EU Member States since 2014. Developed by the European Commission, DESI provides annual reports summarising digital performance indicators and tracking progress across Europe's digital sector. The index looks at areas such as connectivity, digital skills, technology integration in business, and the delivery of digital public services. In particular, it notes that Member States made progress in digitisation during the COVID-19 pandemic, although challenges remain in terms of digital skills gaps and the digital transformation of micro, small, and medium-sized enterprises (MSMEs) (European Commission, 2022).

The integration of digital technologies and infrastructure has significantly impacted the labour market, reshaping work roles, increasing productivity, and creating new employment opportunities.

The business sector's growing need for advanced technologies, such as artificial intelligence, cloud computing, and big data, has increased the demand for skilled workers who can use these tools. This change requires a workforce with strong digital skills, which increases the importance of continuous learning and professional development. In addition, developing digital infrastructure, including high-speed internet and mobile communications, facilitates teleworking and flexible working arrangements, expanding access to employment in different geographical locations. However, this change also poses some challenges, such as the risk of job losses for workers whose roles are automated or made redundant. The ultimate success of the integration of digital technologies in the labour market depends on addressing these challenges and creating an inclusive environment that supports skills development and the adaptation to new digital realities (Eurofound, 2021).

The 2022 Digital Economy and Society Index report highlights Lithuania's progress in digital transformation and specific challenges. Fig. 2 shows the DESI index values in 2022.

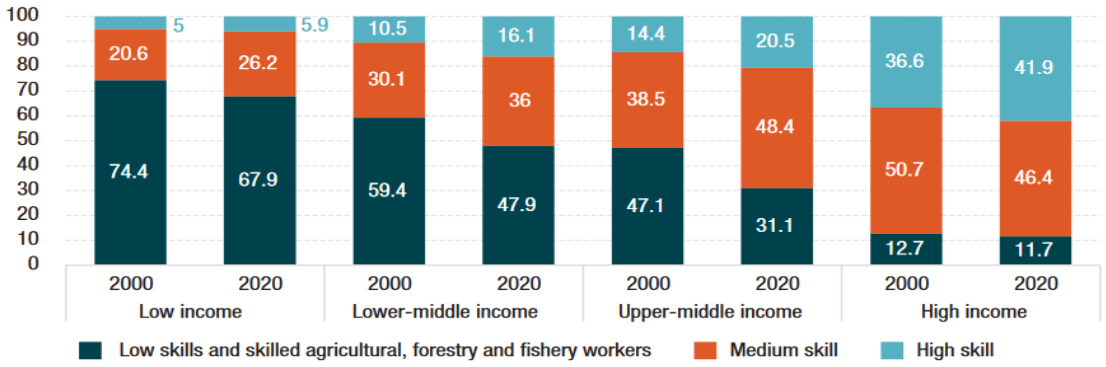


Source: European Commission (2022). Digital Economy and Society Index (DESI) 2022, Lithuania, p. 3.

Fig. 2. The Digital Economy and Society Index values in 2022

Lithuania ranks 14th among the 27 EU Member States, with its strengths in digital public services, where it performs well above the EU average (Fig. 2). The use of e-government services has reached 70% of internet users, and the progress is demonstrated by the quality of service indicators. Lithuania also demonstrates an excellent performance in open data. However, there are still challenges to overcome. Lithuania faces a lack of human capital, investment in ICT training remains low. In terms of digital technology integration, Lithuania ranks 13th in the EU. While its SMEs outperform the EU average in online commerce, the integration of advanced technologies such as artificial intelligence (used by only 4% of businesses) and cloud computing (28%) still lags. In summary, Lithuania is making steady progress in its digital transformation, especially in public services, but more attention is needed to strengthen digital skills, develop connectivity, and integrate advanced technologies. To fully exploit the potential of the digital economy, Lithuania needs to combine strategic reforms with targeted investments and strengthen support for SMEs and the education sector.

Digital technologies have an impact on employment levels. Fig. 3 presents changes in the employment structure in 2000 and 2020, grouping countries by income.



Source: United Nations (2021). *Technology and Innovation report* 2021, p. 42.

Fig. 3. Employment by skill level (percentage of total civil employment)

A comparison of the employment structure in 2000 and 2020shows that, in all groups of countries, there is a decline in the number of low-skilled and skilled workers in agriculture, forestry, and fisheries (see Fig. 3). These changes are likely related to the rapid development of digital technologies worldwide. As new technologies make simple and less skilled jobs easier and faster to perform, some workers retrain for higher-skilled jobs. Looking at the group of workers with intermediate qualifications, it can be observed that this share has also increased in all country groups, except in high-income countries. In this group of countries, the share has fallen in the same way as for the low-skilled workers, which could be due to the intense economic situation in this group of countries (United Nations, 2021). As a result, countries can adopt digital technologies more easily and rapidly, and with the rapid growth of the IT sectorthe demand for highly skilled workers is increasing. Meanwhile, the share of high-skilled workers has increased in all groups of countries, confirming that the rapid development of digital technologies is reducing the demand for low- and medium-skilled workers. This means that workers need to improve their skills to be able to compete for high-skilled jobs, which are becoming more and more scarce in 2020, as compared to 2000.

In the context of technology adoption, the challenges of workforce adaptability are addressed. There is an 84% skills gap among workers, which is caused by three main factors (Maria et al., 2025): (1) inadequate DI literacy programs for mid-career professionals; (2) mismatch between academic curricula and IoT requirements in industry; and (3) limited access to retraining initiatives in developing economies.

The study by Maria et al. (2025) reveals marked differences in the impact of the IoT across industries, depending on whether IoT mainly replaces routine tasks (e.g., manufacturing and retail) or complements sophisticated human skills (e.g., medical diagnostics, personalised training). Firstly, the manufacturing sector experiences a 45% job loss due to automated production lines and quality control systems, while only 25% of new jobs are created. Secondly, healthcare is an IoT-enhanced sector, as diagnostic tools and robotic surgery systems have led to a 50% job growth in IoT-enabled medical positions. Thirdly, education is the largest job creator (60%), driven by the need for developers of IoT-driven learning systems and adaptive learning platforms.

The data analysis in the context of digital technologies and employment reveals that the rapid development of digital technologies is a global phenomenon, but each country may face the challenges of digitalisation differently, depending on its economic situation. Digital technologies are associated with structural changes in employment, showing that, over time and with the rapid development of technology, the demand for low-skilled workers in the world’s labour market is decreasing, whereas the demand for high-skilled workers is increasing.

Conclusions

1. Digital technologies have become a key factor in shaping the modern labour market. Their impact is multifaceted, with both positive and negative consequences. From artificial intelligence and the Internet of Things to blockchain and the next-generation Internet, these technologies are changing the nature of work and require new skills, adaptability, and innovation. The positive aspects include boosting economic growth, increasing productivity, and creating new jobs. However, these benefits are accompanied by challenges, such as the decline of traditional jobs, the increase of income inequality, and the continuous need to update skills. Workers, especially those less skilled or older, may struggle to adapt to changing demands.
2. Due to the advancement of digital technologies, the nature of work will continuously change. The impact of digital technologies on employment is more optimistic, for equality is maintained in the labour market, which is characterised by neither positive nor negative effects in the context of employment. Statistical data analysis has shown that with the help of new technologies, employees can perform simple and less skilled jobs more easily and quickly. Consequently, some employees undergo retraining to take on roles that require higher skills.
3. Technologies such as blockchain, the Internet of Things, and artificial intelligence are simultaneously driving both job destruction and creation, as well as changing the structure of workforce. Their dual effects highlight both challenges and opportunities. The impact of IoT on the labour market is not only a technological evolution, but also a fundamental socio-economic change. While the manufacturing sector faces major disruptions, healthcare and education show how IoT can complement rather than replace human skills.

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Art and Culture Patronage in Lithuania: Impact on Culture, Business, and Society

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Abstract. Art patronage has traditionally been considered a philanthropic act that supports cultural and artistic expression. This paper explores how modern art patronage has evolved into diverse models such as venture philanthropy, crowdfunding, and impact investment, while reflecting broader changes in social values, business interests, and public policies. Using Lithuania as a case study, we analyse historical and emerging patronage practices and their effects on culture, business, and society. The article integrates theoretical and empirical insights and incorporates new perspectives from cultural policy and altruism studies. Particular attention is given to motivations behind giving, the evolving role of the patron, and how strategic patronage can create social value in a time of public funding decline. This research contributes to understanding patronage's potential to balance economic rationality and cultural sustainability.

Keywords: art patronage, cultural policy, social value, business support, altruism.

Introduction

Relevance of the article. Art patronage has evolved from an elite power symbol to a multifaceted practice involving public, private, and civic stakeholders. In Lithuania, where cultural philanthropy is still emerging, patronage is increasingly seen as a tool for social and economic growth. This study traces the history of patronage, contrasts traditional and modern motives, and introduces new models, drawing on frameworks from Khalil (2004), Buchholtz et al. (1999), and Vaidelytė et al. (2016).

Historically, European patronage served political and religious elites, exemplified by the Medici family during the Renaissance. Motivations included power, legacy, and status, not just altruism. By the 19th century, with industrial capitalism and a rising bourgeoisie, art markets and public institutions allowed for more decentralised support and artist autonomy (Buchholtz, Amason, & Rutherford, 1999).

Today, patronage includes state support, corporate sponsorships, and grassroots funding. Modern patrons often act out of a mix of rational, emotional, and ethical motives, reflecting changing ideas of altruism and cultural value (Khalil, 2004).

In Lithuania, patronage is shaped by the post-Soviet transition, weak civic philanthropy, and reliance on public funding. Initiatives like Mecenuoti.lt signal a shift toward more community-driven support, though policy frameworks remain underdeveloped Vaidelytė et al. (2016).

This paper explores patronage's role in Lithuanian cultural development, business engagement, and social impact. As public funding shrinks and expectations rise, patronage becomes a strategic tool for fostering identity, innovation, and resilience in the arts. The study highlights the need for a coherent cultural policy to support this shift and maximise its societal benefits.

Problem investigation level. While global models of cultural patronage have been extensively studied and documented, with substantial literature covering practices in Western Europe, North America, and parts of Asia, the Lithuanian context remains notably under-researched. Existing academic discussions often focus on traditional philanthropic models or established frameworks within well-developed economies, overlooking the unique historical, political, and economic conditions that shape patronage in post-Soviet societies such as Lithuania. Moreover, although examples of contemporary patronage initiatives in Lithuania exist, systematic and comprehensive academic analyses remain scarce. As a result, the understanding of how global trends in art and cultural patronage are being adapted, resisted, or reinterpreted within Lithuania's evolving cultural sector is fragmented. This paper addresses this research gap by providing a nuanced examination of

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Lithuania's patronage landscape, offering both theoretical insights and practical implications for the development of more sustainable and inclusive cultural support mechanisms.

Scientific problem. The central scientific problem addressed in this study is the insufficient integration of modern patronage strategies into Lithuania's cultural policy and everyday cultural practice. Although international trends demonstrate the growing importance of diversified funding models, strategic giving, venture philanthropy, and impact investment in sustaining cultural ecosystems, Lithuania's policy frameworks and institutional practices have slowly incorporated these innovations. This lag hinders the ability of cultural organisations to diversify their funding sources, to engage broader stakeholder groups, and to adapt to the changing expectations of donors, audiences, and policymakers. The current reliance on traditional, state-centred cultural financing models fails to leverage the full potential of private and civic sector involvement. Consequently, Lithuania risks losing opportunities to foster a more resilient, innovative, and socially integrated cultural environment. The research presented in this article seeks to diagnose the root causes of this gap and to propose feasible strategies for bridging it.

Object of the article. The object of the article is the phenomenon of art and culture patronage in Lithuania. This includes an exploration of both historical forms of cultural patronage, deeply rooted in the traditions of the nobility and religious institutions, and contemporary developments characterised by emerging private sponsorships, corporate engagement, crowdfunding initiatives, and civic involvement.

Aim of the article. To explore the impact of patronage on cultural, business, and societal development in Lithuania.

Objectives of the article:

1. To analyse the historical evolution and current forms of art patronage, including models such as venture philanthropy, crowdfunding, and impact investment.
2. To investigate the motivations behind cultural patronage, drawing from theories of altruism, cultural value, and strategic giving.
3. To examine the impact of patronage on cultural, business, and social development in the Lithuanian context.
4. To evaluate the effectiveness of existing cultural policy frameworks in Lithuania and identify gaps hindering sustainable patronage growth.
5. To propose recommendations for enhancing the patronage ecosystem, focusing on legal, institutional, and educational strategies.

Methods of the article. The study employs a qualitative approach, using literature analysis and case studies.

1. Theoretical perspectives on sponsorship in arts and sports

Sponsorship in the arts and sports operates under different logics, even though both depend on external funding. Arts sponsorship focuses on cultural value and community engagement. Sponsors support events or educational programs to build long-term brand goodwill and contribute to the public good (Boekman Foundation, 2020). In contrast, sports sponsorship is commercially driven. It emphasises brand exposure, media reach, and measurable returns (Settembre Blundo et al., 2020).

The audiences they target also differ. Arts sponsorship appeals to specific cultural groups such as museumgoers or educators. On the other hand, sports sponsorship aims to reach broad, mass-market audiences. While arts sponsors often seek long-term reputational benefits, sports sponsors usually focus on short-term marketing impact (Gray, 2015). Various models of art patronage further illustrate the motivations behind supporting the arts and how these structures differ in their expectations and outcomes, as outlined in the Patronage Model (Table 1).

Table 1

Patronage model

Model	Details
Purist Model	Altruism is the only motive for this model, where patrons invest in the arts without expecting returns. The inherent value of art is the focus area.
Angel Philanthropy	Describes individuals participating in crowdfunding websites or patron networks and forming close connections with artists and projects.
Venture Philanthropy	This model involves the application of venture capital techniques, with an emphasis on innovative grants and risk-taking approaches. High involvement from patrons and quantifiable outcomes are its focus areas.
Impact Investment Models	These models aim to generate financial returns alongside positive social or environmental impacts. That said, it is worth mentioning that a mere 0.1% of impact investment funds presently allocate funds to the arts.

Source: TEFAF Art Market Report 2020 – "Trends and Innovation in Art Patronage Models": *https://amr.tefaf.com/chapter/trends-and-innovation-in-art-patronage-models*

In Lithuania, most arts organisations rely on public funding and private donors. Corporate sponsorship accounts for only about 5 per cent of arts funding, compared to nearly 69 per cent in sports (Boekman Foundation, 2020). This imbalance highlights the need for more diverse and strategic funding approaches in the cultural sector. Historically, Lithuanian nobility and religious institutions were principal patrons, commissioning religious and cultural works. Soviet-era policies centralised cultural funding under state control, suppressing private patronage.

Historically, Lithuanian nobility and religious institutions played crucial roles as patrons, commissioning religious and cultural works. However, during the Soviet era, private patronage was supplanted mainly by state-directed cultural funding, limiting artist autonomy and narrowing creative expression. Following Lithuania's independence, the patronage landscape began to diversify. Notable individual contributions, such as those from Dr. Pranas Kiznis to the National Museum – Palace of the Grand Dukes of Lithuania (Valdovų Rūmai, 2023), and corporate support from companies like Akola Group for the MO Museum (MO Museum, 2024) exemplify a blending of cultural responsibility and strategic branding.

Digital platforms such as *Mecenuoti.lt* have expanded cultural patronage by making it easier for a broader public to engage and contribute meaningfully (Swords, 2017). Nevertheless, Lithuania continues to face challenges: regulatory gaps, insufficient tax incentives, and minimal public recognition for patrons impede the sustainable development of the patronage ecosystem (Vaidelytė, & Butkevičienė, 2016).

This investigation is critical in the current context of shrinking public budgets, increasing demands for transparency, and growing expectations for the cultural sector to demonstrate social relevance. As Vaidelytė et al. (2016) emphasise, one of Lithuania's main challenges lies in the absence of a coherent cultural policy that formally recognises and supports patronage. By addressing this gap, the study aims to contribute theoretically and practically to the evolving discourse on cultural patronage and its potential to drive innovation, inclusion, and resilience in the Lithuanian arts sector.

According to Jeannotte (2008), investment in cultural infrastructure yields substantial and measurable social returns, including increased civic pride, a more profound sense of regional identity, and economic revitalisation through cultural tourism and creative industries. Learning from sponsorship strategies in the sports sector, arts organisations in Lithuania could further enhance their appeal by offering sponsors greater visibility, co-branded initiatives, and opportunities for community-centred engagement. Partnerships that combine artistic excellence with strategic visibility can attract a broader range of patrons and secure more stable funding streams.

Furthermore, & Buchholtz et al. (1999) argue that successful corporate philanthropy must align with leadership values and strategic business objectives. This perspective is increasingly relevant for cultural organisations seeking to engage business sponsors who view cultural support not only as charity but as a meaningful investment in social capital, brand development, and community reputation.

In summary, while Lithuania's patronage system remains in a formative stage, there is a clear growth potential. By learning from international models, refining national policy frameworks, and fostering strategic partnerships, Lithuania can build an innovative, inclusive, and resilient patronage ecosystem. A vibrant culture of giving will enrich the nation's artistic life and serve as a foundation for stronger civic participation, social integration, and sustainable economic growth.

2. Building a functional patronage ecosystem in Lithuania: challenges and opportunities

Although cultural patronage in Lithuania is gradually emerging, the lack of a coordinated national strategy continues to limit its effectiveness and sustainability. The analysis conducted by Vaidelytė et al. (2014) identifies persistent structural challenges such as weak legal frameworks, insufficient tax incentives, and the absence of clearly defined roles among cultural stakeholders. These issues have created a fragmented environment that weakens patronage potential as a stable and sustainable source of support for the arts. Without an overarching policy vision, efforts remain scattered, underfunded, and vulnerable to shifting political priorities, making long-term strategic development difficult.

One of the most significant barriers to a thriving patronage ecosystem is the absence of meaningful financial and symbolic incentives for donors. In contrast to the well-established practices in Western Europe and North America, where patrons receive tangible benefits such as tax deductions, social prestige, and formal public recognition, Lithuania offers limited encouragement. Potential private donors and corporate sponsors are often reluctant to invest in cultural initiatives when the returns, whether social, financial, or reputational, are minimal or uncertain. Furthermore, the economic burden of supporting cultural initiatives without sufficient tax relief is a deterrent, particularly for small and medium-sized businesses that might otherwise engage in the cultural sector.

Additionally, a lack of coordination among cultural institutions, government agencies, municipalities, and private sector actors exacerbates fragmentation. Public bodies, NGOs, and private donors often operate independently, with limited communication, shared objectives, or coordinated funding strategies. This siloed approach results in redundant projects, inefficient resource allocation, and diminished collective impact. Lithuania's patronage sector struggles to achieve the critical mass necessary for systemic change or international competitiveness without a unified strategy or common platforms for cooperation.

International models offer practical guidance that Lithuania could adapt to its local context. For example, Canada's integrated cultural policy seamlessly combines government funding, strategic tax incentives, and investments in cultural infrastructure, supporting both creative development and broader societal goals such as civic participation and community well-being (Jeannotte, 2008). The Canadian model highlights the importance of linking cultural policy with national identity formation and economic development. Similarly, the Netherlands employs innovative strategies like matched funding, in which government agencies match private donations to cultural projects, and simplified grant administration processes to reduce bureaucratic barriers and encourage long-term donor engagement (Boekman Foundation, 2020). These international examples demonstrate that comprehensive, flexible frameworks are essential for aligning cultural patronage with broader social, economic, and civic development agendas.

Learning from these practices, Lithuania needs a bold, multi-dimensional strategy to transform its fragmented patronage environment into a dynamic and resilient ecosystem. To achieve this, the following actions are proposed:

For Lithuania, strengthening patronage requires systemic reform and cross-sector collaboration. Four key actions are proposed:

1. **Reform Legislation**: Legislation should be reformed to create an enabling environment for cultural giving. The introduction of targeted tax incentives designed explicitly for cultural donations would significantly improve private and corporate participation. Legal reforms should delineate the roles and responsibilities of government bodies, cultural organisations, private donors, and intermediary institutions to ensure transparency, accountability, and

mutual trust.

2. **Promote Civic Recognition**: Civic recognition of cultural patronage should be promoted. Public campaigns should be launched to redefine patronage not merely as an elite activity but as an essential civic duty that contributes to national cultural identity and social cohesion. Recognising patrons through awards, media visibility, and honorary titles could help build a culture of appreciation and inspire others to participate. Highlighting success stories and demonstrating the tangible impact of patronage could strengthen public support and normalise the practice within broader society.
3. **Foster Strategic Partnerships**: Strategic partnerships should be fostered by building formal mechanisms for collaboration between cultural institutions, businesses, municipalities, and state bodies. Platforms for joint project development, funding pools, and shared governance structures could help coordinate efforts, align objectives, and optimise resources. Collaborative initiatives could include co-branded cultural events, corporate-endorsed art exhibitions, or municipal-private funding programs for local cultural heritage preservation.
4. **Integrate Education**: Cultural philanthropy should be integrated into the education system. Educational initiatives at various levels, from secondary schools to universities, should emphasise cultural literacy, social responsibility, and philanthropic values. Introducing specialised courses, workshops, or certification programs on cultural management and fundraising could prepare a new generation of cultural leaders and patrons who view philanthropy as an occasional charitable act and a continuous civic engagement.

By addressing these areas, Lithuania can move toward a more coherent and inclusive patronage system. This would diversify funding sources for the arts and position cultural patronage as a pillar of national development and social cohesion.

Cultural patronage plays a profound role in shaping not only the creative industries but also broader societal structures. It directly reinforces national identity by supporting artistic expressions celebrating history, traditions, and collective memory. Through preserving and promoting cultural heritage, patronage fosters community cohesion, strengthens social bonds, and enhances civic engagement. Cultural initiatives supported by patronage provide inclusive spaces for dialogue, creativity, and collective experience, making culture accessible across social, economic, and regional divides.

In addition to its societal value, cultural patronage offers tangible benefits for businesses. As an integral component of corporate social responsibility (CSR) strategies, involvement in cultural projects enhances brand reputation, differentiates businesses in competitive markets, and builds stakeholder trust. Companies that engage in meaningful cultural sponsorship are perceived as socially responsible actors, aligning themselves with values such as creativity, innovation, and social impact. This can result in stronger brand loyalty among consumers, improved community relationships, and heightened employee morale and engagement.

According to research by Buchholtz et al. (1999), philanthropy is most effective when aligned with leadership values and strategic business goals. Businesses that successfully integrate cultural patronage into their core strategies often see a reciprocal benefit. Their support strengthens societal wellbeing, nurturing a healthier, more vibrant market environment where businesses can thrive.

However, to realise these benefits fully, transparency and accountability are crucial. In Lithuania, where public trust in governmental and private institutions remains relatively fragile, fostering legitimacy through open and ethical patronage practices is essential. Precise reporting mechanisms, public disclosures of sponsorship activities, and cultural impact evaluation can help build stakeholder trust and ensure that patronage initiatives deliver sustainable and meaningful outcomes.

In summary, cultural patronage is not merely a philanthropic act but a strategic investment in social capital, economic vitality, and national resilience. Strengthening Lithuania’s patronage system will require an integrated and collaborative approach that collectively engages government bodies, businesses, cultural organisations, and citizens. By embedding cultural patronage within

national development strategies, Lithuania can create a dynamic cultural sector that serves as a foundation for a stronger and more cohesive society.

Conclusions and recommendations

Art patronage in Lithuania reflects a complex interplay between deep historical roots and the growing influence of modern support models, such as venture philanthropy, crowdfunding, and impact investment. Traditionally shaped by the activities of religious institutions and the nobility, patronage was historically focused on legacy-building, status, and community leadership. In contemporary times, however, the motivations and methods of patronage have evolved considerably. New models emphasise innovation, social engagement, and measurable impact, offering a broader range of avenues for cultural support and fostering more inclusive participation from individuals, corporations, and civic groups.

New approaches are transforming how cultural funding is gathered, shifting beyond traditional public subsidies and elite philanthropy toward more dynamic and decentralised models. Initiatives like Mecenuoti.lt show how technology can democratise cultural support, making it easy for a broader public to contribute and helping to build stronger connections between communities and their cultural institutions. Also, venture philanthropy and impact investing are becoming increasingly important, blending financial returns with social impact objectives and attracting a new generation of strategic donors.

The motivations behind cultural patronage have similarly shifted. While altruism remains a significant driver, contemporary patrons are increasingly motivated by a complex blend of ethical commitments, emotional attachments to cultural heritage, strategic considerations related to visibility and branding, and the pursuit of long-term reputational benefits. Investing in culture has become an essential dimension of corporate social responsibility (CSR) strategies for many businesses. Cultural patronage enables companies to align their brands with values such as creativity, innovation, and community engagement, thus enhancing stakeholder trust, employee satisfaction, and public image.

The impact of art patronage in Lithuania is visible across multiple spheres. Culturally, it helps preserve national identity, safeguard intangible heritage, and promote artistic innovation. Socially, patronage strengthens social cohesion, fosters civic pride, and broadens access to cultural experiences for diverse communities. Economically, it contributes to the vitality of the creative industries and enhances the attractiveness of cities and regions as vibrant cultural hubs.

However, despite these promising developments, Lithuania's policy framework remains underdeveloped in terms of supporting sustainable patronage growth. The absence of coherent national strategies, limited financial incentives such as tax benefits, and minimal mechanisms for public recognition significantly constrain patron engagement. Furthermore, institutional fragmentation and a lack of cross-sectoral collaboration inhibit the formation of stable, long-term patronage networks. Without systemic reforms and strategic alignment among cultural institutions, businesses, government bodies, and the public, the potential of cultural patronage to serve as a driver of national development remains underrealised.

To build a resilient and dynamic patronage ecosystem in Lithuania, several key recommendations must be considered:

1. Introduce clear tax incentives and legal frameworks to encourage cultural giving. Establishing well-designed financial benefits, such as tax deductions for individuals and corporations supporting cultural initiatives, would lower the cost of giving and incentivise broader participation across different sectors of society. A clear legal foundation would provide transparency, consistency, and predictability for donors and cultural organisations.
2. Raise public awareness to promote patronage as a civic value. National awareness campaigns should emphasise that cultural patronage is a philanthropic luxury and a civic responsibility that strengthens society. Highlighting successful examples of patronage and its tangible benefits for communities would help normalise the culture of giving and inspire

greater public involvement.

3. Establish stronger cooperation among the government, businesses, and cultural organisations. Formalised partnerships, funding consortia, and joint initiatives can optimise resources, reduce duplication of efforts, and foster stakeholder synergies. Multi-sectoral collaboration would enable more ambitious and impactful cultural projects that reflect shared social goals.
4. Integrate cultural philanthropy into educational programs. Embedding the values of cultural responsibility and philanthropy into school and university curricula would cultivate a new generation of engaged citizens who appreciate the societal importance of supporting the arts. Specialised courses and practical training in fundraising and cultural management could empower future leaders in the cultural and philanthropic sectors.
5. Develop a unified cultural policy that recognises and supports diverse forms of patronage. A comprehensive national strategy should acknowledge traditional and innovative patronage models, setting clear objectives for fostering cultural philanthropy and integrating it into broader national development agendas..

By implementing these recommendations, Lithuania can move toward a more inclusive, sustainable, and strategic patronage system that benefits not only cultural institutions but society as a whole. Strengthening cultural patronage is an investment in the nation's identity, creative potential, and long-term social and economic resilience.

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Process Management Tools for Operation Efficiency in Logistics: Case Study

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Abstract. In the context of increasing complexity in global supply chains, effective process management has become a crucial determinant of operational efficiency in large-scale logistics companies. This study aims to assess the impact of an advanced process management system, introduced in 2022 within one of the largest logistics enterprises, with the objective of optimising internal communication and streamlining operations. Utilising a rigorous analytical framework, the research demonstrates significant improvements in information flow, transparency, and organisational clarity. The system has shown notable efficacy in key areas, including the implementation of quality and environmental policies, the optimisation of core operational processes, and the enhancement of management documentation. The findings suggest that process management contributes substantially to the achievement of higher operational efficiency and process optimisation. Furthermore, this study offers practical recommendations that may guide similar organisations in improving their logistical performance through systematic process management innovations.

Keywords: process management, operational efficiency, process management system (PMS).

Introduction

Relevance of the article

Effective process management is crucial for large-scale logistics companies facing increasing complexity in global supply chains. This study is relevant to organisations, for it addresses the need to optimise communication and operational efficiency, which are often hindered by bottlenecks and reduced transparency. Scientifically, the research fills a gap in the limited empirical data on process management systems in logistics, offering new insights into their impact on improving internal communication. From a practical standpoint, the study shares solutions to common challenges faced by logistics specialists, offering actionable recommendations for enhancing operational efficiency, and aligning processes with evolving industry standards.

Problem investigation level

Research on process management systems in logistics has gained attention, as companies seek to optimise operations in complex global supply chains. Previous studies have largely focused on general supply chain efficiency, with limited attention to internal communication and document flow. Notably, Gardner et al. (2019) emphasised the role of transparency in reducing bottlenecks, while other authors (Ahire, & Dreyfus, 2000) highlighted the impact of technology on streamlining processes.

Scientific problem

How can advanced process management systems in logistics optimise resource allocation more effectively to reduce operational inefficiencies, considering the lack of comprehensive methods and insufficient research on integrating quality policies with operational processes?

Object of the article: process management in an international logistics company.

Aim of the article: to systematically investigate the influence of process management methodologies on enhancing operational efficiency and optimising resource allocation within the context of international logistics.

Objectives of the article:

1. To review the concept of process management system in logistics by conducting a theoretical analysis of scientific literature;
2. To analyse process management system implementation journey of selected logistics company;
3. To explore and define the most problematic areas and potential improvements by analysing qualitative and quantitative case study results.

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***Methods of the article*:** a combination of literature review, interviews, and quantitative data analysis is conducted to assess the impact of a process management system on operational efficiency in an international logistics company.

1. Introduction

Why process management is a key element in operational efficiency?

Process management is a systematic approach (De Ramon Fernandez, Fernandez, & Garcia, 2020) aimed at improving an organisation's efficiency by optimising its operational workflows. In the context of logistics, effective process management is paramount (Grant, Wong, & Trautrims, 2017), as logistics operations are inherently complex and involve multiple stakeholders across global supply chains. The evolution of Process Management Systems (PMS) has transformed traditional logistics practices by shifting from paper-based processes to digitalised solutions (Kern, 2021). Digitalisation in logistics not only improves information flow and minimises bottlenecks (Li, Zhuang, Yang, Lu, & Xu, 2024), but also enhances the overall operational performance of companies.

The transition from paper-based process management to digitalised systems is supported by various theories that emphasise the importance of efficiency, agility, and innovation (Najat, Moussaoui, & Eddine, 2024). By leveraging technology (Adeniran, Efunniyi, & Omozele, 2024), logistics companies can gain valuable insights, streamline processes, and achieve significant improvements in operational efficiency.

An increasing body of literature emphasises the impact of digitalisation on PMS in logistics. Researchers indicate that companies transitioning to digitalised systems experience reduced communication delays and enhanced operational agility (Ononiwu, Onwuzulike, & Shitu, 2024). However, despite the advantages, challenges such as integration issues with existing systems and the shift from a traditional mindset to a digital culture remain prevalent and often reveal several challenges, including inefficient communication flows (Montreuil, Ballot, & Fontane, 2012), fragmented documentation practices, and the lack of system interoperability (Giachetti, 2004).

Business process management system as standalone system

Paper-based process management practices, characterised by physical documentation and manual workflows, have been pervasive (Xiao, Zhang, & Zhong, 2023) in many organisations. While these systems may have served their purpose historically, they present several limitations, including inefficiency in information retrieval, difficulty in maintaining accurate records, and the risk of data loss. As companies analyse the feasibility of transitioning from paper-based systems to digital solutions, a critical question arises: Is the creation of a new system necessary? The decision hinges on several factors, such as challenges of transitioning, integration capability, scalability, and user training (Dikert, Paasivaara, & Lassenius, 2016).

Ultimately, organisations must weigh the benefits of creating a new, tailored system against the costs and complexities of integrating and modifying existing solutions (Davenport, 2000), as usually, they already have document management systems, e-learning systems and HR management systems, which partly have process management systems features. A systematic review of the most popular system goals, their main functions, users, and foci is provided in Table 1.

Table 1

Most popular management systems review

	Learning management system	Document management system	Business process management system
Goal	Manage learning processes	Manage organisational documents and their flows	Optimise and manage business processes
Main functions	Course development, employee training monitoring, progress assessment, certification	Document storage, access control, version control, search and traceability	Process modelling, automation, monitoring, analysis and improvement
Users	Teachers, students, HR specialists	All employees of the organisation	Managers, coordinators, business analysts, IT specialists
Focus	Acquisition and development of knowledge and skills	Document management, organisation and accessibility	Business process efficiency, automation and continuous improvement

Source: Bist (2022); Richard (2020); Guustaaf (2021); Zuhaira (2021); Pranata, (2023); Rahardja (2019); De Ramon Fernandez (2020); Rashi (2022); Cagnin (2021).

As mentioned in Table 1, business process management system differs from other systems that companies have. A process management system (PMS) typically encompasses several key features that enable organisations to efficiently manage and optimise their processes.

Enhancing efficiency through process management tools

Researchers highlight that in today's fast-paced business environment, organisations must continuously seek ways to enhance efficiency, reduce costs, and improve overall performance (Van Cott, Singer, & Druckma, 1997). Process management tools have emerged as a vital tool in achieving these objectives by streamlining operations and optimising workflows. One of the cornerstone functionalities of process management software is the ability to create detailed process models and maps (Meidan, García-García, Escalona, & Ramos, 2017). Users can visually document their workflows, identifying each step, the individual tasks involved, and the flow of information. This visualisation helps organisations communicate process steps clearly, making it easier for stakeholders to understand different roles and responsibilities. Additionally, by mapping processes, businesses can identify bottlenecks (Hunt, 1996), redundancies, and areas for improvement, laying the groundwork for process optimisation. Many software solutions include built-in communication tools (Vukšić, 2018) that facilitate teamwork across departments and locations. Features such as shared workspaces, comment sections, and integrated messaging allow team members (Bassanino, Fernando, & Wu., 2014) to stay connected, share updates, and discuss challenges in real-time. Improved collaboration not only enhances productivity but also fosters a culture of collective problem-solving and innovation. Version control is a critical feature (Pourmirza, Peters, Dijkman, & Grefen, 2017) in process management software that facilitates the management of changes made to process documentation, workflows, and associated assets. This functionality allows organisations to maintain a historical record of all modifications, ensuring that teams can track the evolution of their processes over time (Harmon, 2019). With version control, users can easily view previous iterations, understand what changes were made and by whom, providing valuable context for decision-making. This is especially important for businesses operating in regulated industries, where maintaining accurate documentation is essential for compliance. Moreover, version control helps prevent confusion that can arise from multiple users editing documents simultaneously (Pilato, Collins-Sussman, & Fitzpatrick, 2008), as it allows users to work with the most current version while preserving earlier drafts for reference or rollback, if necessary.

Accessibility is another essential aspect of effective process management software. It ensures that users from various departments and roles can easily access necessary resources (Štemberger, Bosilj-Vukšić, & Jaklić, 2009), whether it is process documentation, workflow outlines, or performance metrics. High-quality process management systems often include user permissions and roles that dictate who can view or edit content, thus balancing access and control. Moreover, accessibility also encompasses mobile compatibility, allowing users to engage with process

information on the go, fostering a responsive and agile work environment (Suša Vugec, Stjepić, & Sušac, 2019). Structural alignment is equally vital, as a well-organised platform enables users to navigate information intuitively. By employing systematic categorisation and tagging features, process management software allows users to quickly locate relevant documents and workflows, enhancing overall usability. A robust search function also contributes to this ease of access, enabling users to find specific processes or data using keywords or filters. Together, accessibility and structural alignment contribute to a more efficient team collaboration, minimising downtime and miscommunication associated with process retrieval. Linking functionalities in process management software provide the ability to connect related documents, processes, and workflows, creating a cohesive network of information (Wetzstein et al., 2007). This interconnectedness allows users to see how various processes impact one another, supporting better decision-making and fostering a holistic understanding of operational dynamics. For instance, by linking related tasks to specific outcomes or performance metrics, teams can easily trace back results to the originating processes, enabling thorough analysis and targeted improvements. Moreover, linking not only enhances visibility but also promotes better collaboration among teams. Because users can reference interconnected processes and documents, it facilitates discussions around shared challenges and collective problem-solving (Munthali, Van Paassen, Leeuwis, Lie, & R., 2021). This feature often extends to integrations with external applications and platforms, allowing seamless data transfer and interaction with tools such as project management software or communication platforms. By leveraging linking capabilities, organisations can enhance their process management, ensuring that teams remain aligned and informed about how their individual contributions fit into broader organisational goals. (Table 2)

Table 2

Process Management System Features

Feature	Meaning
Process Mapping and Documentation	Enables visualisation of workflows, flowcharts and business processes. Facilitates the creation and storage of process documentation, including standard operating procedures (SOPs) and guidelines.
Collaboration and Communication Tools	Enables sharing of documents, updates, and feedback seamlessly among team members.
Version Control	Tracks changes made to processes and maintains version control for documentation, automatically informs about document for update/review.
Accessibility and Structure	Allows to apply different accessibility to documents, select process owners, validate processes, trace of access.
Linking and Interconnectivity	Allows to link documents, zoom in and zoom out.

Source: Meidan, García-García, Escalona, & Ramos (2017); Vukšić (2018); Pourmirza, Peters, Dijkman, & Grefen (2017); Štemberger, Bosilj-Vukšić, & Jaklič (2009); Suša Vugec, Stjepić, & Sušac (2019); Wetzstein et al. (2007).

All process management system features influence companies' management success, and that should be tested in real life.

2. Research methodology and data analysis on optimisation methods of advanced process management implementation in logistics

Research method and data

Aim of the research is to examine the progress of ten logistics companies in the implementation of a process management system, the challenges faced, and successes achieved.

The research was conducted at ten logistics companies in Europe that provided postal service. To achieve the set goal, qualitative interviews were conducted with process/quality managers, administration managers, and business development managers. The selected company, operating in Europe for over 20 years, holds a leading position in its segment, providing postal and logistics services. With a workforce of 57,000 employees and sales revenue of 15.69 billion euros in 2023, it is classified as a large company. The company serves individual clients (B2C) and legal entities (B2B). It is innovative, implementing both managerial practices (LEAN, ISO) and technological innovations in its operations. The company invests in process effectiveness strategies, one of which

was Process Management Software, implemented in all ten companies for two years.

Data and data analysis method. Ten logistics companies that implemented the same process management software were asked to complete the same survey three times: before the implementation of the process management system, during the implementation, and after the implementation of the process management systems software. Selected employees from the project management team were asked to complete the survey to understand the scope and expectations, as well as employees from the direct process management systems administrators, such as process/quality managers, administration managers, and business development managers. The data was kept and archived in Microsoft Forms and analysed applying statistical methods in Microsoft Excel. The data was gathered and categorised and analysed from different angles.

The research data analysis and the discussion of the results

Research was conducted in ten international logistics companies that have implemented the same process management systems software for two years, from 2022 to 2024. The selected software was purchased by head office and must be implemented in all group business units within three years.

The primary objective of the first stage of the research was to gain a thorough understanding of the current "as-is" situation within the organisation and to identify the key challenges that the selected software must address to optimise process management. This initial phase was critical for establishing a baseline against which improvements could be measured and evaluated.

To gather relevant insights and perspectives, a comprehensive survey was conducted among employees across various departments. The results of this survey have been meticulously categorised into four distinct areas, each representing specific challenges that the process management system is expected to resolve. These categories are Process Visibility and Documentation, Access and Permissions, Document Management and Control, and Search and Retrieval (Table 3). Each category encompasses a range of issues that employees have encountered in their daily operations.

Table 3

Categories and subcategories of process management system challenges before software implementation

6. Category	Main issues
Process Visibility and Documentation	• We do not have a common process view or map, making it difficult to understand workflows. • Documents are not effectively linked to each other, leading to information silos. • There is a lengthy and untraceable document approval cycle, resulting in delays and inefficiencies.
Access and Permissions	• There is currently no option to apply different levels of accessibility to various documents, which poses security risks. • There is a lack of clear linkage to the responsible individuals for each document, causing accountability issues. • The absence of traceability regarding who has accessed documents further complicates compliance and oversight.
Document Management and Control	• We do not have sufficient validation and versioning functionality to ensure document accuracy and currency. • There is no mechanism for the automatic assignment of documents for updates or reviews, leading to outdated information. • The current system lacks the capability to transfer documents to external partners seamlessly, constraining collaboration efforts.
Search and Retrieval	• The system does not support keyword search functionality, making it difficult to find relevant documents quickly. • Employees are unable to utilise flowcharts for visual representation of processes, thus hindering the understanding of workflows.

Source: created by the author.

The second stage of the research was conducted to provide a comprehensive assessment of the progress made in the implementation of the process management system. The aim was to determine how effectively the implementation aligns with initial expectations and to uncover any discrepancies between what was anticipated and what has occurred in practice.

The survey results revealed some promising outcomes, notably, the volume of documents has

decreased significantly by 25 per cent. This reduction indicates an efficient streamlining of documentation processes, suggesting that the organisation is becoming more adept at managing its information flow. Additionally, it was found that approximately 37 per cent less time is now spent searching for documents, handling approvals, and managing updates. This time-saving improvement speaks volumes about the impact of the new system on operational efficiency and productivity.

However, despite these positive results, there are concerns among the process management systems administrators. A significant majority, accounting for 63 per cent, reported feeling a lack of competency, indicating that further training and support may be necessary to empower them in their roles. This highlights a gap in the skillset needed to fully leverage the new system's functionality. Moreover, a striking 71 per cent of administrators expressed dissatisfaction with the level of integration between the process management system and the other software solutions currently in use. This lack of seamless integration may hinder the overall effectiveness of the system, and suggests that addressing these integration challenges should be a priority moving forward.

Overall, while the implementation of the process management system has yielded notable benefits, the feedback from administrators underscores the need for continuous improvement in both training and software integration efforts to ensure that the full potential of the system is realised (see Fig. 1).

Source: created by author.

Fig. 3. Improvements when transitioning from paper-based document management to process management software

The third stage of the research was conducted several months after the initial implementation of the process management system, marking a critical juncture in evaluating the effectiveness of the new software. To assess the impact of the system and gather updated insights, a survey was administered once more to the same group of company employees. This survey was structured around the same key categories as before: Process Visibility and Documentation, Access and Permissions, Document Management and Control, and Search and Retrieval. By maintaining these categories, the research aimed to facilitate a comparative analysis of employee experiences and perceptions before and after the software implementation.

However, the findings from this stage revealed that the organisation faced challenges that were notably more significant than those typically encountered during a standard software implementation process. One of the most pressing issues highlighted was the lack of commitment from managers in adopting and utilising the new software. Approximately 65 per cent of respondents reported that this lack of managerial support hindered the effective use of the process management system, ultimately impacting overall organisational buy-in.

In addition to managerial disengagement, resistance to change emerged as a widespread concern among employees. An impressive 87 per cent of respondents indicated that they encountered resistance to transitioning to the new software, suggesting a strong attachment to existing practices

and scepticism about the benefits of the change. This resistance can often stem from employees' fears about adjusting to new workflows or concerns about the technology's reliability and efficacy.

Moreover, 93 per cent of respondents mentioned integration issues, pointing to significant challenges in aligning the process management system with the existing software and tools used within the organisation. These integration difficulties not only created operational inefficiencies but also contributed to frustration among employees who relied on seamless connectivity between systems for their day-to-day tasks.

Despite these challenges, it is important to highlight the positive feedback received regarding the software's impact on management dynamics. An encouraging 89 per cent of respondents noted that middle managers felt empowered because of the new system, suggesting that the software fostered greater autonomy and decision-making capabilities at the middle management level. This empowerment is crucial, as it can lead to improved team performance and heightened accountability.

Additionally, 81 per cent of respondents recognised the inclusion of end users in the process as a significant success factor. This inclusion likely enhanced employee engagement and provided valuable insights that contributed to a more user-centric approach to the system's deployment. By incorporating feedback from those who interact with the software directly, the organisation demonstrates a commitment to continuous improvement and adaptation in response to user needs.

In summary, while the third stage of the research revealed a range of challenges associated with the implementation of the process management system, it also underscored notable successes, particularly in terms of empowering middle managers and involving end users. These insights can serve as a foundation for the organisation to refine its strategies, foster a culture of support for change, and ultimately enhance the effectiveness of the software in achieving its intended goals. Addressing the barriers to successful implementation is crucial for realising the full potential of the process management system and driving organisational growth in the future.

Conclusions

1. The theoretical analysis of scientific literature concerning process management systems in logistics underscores their pivotal role in augmenting operational efficiency, optimising workflow, and enhancing overall supply chain performance. The review indicates that effectively implemented process management systems empower organisations to achieve superior decision-making capabilities and bolster adaptability in response to fluctuating market dynamics.
2. The implementation of the process management system within the cohort of ten logistics companies resulted in statistically significant enhancements in documentation efficiency and time management, evidenced by a 25 per cent reduction in the volume of documents and a 37 per cent decrease in time allocated to document-related tasks. Notably, challenges such as inadequate managerial support, employee resistance to change, and difficulties with system integration persist, underscoring the necessity for continuous training initiatives and strategic alignment with pre-existing technological frameworks. In conclusion, while the transition has demonstrated potential in empowering middle management and fostering end-user engagement, addressing these identified barriers is essential for optimising the system's efficacy and promoting sustainable organisational growth.
3. Achieving effective process management in logistics necessitates a comprehensive and strategic approach that encompasses several critical components, including continuous training, a cultural shift towards process-oriented thinking, and the integration of advanced technologies.

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Encourage of Sustainable Business – Approaches for Increasing of the Scale and Impact Over Natural Tourism in Shumen Municipality

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Abstract. Many companies have made their reorganisation and optimisation of the resources led by two main reasons – lowering production costs and decreasing production pollution. In this period of transition, there are still new opportunities for clear, responsible and sustainable business using natural resources. As the technological world advances, people increasingly need tranquillity and to live in sync with nature. Sustainable business practices are crucial for the long-term success of natural tourism. By prioritizing environmental protection, social responsibility, and economic viability, businesses can ensure that tourism benefits both visitors and the destinations they explore. The subject of the article is the development of a new thermal spring complex in Marash, Shumen province, Bulgaria, as an opportunity for establishing a recognisable place for health and sustainability.

Key words: sustainable business, nature tourism, circular economy, new opportunity, thermal pool

Introduction

Relevance of the article

The relevance of the article is to establish the connection between natural tourism, often synonymous with ecotourism, and its intertwining with sustainable business practices. Through the exploration of the knowledge for natural tourism as a successful business opportunity with long-term benefits for humanity, the article presents a real example of its realisation. This is the thermal pool in Marash, which is a unique opportunity for local businesses to apply tourism practices that minimise environmental impact and support local communities. Eco-lodges, organic farms and nature walks offer immersive experiences rooted in sustainability. For sustainable development, the three-pillar model – social, economic and environmental – is used, which formulates the concept of sustainable development. As a sustainable development model, the most effective framework is presented – the circular economy.

Problem investigation level

Sustainable business is a business model that integrates environmental, social, and economic considerations into its operations and decision-making processes. It aims to create long-term value for stakeholders by balancing profitability with responsible practices that minimise negative impacts and maximise positive contributions to society and the environment. Natural tourism is travel to natural areas that conserves the environment and improves the welfare of local people. It focuses on natural attractions like landscapes, wildlife, and outdoor activities. The circular economy is a model of production and consumption that involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. A wise composition from sustainable business models, thought natural tourism accents to circular economy style of management, will be presented.

Scientific problem

Why is the thermal pool in Marash, Bulgaria, the right way for the region to develop sustainable tourism with circular economic practices and encourage local businesses?

Object of the article

Representing the theoretical, practical and future concepts for a new business opportunity, considering the local environment from natural and economic aspects. Regional specifics such as mineral water indicators, local farms, geographical and historical characteristics are explored to increase the impact on local natural tourism.

Aim of the article is to explore business model advantages considering the business climate in the Republic of Bulgaria and increase the scale and impact of sustainable tourism.

Objectives of the article:

4. To analyse the roots and benefits of sustainable development.

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5. To reveal the immediate local social, environmental and economic impact.
6. To give examples of circular economic benefits.
7. To evaluate the actions that positively influence the sustainability of natural tourism in terms of the circular economy.

Methods of the article

The study is based on:

- theoretical research and modelling of research approaches regarding the semantics of the concept of sustainable development; the genesis, role and importance of the circular economy; the specificity of the thermal pool in Marash, as a unique opportunity for local business, interpretation and analysis of data;
- observation as a method of diagnosis and clarification in an in-depth study of the possibilities for implementing environmentally friendly tourism practices;
- the conversation, as an important method through which information is collected on the problem under consideration. Conducting a dialogue with local people, stakeholders, and experts provides more complete and accurate information and contributes to the relevance of the study.

1. Theoretical definition of sustainable development and circular economy

Sustainability, sustainable development – before and after

While the knowledge and practice of sustainability has been adopted by humans since the beginning of human history, the formal use of the term *sustainability* is often attributed to the German, Hans Carl von Carlowitz (1713). The term *sustainable development* has a more recent history, attributed to the World Commission on Economic Development (WCED, 1987); widely referred to as the Brundlandt Commission after its chair, Gro Harlem Brundlandt. His definition for sustainable development is: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" Arguably, sustainable development is primarily a social justice project focusing on equitable development to meet human needs while still recognising that the preservation of natural resources is necessary to fulfil these needs. Johnston et al. (2007) have noted, however, that there are now literally hundreds of definitions and modifications of the original WCED (1987) definition. Along with the studies, there are "5 C's of Sustainability" – Clean, Community, Culture, Care, and Corporate Governance – that present a comprehensive framework to guide us towards a more sustainable decade and beyond. The 3Ps of sustainability are a well-known and accepted business concept. The Ps refer to People, Planet, and Profit, also often referred to as the triple bottom line.

Furthermore, the concept for sustainable development is accepted and adopted by the European Commission, and since 2017, the conversation started with the Paris agreement. Bulgaria, as a part of the European family, has an integrated approach for implementing the UN program for sustainable development till 2030. This is a significant challenge for innovations that support the implementation of sustainable development. Bulgaria needs to strengthen its innovations, as it currently stands at the bottom of the eco-innovation index for 2024 – 58.8, ranking 27 (in comparison – Finland, ranking 1, index: 180.8) (Research and Innovation, 2024).

Circular economy

Using the statistics will help us understand that humanity uses resources equivalent to those of the Earth multiplied by 1,7. The food production continues to exercise pressure on the environment, and 20% of the food produced is thrown away (Sustainable Europe, 2019). The only reasonable solution is the circular economy and the right two-way transition from the farm to the table.

Although the term *circular economy* has only been around since the second half of the 20th century, its underlying ideas and methods are as old as mankind. It centres on (re)using whatever is to hand. For example, 30,000 years ago, people made flutes out of mammoth bones left behind after the meat had been consumed: an early case of production waste recycling. Nowadays, we approach the circular economy and its constituent mechanisms from a different perspective than in the past.

In 2022, Switzerland had already reached Overshoot Day by 13 May. That means the resources we consumed on the other 262 days of the year were on credit, which is unsustainable. These days, the idea of a circular economy is usually seen as a means of improving sustainability, i.e. not consuming more resources than the Earth can replace (Schwab, 2024).

The term *circular economy* was first explicitly introduced in a 1989 publication on environmental economics. Nevertheless, the conceptual foundations of the circular economy can be traced to earlier developments. In the mid-20th century, frameworks such as industrial ecology and the "cradle to cradle" design philosophy began to emerge, both of which emphasised the necessity of closed-loop systems and the reduction of waste. A particularly influential precursor was Kenneth Boulding's 1966 work *The Economics of the Coming Spaceship Earth*, in which he critically examined the unsustainability of an "open economy" premised on infinite resource availability and advocated for a transition toward a "closed" economic system.

So, while the specific term *circular economy* is relatively recent, the underlying principles have been discussed and developed for decades.

In natural tourism, the circular economy is a great framework to build an eco-friendly concept for a thermal complex. There are several areas of impact – eco-design, packaging, greenwashing, the right to repair and waste management (Circular Economy in the Hotel industry: from challenges to action!, 2023).

In the context of tourism, the circular economy provides new opportunities for so-called circular tourism – tourism practices that minimise environmental impact and support local communities. Eco-lodges, organic farms and nature walks offer immersive experiences rooted in sustainability. So far, the Circular Economy discourse has predominantly focused on production industries. However, this focus on tangible product manufacturing underestimates service-dominated industries, such as travel and tourism, and their role in the global Circular Economy transition.

The circular economy offers a robust framework for making tourism more sustainable with key principles in action: reduce, reuse, recycle. The approach is minimising waste by implementing robust waste management systems, reducing single-use plastics, and composting food waste. Reusing resources by employing renewable energy sources, utilising rainwater harvesting, extending the lifespan of equipment. Finally, recycling materials involves recycling construction materials, repurposing old furniture, and promoting the use of recycled products. Next step is designing for durability and reusability with sustainable construction – building eco-friendly accommodations with energy-efficient designs and locally sourced materials; product longevity: prioritising durable and repairable equipment and furnishings; sharing economy: promoting the sharing of resources like bicycles, cars, and equipment among tourists. There is a benefit for local sourcing and value chains by supporting local businesses – sourcing food and other supplies from local producers, creating local jobs, and boosting the local economy. Another opportunity is preserving traditional crafts by supporting local artisans and promoting the use of traditional crafts in tourism products. Regenerative Practices can be applied for ecological restoration by implementing initiatives to restore damaged ecosystems, such as reforestation and habitat restoration. This would provide community engagement and involve local communities in tourism planning and decision-making.

There are three main benefits of a circular economy approach – environmental protection (reduces environmental impact, conserves resources, and mitigates climate change), economic growth (creates new business opportunities, boosts local economies, and enhances competitiveness) and social equity with provides support to local communities, promotes fair labour practices, and preserves cultural heritage.

The thermal spring in Marash

Near Shumen, in the village of Marash, nature has provided a thermal spring with therapeutic properties suitable for treating joint diseases, respiratory ailments, and digestive disorders. The temperature is 67^0, which is one of the hottest thermal springs in Europe. Chemical composition is hyperthermal, highly mineralised, chloride, sodium-calcium, fluoride water containing boron and iodine. The borehole is 2800 m deep, 7.2 l/sec. In terms of chemical composition and healing

properties, it can be compared with the world-famous mineral waters of the spa complexes in Karlovy Vary, and the mineralisation of the spring in Marash is higher than that of the mineral waters in Karlovy Vary with the same chemical composition. The temperatures of renowned European thermal spas vary considerably. For instance, the Blue Lagoon in Iceland maintains a temperature of approximately 38.0°C, while the thermal springs in Karlovy Vary, Czech Republic, range from 38.0°C to 75.0°C. Château des Thermes in Chaudfontaine, Belgium, reports temperatures around 32.0°C. At Terme di Saturnia in Italy, the waters reach 37.7°C, whereas Hévíz Lake in Hungary ranges between 24°C and 38°C, depending on the season and location within the lake. In Bulgaria, there are many mineral springs and spa towns, led by Velingrad, and only two hotels with mineral water are marked as sustainable tourism destinations. Village Marash is in the Shumen municipality, in the northeastern part of Bulgaria. It is 3 hours from Bucharest, 4 hours from Sofia, and only one hour from Varna airport by car. Marash is famous for the pepper and tomato festival. There are many local farmers, and according to the concept, the production could be planned to fit the needs. There are several national cultural, historical and natural protected areas near Marsh – Pliska, Preslav, Madara horseman, Marash's coria, and the Memorial complex Founders of the Bulgarian State. Right next to the village, there is a Lavandula distillery and BIO products – Kallista farm. The air in the area is relatively straightforward, considering that there is no chemical or heavy industry production around. Along with the thermal complex, local farmers would be supported with new groceries – small and accessible agricultural stores with farm and animal products.

All of these conditions are good prerequisites for an investment in a new thermal complex for medical purposes.

2. Analytical part

Collaboration of sustainable business and circular economy. Business climate.

Sustainable business in a condition of circular economy provides a sequence of advantages (pros) and disadvantages (cons). In Table 1 are listed the 6 criteria for the implementation of sustainable business in a circular economy environment. One of the significant disadvantages is that the technology still does not allow all the materials to be recycled. However, this can be considered in the initial planning as mainly recyclable materials.

Table 1

Sustainable business in circular economy – pros and cons

	Sustainable business	**Circular economy**
	Pros	Pros
Environmental benefits	Minimise carbon impact, reduce waste, conserve resources	By recycling reduce the need for raw resources
Economic benefits	Cost reduction, higher revenue, innovation and competitive advantage	New business opportunity
Social benefits	Positive popularity, attractiveness, inspiration for the employees, building community	Strengthen local economies and communities
	Sustainable business	**Circular economy**
	Cons	Cons
Initial costs	New technologies and equipment	Investment in new technologies and processes
Time and complexity	Innovative solutions are time-consuming, new trainings	Supply changes and operational challenges
Customer perception, technology limitations and regulatory	More expensive for customers, lack of clear standards	Customers need to be trained; not all materials can be easily recycled

Source: created by the author.

Overall, the benefits of sustainable business generally outweigh the costs. While there may be initial challenges and investments, the long-term rewards in terms of environmental protection, cost savings, and improved brand reputation can be significant. Part of the concept of sustainable

tourism includes participation and implementation of various campaigns and initiatives related to environmental protection and striving to reduce the carbon footprint. A good option is to provide preferences for tourists who arrive by electric cars. As part of the idea of sustainable business, one of the priorities is to predominantly use local food products in every food and entertainment establishment, to stimulate local agriculture, winemaking and animal husbandry. The project will give an opportunity for growth to over 10 different industries of the local companies with activities in architecture, green technologies, less carbon constructions, telecommunications, electricity, cooking or culinary arts, medical therapies, SPA services, tourism, transport, etc. In this context, it can be emphasized that in contemporary socio-economic and environmental conditions, each project should be considered as a unique strategic asset (Zlateva, 2015).

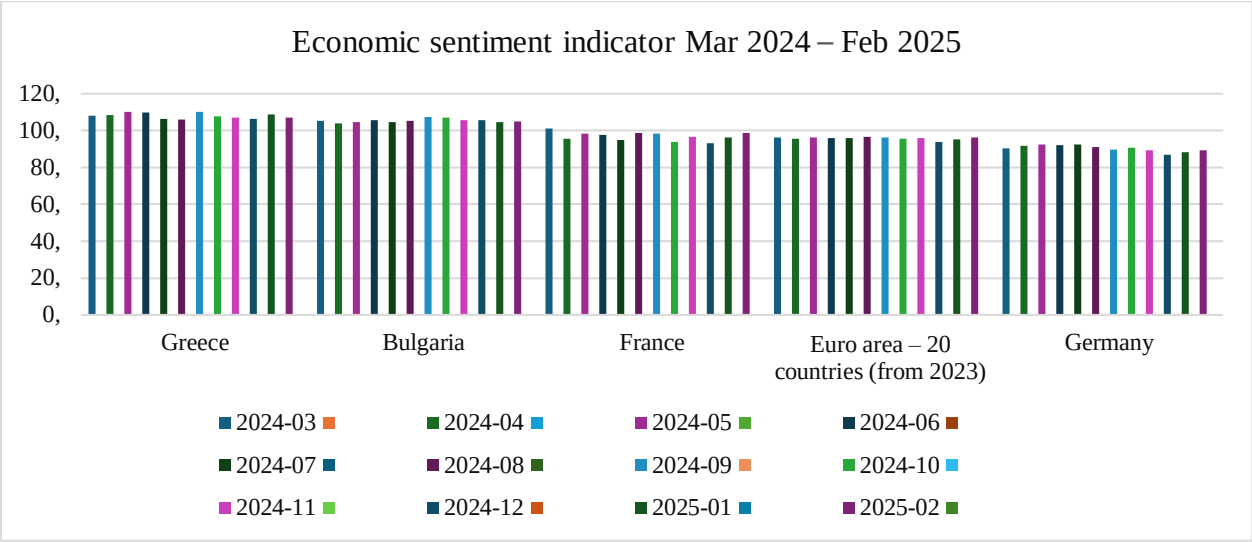
Let us consider some of the strengths of the natural tourism industry – unique natural attractions including thermal springs and diverse wildlife; strong commitment to eco-friendliness and sustainability; rich cultural heritage showcased through traditional Bulgarian cuisine and festivals; expertise in offering immersive outdoor experiences like nature walks and photography tours; opportunities for community engagement through herbal medicine workshops. On the other hand, the weaknesses are limited brand recognition in a competitive tourism market; dependence on seasonal tourism, which may lead to fluctuating revenues; possible high operational costs associated with maintaining eco-friendly practices; limited accessibility for tourists who are not familiar with the area; potential lack of amenities compared to larger resorts. There are at least five opportunities: growing market demand for eco-tourism and sustainable travel experience; opportunities to partner with local businesses for collaborative packages; increasing interest in wellness and rejuvenation tourism; potential for expansion of workshop offerings and seasonal events; development of online marketing strategies to reach a wider audience. The last factor is threats – increased competition from other eco-retreats and tourism destinations; environmental changes that may affect natural attractions and wildlife; economic downturns that could reduce discretionary travel spending; regulatory changes affecting tourism and environmental practices; the impact of global events (e.g., pandemics) on travel habits.

Innovations can be subjects for research and development companies to explore various technologies, such as collecting rainwater, using thermal water for heating, and combining solar energy and battery storage for independent and green energy buildings. Innovation management faces the challenge of integrating multiple aspects of strategy, programming, people and project management. It can be viewed in the context of many directions that relate to different functional areas, but the urge for the new and the better does not lose its value, because it has always been at the heart of development (Zlateva, 2019).

Business climate

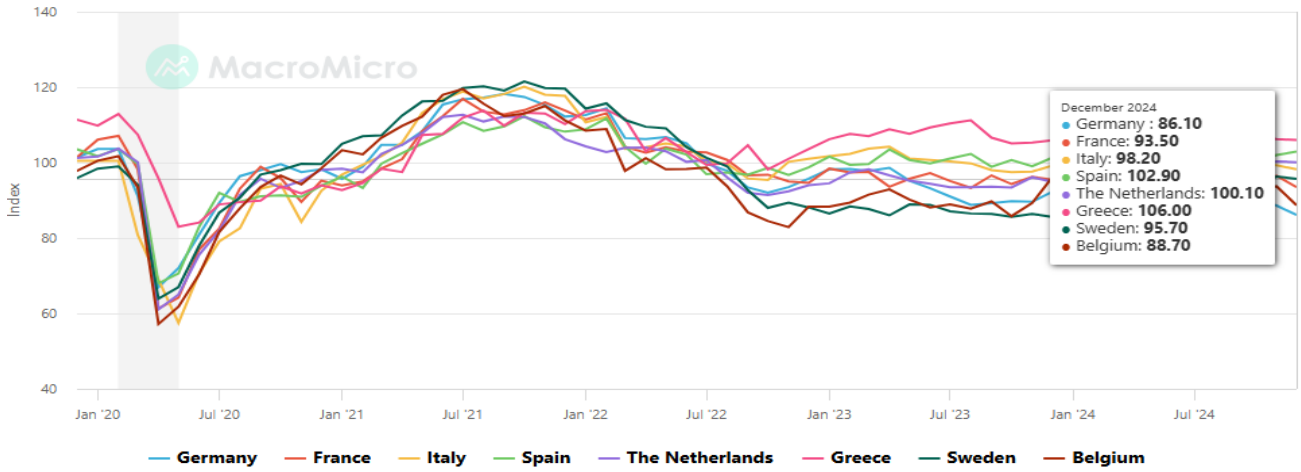
According to the National Statistics Institute of Bulgaria, under 1% of the hotel nights in 2023, in non-sea cities (over 10 km far from the sea), are in the northeastern part of the country, and around 0.6% of the hotel nights in the country are in Shumen in the same year. These numbers define Shumen and the region as a very undeveloped area despite the numerous tourist sites in the region.

Compared with major countries in the EU (Fig. 1) for ESI (Economic sentiment indicator), Bulgaria is above the average, 105, towards the Euro area, under 100 for the last 11 months (Fig. 2).



Source: Eurostat (2025).

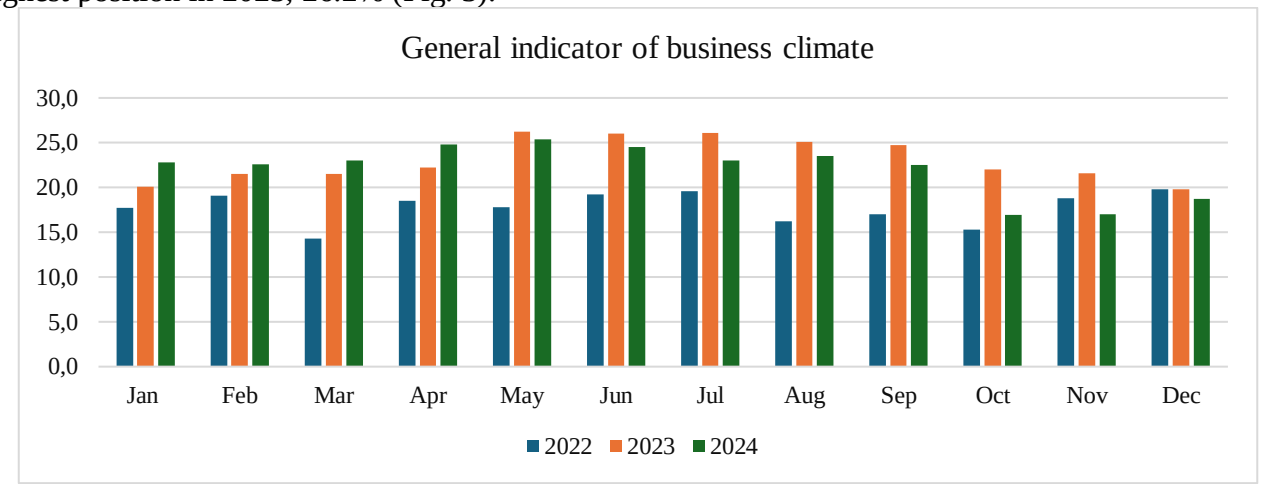
Fig. 1. ESI in the Euro area and some EU countries



Source: MarcoMicro (2025)

Fig. 2. Europe – ESI of major countries – 2020-2024

From a business perspective, the general indicator for Bulgaria of business climate had its highest position in 2023, 26.2% (Fig. 3).



Source: National Statistical Institute (2025).

Fig. 3. Monitoring business trends in industry, construction, retail and services in Bulgaria, 2022–2024

The Gross Domestic Product (GDP) in Bulgaria expanded 2.40 per cent in the third quarter of 2024 over the same quarter of the previous year. Bulgaria has made significant economic development since the transition to democracy. However, challenges remain in boosting productivity, reducing inequality, and attracting foreign investment.

Sustainable business is a real and possible destination for a new way of living with all the circular economy approaches – synergy of private, public and government.

Conclusions

Based on the above, some conclusions can be drawn related to the need to promote sustainable business and the use of approaches to increase the scale and impact of nature tourism in the municipality of Shumen in the following areas:

1. Promoting sustainable business and sustainable development, contributing to the local economy and requiring:
    - Urgency: Sustainable development is not a future aspiration, but an urgent necessity. The impacts of climate change, resource depletion, and social inequalities are already being felt, demanding immediate action at the local level.
    - Interconnectedness: Sustainable development is an interconnected challenge. Environmental, social, and economic factors are deeply intertwined. Addressing one aspect without considering the others will likely lead to unintended consequences.
    - Systemic Change: True sustainability requires systemic change. This involves transforming our economic models, consumption patterns, and social structures to prioritise long-term well-being over short-term gains.
    - Collaboration: Sustainable development cannot be achieved by governments alone. It requires collaboration among governments, businesses, civil society, and individuals at all levels.
    - Innovation: Technological innovation and the development of sustainable technologies are crucial for transitioning to a more sustainable future.
    - Equity and Justice: Sustainable development must be equitable and just. It must ensure that the benefits of sustainable development are shared fairly among all people and that the burdens of environmental and social challenges are not disproportionately borne by marginalized communities.
    - Long-term Vision: Sustainable development requires a long-term vision and commitment. It is a continuous journey of learning, adaptation, and improvement.

These conclusions highlight the complexity and urgency of the challenge of sustainable development. They emphasise the need for a holistic, collaborative, and transformative approach to create a more sustainable and equitable future for all people living in the territory of Shumen municipality.

2. Increasing the scale and impact of nature tourism in the municipality of Shumen is undoubtedly strongly linked to the circular economy. The circular economy offers a compelling vision for a more sustainable future, but its successful implementation requires careful consideration and a multi-faceted approach, which covers:
    - Systemic transformation: The circular economy necessitates a fundamental shift away from the traditional linear “take-make-dispose” model towards a cyclical system that prioritises resource efficiency, waste minimisation, and product longevity. This requires a systemic transformation across various sectors, at every level, starting and ending with the local, including manufacturing, consumption, and waste management.
    - Collaboration is key: Successful transition to a circular economy requires collaboration among various stakeholders: government, businesses, civil society organisations, and local communities. The partnerships in the territory of Shumen and cross-sectoral collaborations are crucial for developing and implementing effective policies, technologies, and business models.

- Consumer behaviour change: Shifting consumer behaviour towards more sustainable consumption patterns is crucial for the success of the circular economy. This includes promoting product durability, encouraging repair and reuse, and fostering a culture of conscious consumption.
- Economic and social benefits: The circular economy offers significant economic and social benefits for the territory of Shumen municipality, including job creation, economic growth, and improved resource security. By reducing waste and increasing resource efficiency, circular economy principles can contribute to a more sustainable and equitable future.

Encouraging sustainable business and increasing the scale and impact of the circular economy on nature tourism in the municipality of Shumen presents a significant opportunity to address pressing environmental and economic challenges of the local community. By embracing circular principles, we can create a more sustainable, resilient, and equitable future for all. However, achieving this vision requires a concerted effort from all stakeholders, a commitment to innovation, and a long-term perspective.

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