ISSN 1648-7974

LIETUVOS VERSLO KOLEGIJA
LITHUANIA BUSINESS COLLEGE

VADYBA

2024 Nr. 2 (40)

Journal of Management

KLAIPĖDOS UNIVERSITETO LEIDYKLA
Klaipėda
2024

Name of publication: **Journal of Management** (ISSN: 1648-7974)
Issue: Volume 40/Number 2/2024
Frequency: Semianual
Languages of articles: English,
Office of publication: Public Institution Lithuania Business College
Turgaus str. 21
LT-91249, Klaipėda
Lithuania

Editorial Office: Assoc. prof. dr. Jurgita Martinkienė
Scientific Research Department
Public Institution Lithuania Business College
Turgaus str. 21, LT-91429
Klaipeda, Lithuania

Phone +370 46 311 099
E-mail: publisher@ltvk.lt

Journal of Management Homepage: http://ltvk.lt/vadyba

The journal is reviewed in:
Index Copernicus (IC) database https://indexcopernicus.com/index.php/en/parametrisation-1/journals-master

Central and Eastern European online Library (CEEOL) database http://www.ceeol.com/

EBSCO Publishing, Inc. Central & Eastern European Academic Source https://www.ebscohost.com/titleLists/e5h-coverage.htm

https://www.mab.lt/paslaugos/lietuvos-mokslo-zurnalai/v/

Every paper is revised by two reviewers.

ISSN 1648-7974 (Print)
ISSN 2424-399X (Online)

Leidinio pavadinimas: **Vadyba** (ISSN: 1648-7974)
Leidimas: Volume 40/ Number 2/2024
Periodiškumas: Leidžiamas dukart per metus
Straipsnių kalba: Anglų
Leidėjo adresas: Viešoji įstaiga Lietuvos verslo kolegija
Turgaus g. 21
LT-91249, Klaipėda

Redakcijos adresas: doc. dr. Jurgita Martinkienė
Mokslo-taikomųjų tyrimų skyrius
Viešoji įstaiga Lietuvos verslo kolegija
Turgaus g. 21, LT-91429
Klaipėda
Telefonas +370 46 311 099
Elektroninis paštas: publisher@ltvk.lt

Žurnalo internetinio puslapio adresas: http://ltvk.lt/vadyba

Žurnalas referuojamas:

Index Copernicus (IC) database https://indexcopernicus.com/index.php/en/parametrisation-1/journals-master

Central and Eastern European online Library (CEEOL) database http://www.ceeol.com/

EBSCO Publishing, Inc. Central & Eastern European Academic Source https://www.ebscohost.com/titleLists/e5h-coverage.htm

https://www.mab.lt/paslaugos/lietuvos-mokslo-zurnalai/v/

Kiekvienas straipsnis yra peržiūrimas dviejų recenzentų.

ISSN 1648-7974 (Print)
ISSN 2424-399X (Online)

Vadyba
Journal of Management
2024, № 2 (40)
ISSN 1648-7974

Turinys / Contents

EDITORIAL

"Journal of Management" is periodically published applied sciences journal by Lithuanian Business College. The journal is constantly publishing articles since 2002 and has gained significant experience and international recognition. This year the journal is celebrating its 22 years anniversary. It has been well renowned by foreign scientists and number of international scholars publishing continues to increase. Currently, 40th number of the journal is released to readers. Only those articles that meet thorough requirements set by the Editorial Board are being published. Authors of these articles represent various Lithuanian and foreign countries science. From Lithuania the following institutes are represented Lithuania Business College, School of Economics and Business, Kaunas University of Technology, Klaipėda University, Utena Higher Education Institution and other. The following institutes from foreign countries: Bucharest University of Economic Studies (Romania), National University of Water and Environmental Engineering, Rivne (Ukraine), Hungarian University of Agriculture and Life Sciences, Budapest Metropolitan University, Manisa Celal Bayar University and other.

Editorial board of "Journal of management" seeks for published academic researches to cover different economic directions and to be relevant to different industries and countries around the world. At the same time, the focus remains on ongoing changes in various industries, human resources, and governance. Based on these criterions, articles are chosen for publication in the journal. Focusing on relevant areas of change is expected to encourage further scientific discourse and development of social science ideas.

As usual, the Journal emphasizes the scientific work of various institutions globally. In this publication, Hungarian researchers Bujáki, J., and Vinogradov, S. analyze the adaptability and innovation capacities of micro and small enterprises (MSEs) in Hungary. Their study highlights the unique challenges MSEs face in staying competitive, revealing that dynamic capabilities, creativity, and workplace autonomy significantly enhance these enterprises' innovation potential. Interestingly, factors like competitive aggressiveness did not show a strong connection to innovativeness, underscoring the importance of fostering a flexible and supportive work environment tailored to smaller businesses.

In another article, Lithuanian authors Lileikiene, A., Jonusas, J., Martinkiene, J., and Vaiksnoras, M. investigate the role of advanced management and fintech models in promoting innovative activities. Their research shows that globalization and technological advancements are pushing businesses to adopt strategic planning and innovative management methods, especially in highly competitive sectors like catering. The authors argue that companies embracing fintech models and robust strategic frameworks are better positioned to adapt to economic shifts, illustrating the critical role of structured management in business resilience and growth.

Furthermore, Ukrainian researchers Mishchuk, H., and Tryhuba, V. focus on the aluminum industry's sustainability challenges and energy efficiency efforts. Through a detailed analysis, they examine how energy-intensive production processes contribute to environmental issues, including greenhouse gas emissions. Their study suggests that adopting renewable energy sources and energy-efficient practices can mitigate environmental impacts. The findings underscore the need for aluminum producers to prioritize sustainable practices, especially given the industry's significant ecological footprint and the global push toward greener production methods.

However, Editorial cannot review all of the researches, therefore we encourage familiarizing with them in the Journal, which currently is under the indexing process with Scopus and WoS.

We invite scientists to actively publish in the Journal, share their research results and methodological insights. We expect for close cooperation.

Prof. Dr. (H/P) Valentinas Navickas, Editor-in-Chief

https://doi.org/10.38104/vadyba.2024.2.01

Vadyba
Journal of Management
2024, № 2 (40)
ISSN 1648-7974

PROMOTING INNOVATIVE ACTIVITIES THROUGH ADVANCED MANAGEMENT AND FINTECH MODELS

Angele Lileikiene, Justinas Jonusas, Jurgita Martinkiene, Modestas Vaiksnoras
Lithuania Business College

Abstract
Global economy is undergoing profound changes, impacting people's lives, businesses, and competitive landscapes. These shifts are driven by globalisation, continuous socio-economic development, the growing role of knowledge in the economy, and the intensified development and expansion of the European Union. In this evolving environment, new business models are becoming increasingly significant. Business and markets are no longer constrained by geographical boundaries. Products that were once confined to national markets are now exposed to international competition. With the removal of geographical restrictions, global markets for goods and services have essentially become operational around the clock. In response to these new challenges, companies adapt in different ways to new management and financial regulatory frameworks. To address the competitive challenges and increased competition, companies may choose to apply one or more business models that influence their overall performance. However, in the catering sector, particularly during the COVID-19 pandemic and quarantine periods, small and medium-sized enterprise managers have often neglected modern business management techniques, strategic planning, and company management. These elements are crucial for maintaining economic stability, forecasting future trends, addressing emerging issues, and safeguarding against factors that threaten business success and continuity. Recognising the increasing importance of strategic planning and management, alongside the need for scientific research and evidence-based recommendations, it has become essential to analyse a company's strategic position and its operational capabilities within this field. Every organisation must have a clear understanding of its current identity and future aspirations. For an organisation to grow and achieve its objectives successfully, it must employ advanced management methodologies and establish a well-defined strategy – a well-defined operational system. While setting goals can be straightforward, their realisation is significantly more complex. Once a company's strategy is defined, it requires careful implementation. An action plan must be created to ensure the strategy's success, including budgeting, the development of an effective implementation mechanism, and tools for monitoring and evaluating the quality and progress of the plan. Employees responsible for specific strategy points and plan execution must be assigned. These are the next essential steps for the organisation. The key to success lies in responding swiftly to the ever-changing business environment and adjusting strategic directions and implementation measures as needed with a particular focus on strategic change management and the introduction of new, innovative management methodologies.
KEY WORDS: Innovative activities, management models, fintech.
JEL Classification: G32

Introduction

The promotion of innovative activities in business enterprises through advanced management and financial technology models is tied to the relevance of this research. Every business enterprise must understand its current state and what it aims to become in the future. To grow and successfully achieve its objectives, it must utilise advanced management methodologies and have a strategy in place, which represents a targeted operational system for the company. In a dynamically changing environment and intense competitive landscape, long-term organisational development planning – of which strategic planning is the key component – becomes increasingly important. The primary goals of any operational company are typically centred around maximising profit with minimal costs and ensuring business continuity. One of the most effective ways to accomplish these goals is through the formation and execution of a robust strategy. This means that a well-defined strategy, built upon strategic planning methodology and supported by new technologies and advanced management practices, has become one of the most critical tools for business management. Business activities are now linked to flexibility and regular review of actions in a rapidly changing world, usually encompassing the last three years (Fisk P.2016). At the same time, in pursuit of innovative activities, companies need to set long-term goals and objectives, adapt operational directions, and allocate resources to achieve these goals (Chandler, 1962). This approach is understood as a structured and targeted operational system (Mintzberg H., 2009). According to G. Palubinskas (2021), scientific research is conducted to justify the structural possibilities of a business enterprise, allowing for the implementation of reasoned management and fintech methods, which are essential for achieving selected goals and objectives. Emphasizing the problem of how to create an economically useful, modern, company value-increasing strategy in difficult market conditions, for this purpose UAB Nerija was reorganized from UAB Kopa, which had been operating since 1994. The main activity of the company is defined as the production of goods, as well as wholesale and retail sales, organization of catering establishments. UAB Nerija's field of activity is catering establishment organization. Managers of small and

medium-sized enterprises of catering establishments, especially during the period of COVID 19 and quarantine, pay too little attention to modern business management methods, strategic planning and management of enterprises to control their economic situation, predict events and solve problems, when it is possible to do so, protect themselves from circumstances and events that hinder business success and threaten survival. Realizing the increasing importance and necessity of strategic planning and management based on scientific research and recommendations, it has become relevant to examine the strategic situation of the company's activities and its operational possibilities, specifically in this field of activity. It is appropriate to examine the optimization of the company's management model and technologies to achieve better performance (ensure operational efficiency). The article compares the innovative management theoretical principles of Lithuanian and foreign authors, evaluating alternative strategies of a business company and selecting the best one based on innovative management IT Fintech models.

The practical significance of the results of the article is shown by the fact that the results of the study and the presented conclusions and recommendations open opportunities for the group of companies to avoid mistakes in business development, indicate the direction of activity in today's difficult conditions of the market economy and competitiveness. The formed company strategy allows you to move forward, achieve the set goals and protect yourself from circumstances and events that hinder the success of the business. After the company's strategy is formed, an action plan is necessary, including a budget, an effective implementation mechanism that will help to effectively control and assess the progress and quality of the plan's implementation, respond promptly to the changing conditions of the business environment and adjust the directions of the strategy and the factors of their implementation. When developing this topic, it is necessary to pay special attention to the management of strategic changes and the introduction of new, advanced management methodologies.

Strategic planning focused on innovation is a crucial process, as nothing has a greater and more lasting impact on a company and its operations than decisions about its future direction and strategy implementation. A company that fails to allocate adequate attention to strategic planning often relies on incorrect forecasts and may eventually cease to exist. Therefore, leaders aiming for business success must think strategically about their company's competitiveness and its shifts in response to changing conditions. Managers pursuing long-term success must be capable of both formulating and implementing strategy.

Strategic planning is a recurring process. While the company’s purpose and goals may remain unchanged for several years, the strategies for achieving these goals evolve and must be continuously modified for maximum effectiveness. Planning encompasses everything that can impact the company, including economic, technological, social, and political factors. Strategic planning helps to anticipate and address key issues related to changes in products, services, their structure, and the company's behaviour. Thus, strategic planning focused on the innovation process offers numerous advantages to a company:

- Innovation, with a focus on innovation, emphasises the competitive nature of the organisation, allowing managers to think more analytically about the organisation, its environment, and various opportunities for beneficial operations. As the company gains a better understanding of its external environment, as well as its weaknesses and strengths, its ability to make effective strategic adjustments is significantly enhanced.
- The innovation process defines the company's boundaries and provides formal direction for the organisation, helping owners, managers, and employees concentrate on specific goals and actively pursue them (Kotamaki, 2023).
- Innovation opens new perspectives for the organisation. Moreover, it must be prepared in such a way that modifications and reorientation can be implemented if necessary.

Research problems and market overview

Rapid changes in technology, logistics, lifestyle, customer needs, and requirements, along with increasing competition, demand a higher level of systemic and statistical thinking, as well as more extensive management practice compared to the micro-management activities of the past. The challenges of "big data" are well-known today, and their impact extends beyond business interests, being strongly felt in technical fields as well. Thus, management concepts and tools are in fact much more dynamic than many people have thought so far. This also means that the profession of management and the training of professionals in this field must continue to adopt new methods and technologies, as quality tools are always aimed at maintaining a universal and effective influence on business competitiveness. Every adaptation to evolutionary or revolutionary changes requires innovation in itself. It is also important to note that innovation never occurs in a vacuum. The environment for innovation can be a country, industry, society, organisation, institution, or even a specific group of individuals. Meanwhile, closed systems do not require innovation. Only when a system is open does it become subject to unusual innovations from the external environment (Simon, 1947, Thompson, 1967). The world has never before experienced such a dramatic impact on human capital; and the consequences of the COVID-19 on economic, social and political indicators – although still not fully known and difficult to forecast, but according to many authors and international organisations will certainly be dramatic (Martinkienė, et. al., 2021). It is these changes, which trigger partially controlled and uncontrolled adaptation processes that are later referred to as innovations. Based on these theses, innovation can be seen

as a phenomenal phenomenon operating on two levels. First, it affects a specific entity, which could be an individual, a team, or an entire organisation. Second, through this entity, innovation reaches broader audiences in its environment. According to F. Pot and F. Vaas (2008), social innovation is part of the process and product innovation. It is related to the implementation of industrial relations and human resource management. The authors highlight four reasons why social innovation has become particularly important. First, it aims to increase labour productivity, maintain the overall level of well-being, and improve social protection, considering the general aging of the population. In many countries, there is open discussion about enhancing collective labour productivity. Efforts are made to strike a balance between more intensive work, longer working hours, and newer methods that improve labour productivity.

The second reason for the importance of social innovation is the growing need to utilise existing skills and create new ones, enhancing employees' competencies to maximise the workforce's potential and create greater added value (Pot, Vaas, 2008). This added value becomes a critical element of a competitive, knowledge-based economy. The European Union emphasises the need to promote the training of workers with specific skills and competencies for high-qualification positions. Such specialists should contribute to the overall well-being of employees, improve the quality of services and products, increase the overall productivity of companies, and encourage innovation. In this way, a kind of self-sustaining "mechanism" is created that promotes, monitors, and continuously improves itself while influencing the entire market. After the amendments to the Lisbon Strategy in 2005, the main task was formulated: to promote stronger long-term growth and create more and better jobs.

The third reason is that companies or organisations can only derive the maximum benefit from technological innovations if technological innovations are part of social innovations (Pot, Vaas, 2008). This includes distributing production processes to appropriate organisations or parts of them. Equally important are dynamic management, upskilling, and, crucially, employee involvement. The authors note that technological innovations and scientific research in the Netherlands are highly advanced. However, despite this, the utilisation of knowledge for product, service, and process innovations remains minimal. In other words, organisations poorly absorb innovations. This is referred to as the innovation paradox.

The fourth reason is that social innovation becomes significantly more important to the innovation process than technological advancements (Pot, Vaas, 2008). Research in the industrial sector conducted at the Rotterdam School of Management shows that 25 per cent of the success of innovations is attributed to technological innovations, while the remaining 75 per cent is due to social innovations. Thus, it is clear how impactful social innovations are and how strongly they affect business and society. In this way, it can be argued that the existence of innovations in different fields leads to entirely different definitions of innovation and research aspects. In general terms, innovation is understood as a completely new phenomenon, technology, strategy, or product. Innovation is most often referred to as a novelty. All innovations are intended either to improve existing goods or services or to create entirely new inventions. For a long time, innovation was used to enhance the efficiency of commercial activities, and only recently has it been directed towards directly increasing social welfare, becoming a new way to solve social problems. Another aspect is the improvement of business processes, which has become a significant issue from both scientific and practical perspectives. There is a growing need to address unconventional tasks related to innovative activities, integrating information technologies within organisations. Since various processes dominate business activities, reflecting the company's operations, which are often chaotic and difficult to structure, improving business processes is a complex task that has been poorly researched from a scientific standpoint. Innovative activity has become an inseparable part of business and is understood as a tool for organising business operations. One of the primary and most important tasks in improving processes is their identification and the proper development of the business model. Proper identification of processes, defining their boundaries, establishing relationships with other processes, and applying a corresponding business model are crucial steps in improving a company's operations, determining the effectiveness of performance improvement. The faster employees grasp new technologies and start using them in the company’s daily operations, the quicker the company will adapt and achieve better results. Therefore, for a company to survive and succeed, it should integrate information technologies into its business processes and implement enterprise resource planning (ERP) systems. In today's business environment, notable technological aspects of organising company operations and modern means of information transmission save time, optimise performed operations, and help conserve valuable employee work hours. Information technology and its continuous development are key factors driving the increasing transfer of business into the virtual space. ERP systems provide new opportunities for every business process, which can now be executed in a virtual environment. However, the use of ERP systems is closely tied to the resources available to the company. Most companies often lack sufficient funds for ERP system implementation, even though they understand the benefits it provides. The economic situation affects factors revealing financial stability (Lileikiene, et.al, 2023). Large companies have a significant advantage in this area, as they have far greater resources to invest in business modernisation. Therefore, companies using business models suitable for the virtual space tend to progress faster and attract more customers. The effectiveness of such a business model depends on the ability of the company to take advantage of market opportunities, its ability to meet consumer expectations and its ability to achieve its goals and objectives.

Presentation of an innovative business model for catering establishments and systematic analysis of the current situation

The digital revolution, changing consumer needs, and unexpected global events, such as the COVID-19 pandemic, acted as catalysts in this sector, encouraging an innovative approach to business development (Esposito et al. 2022; Michael S. Kaufman, Lena G. Goldberg, and Jill Avery 2020). In this section, we aim to analyse the existing innovative business models emerging in the restaurant industry and how they are reshaping dining experiences, customer engagement, and operational efficiency. In today's world, a restaurant's success depends not only on classic factors such as location, food quality, and customer service. The use of digital technologies in business is increasingly becoming a decisive aspect, advancing alongside the integration of artificial intelligence, the Internet of Things (IoT), and mobile technologies that are transforming how restaurants interact with customers, manage operations, and plan their services (Calderon-Monge and Ribeiro-Soriano, 2023; Trenerry et al. 2021). This technological integration has changed the paradigm of the restaurant business, from complex reservation systems and personalised marketing solutions to automated inventory management and AI-driven customer demand analysis.

At the same time, there has been a noticeable shift in consumer expectations and behaviour. Today's restaurant patrons increasingly seek experiences that not only satisfy gourmet needs but also align with their personal values and lifestyle (Chua et al. 2020; Kraus et al. 2022; Yrjölä et al. 2019). All of this has led to the emergence of business models based on sustainability, health, and personal well-being. Business concepts such as farm-to-table, the use of organic local products, and others meet the expectations of discerning consumers and highlight the sustainability of the dining establishment, its lean towards "green business," and its support for the local community (Adam Ali, 2022). In addition to these consumer-oriented innovations, the restaurant industry is also exploring new operational models to enhance business efficiency and profitability. The innovative model of "ghost kitchens" perfectly illustrates this trend – such businesses no longer require a physical customer service space. This not only reduces overall costs but also capitalises on the growing demand for food delivery services (Nigro et al. 2022; Norris, Taylor Jr, and Taylor 2021). Similarly, subscription-based services offer new revenue streams and customer engagement strategies for establishments in the food service sector (Tony Chen et al. 2018). These evolutionary steps in the food service industry are not just reactive measures to changing business conditions but signal a deeper transformation within the industry. This shift is characterised by a movement away from traditional, static business models toward more flexible, adaptive, and customer-centric ones. It reflects the food service industry's ongoing state of change and transformation, increasingly incorporating digital solutions, sustainable business models, and innovative service delivery methods into its daily operations. One such model is the "farm-to-table" approach. The farm-to-table concept emerged as the number of consumers seeking to contribute to sustainability policies and desiring to consume fresh, local products increased. This business model promotes direct collaboration between restaurants and local farmers and other food raw material suppliers, ensuring that food sourcing is sustainable and that the products are always fresh and of the highest quality. Of course, like any business model, this one has both advantages and disadvantages (Adam Ali, 2022; Tippins, Rassuli, and Hollander, 2002).

It comes with significant drawbacks, such as seasonality, unpredictability, and increased costs, but it offers a compelling alternative to traditional restaurant business models. It not only addresses growing consumer expectations for sustainability and quality but also strengthens the local economy and promotes conscious consumption. For restaurants that can effectively manage the challenges associated with this business model and maintain high service quality, the "farm-to-table" model can provide a significant competitive advantage in the market. This allows them not only to stand out among competitors but also to create deep, long-term connections with customers who value authenticity, quality, and sustainability.

The next model, which has gained a foothold in the market, is the so-called "Ghost Restaurants," also known as virtual or invisible kitchens. This innovative restaurant business model has fundamentally changed the traditional concept of food production and delivery. This model allows restaurants to operate without the traditional, easily recognisable restaurant space that customers are accustomed to. Establishments based on this model focus solely on food delivery to homes or offices. Ghost restaurants offer flexibility and require lower initial investments (Nigro et al. 2022; Shapiro, 2023; Snyder, 2020). However, the model faces challenges such as lack of visibility, the need for marketing investments, the absence of direct customer feedback, dependence on food delivery platforms, and maintaining consistent quality. Despite these drawbacks, the ghost restaurant model presents a unique opportunity to reach new customer segments and expand the business without significant upfront investments. This model is particularly attractive to new entrepreneurs or existing restaurants looking to diversify their operations. The key is an effective business strategy, the ability to stand out in the highly competitive delivery platform market, and ensuring quality and a positive customer experience.

The "*Meal Kit and Prepared Food*" concept is an innovative business model that emerged in response to modern consumers' needs to combine convenience, healthy living, and high-quality nutrition. This model allows customers to cook at home by delivering pre-prepared, measured ingredients and recipes. While this concept has

many advantages, it also faces certain challenges (Cho et al. 2020; Moores et al. 2021; Robinson-Oghogho, Thorpe, and Neff 2022; Widener et al. 2021), such as: 1) higher cost: meal kits are generally more expensive than traditional grocery shopping and home cooking, 2) environmental impact: all delivered ingredients are individually packaged, which can negatively affect the environment, especially if the packaging is not eco-friendly or recyclable, 3) limited menu variety: Although a wide menu is offered, it is still limited compared to self-prepared meals, 4) logistical challenges: this business model requires efficient logistics and a secure cold chain to keep ingredients fresh and suitable for consumption, 5) dependency on suppliers: the quality and freshness of prepared food depend on suppliers' ability to deliver products to the distribution centre on time and properly, 6) compatibility with lifestyle: this meal model may not suit customers who prefer to be more experimental in the kitchen or who have the time and inclination to plan and prepare their own meals, 7) need for innovation: to maintain existing customers' interest, it is necessary to continually update and improve the menu, 8) brand challenges: as in any food service business, it is crucial to create a strong brand image and maintain a high standard of customer satisfaction to stand out in a competitive market.

The "Meal Kit and Prepared Food" model opens opportunities for consumers who want the convenience and quality of home-cooked meals, as well as for businesses seeking to reach new markets. This model is particularly appealing in today's fast-paced society, where time-saving and healthy eating are priorities. Although challenges related to logistics, packaging waste, and cost remain, the benefits and opportunities for personalised nutrition are undeniable. It is important for users of this model to continually seek new ways to reduce environmental impact, ensure product quality, and meet consumer expectations.

The *subscription-based service model* in the restaurant industry reflects modern consumer trends focused on convenience and quality assurance. This business model transfers the traditional dining experience into the customer's home, allowing them to regularly enjoy high-quality food without leaving their home. The model is structured so that customers sign up for a subscription that can be tailored to their dietary preferences, health requirements, or lifestyle. Subscriptions may include various services, from daily or weekly food deliveries to special meals prepared and delivered at the customer's specified time. This enables restaurants to build a loyal customer base and ensure a steady revenue stream. The subscription model also allows restaurants to better plan their resources, food inventory, and staffing needs. Of course, as with any business model, there are certain challenges related to customer engagement, supply, and business sustainability (Carman et al. 2021; Kotamaki, 2023; Fraser et al. 2023; Gibson and Partridge, 2019; Laporte, 2020; Robinson-Oghogho et al. 2022).

In the *experiential catering* concept, the focus is not only on the food but also on the experiences that come with the dining experience. This model has transformed the traditional approach to restaurant services. The concept encompasses more than just using high-quality ingredients or artistic presentation – it aims to create a fully immersive experience, including unique environments, interactivity, entertainment, or even educational elements. This approach to catering allows customers to experience something unique and memorable. Businesses adopting this concept often integrate innovative technologies, show elements, themed menus, or even natural elements to create a dynamic and engaging environment. This not only enriches the customer experience but also adds value that can encourage people to return and relive similar experiences. The model also reflects the modern trend of valuing life experiences over material possessions. Consumers, particularly younger generations, seek meaningful and authentic experiences that provide new stories and memories. The experiential dining concept ideally meets these expectations by offering not just food but the chance to experience something new and unusual.

Although the experiential dining concept provides restaurants with an opportunity to stand out in the market and build a strong brand with loyal customers, it also presents certain challenges. Successful implementation of this model requires not only creativity and innovation but also significantly higher initial investments and higher operational costs. Additionally, restaurants must continually seek new ways to maintain customer interest to keep the model attractive and competitive (Milwood and Hartman-Caverly 2022; Spence, Mancini, and Huisman, 2019; Spence, Youssef, and Levitan, 2021).

The concept of *food vans and pop-up restaurants* (temporary) reflects modern flexibility and innovation in the food industry, allowing businesses to quickly respond to market changes and directly engage with their customers in various locations. This model offers a unique opportunity to experiment with menu and operational locations while requiring lower initial investments compared to traditional restaurants. Food trucks and pop-up restaurants can be highly mobile, allowing them to reach a wide audience across various city locations, events, or festivals. This business model is especially favoured by modern consumers who value diversity, mobility, convenience, and innovation. Food trucks and pop-up restaurants can offer high-quality, innovative food solutions, often targeting specific niches or specialised cuisine, such as vegan or global street food. Such operations help reduce costs associated with maintaining a permanent location while allowing for dynamic location changes based on customer traffic and seasonality. Additionally, food trucks and pop-up restaurants can serve as marketing tools, boosting brand awareness and developing a loyal customer base before investing in a permanent location.

However, despite these advantages, the food truck and pop-up restaurant business model also faces challenges, including logistical complexity, competition, and the

process of obtaining locations and permits (Isoni Auad et al. 2019; Lichy, Dutot, and Kachour 2022; Milwood and Hartman-Caverly, 2022; Seo and Lee, 2021; Thompson and Media, 2021; Wallace, 2021).

In today's global market, the *zero-waste* and sustainability-oriented business model in the restaurant industry emerges as a necessary response to growing consumer awareness and the desire to reduce ecological footprints. This model encourages restaurants and food supply companies to implement practices that not only reduce waste and food spoilage but also promote responsible use of resources, energy conservation, and sustainable supply chain solutions. By integrating zero-waste principles into their daily operations, restaurants can not only make a significant contribution to environmental protection, but also effectively reduce their operating costs, while enhancing their brand value and appeal to their sustainability-conscious customers.

Despite the clear benefits of this model, it also presents challenges related to its implementation, initial investments in sustainable technologies, and the need to alter both business and consumer habits. A sustainability-oriented model requires not only technical but also cultural changes to ensure long-term business success (Marsh and Bugusu, 2007; Martin-Rios et al. 2018; Martin-Rios, Demen Meier, and Pasamar, 2022; Pirani and Arafat, 2014; Sullivan et al. 2021).

The innovative dining business models outlined reveal a dynamic market landscape filled with opportunities and challenges. Each model offers unique advantages, such as exceptional customer experiences, lower initial investments, flexibility, and opportunities for enhancing sustainability. However, all these models have their own inherent drawbacks, such as higher operational costs, the complexity of logistics chains, and the continuous need for innovation and customer engagement. These models reflect the food industry's response to changing consumer needs, technological advancements, and growing attention to sustainability.

Analysis of financial situation

The financial condition of a business is clearly indicated by its financial risk, which is calculated as follows:

FR = VEF x FS (1)

This reflects the business's financial efficiency in relation to its financial structure. If, in the previous financial year, the financial risk was 0.58 percentage points (2.1 x 0.29), this year the financial risk deteriorated to (-1.22), or 2.66 x 0.46. Thus, businesses must be categorised into four groups based on financial risk (Table 1):

Table 1. Financial riskiness of a business enterprise

	Solvent	**Insolvent**
Profitable	Tier I company	Tier II company
Unprofitable	Tier III company	Tier IV company

The analysis shows that the company falls into Group III, characterised by unprofitable operations but with the potential to partially meet obligations. The study of the business enterprise shows that the financial situation was such that a significant part of the financial resources were directed towards illiquid assets, such as intangible assets and inventory, which have not been used efficiently and have not created added value (Table 2) A.Blank's fintech model.

Table 2. Illiquid assets model

Illiquid assets	PFM	FM	Financial condition PFM	Financial condition FM
NA + Am < K_n	54073 + 32734 < 86807	48584 + 50219 <59196	Very small	Very small
NA + Am < Kn + Bi	86807 < 80916+ 0	998803 < 59196 +0	Allowed	Allowed
NA + Am < Kn + Bi + Bt	54073+327354< 80916 +33292	98803 < 59196 +50002	Large	Large
NA + Am > Kn + Bi + Bt	54073+327346>80916+ 33292	98803> 109198	Very high	Very high

The Fintech research model allowed for the assessment of the liquidity of assets. Both in the current and previous financial years, the business's financial risk was high.

The Altman model indicates that the S-score model for unlisted securities should be used for the analysis (Table 3):

Zm = 0.717 x_i + 0.847 x_2 + 3.10 x_3 + 0.420 x_4 + 0.995 x_5 (2)

Table 3. The Z -score model for unlisted

$x_1 = \frac{AK}{Y}$	0.24	0.1
$x_2 = \frac{NP}{Y}$	0.13	(- 0.2)
$x_3 = \frac{NPP}{Y}$	0.13	(- 0.2)
$x_4 = \frac{NK}{securities}$	2.4	1.18
$x_5 = \frac{ML}{Y}$	6.4	7.47

Analysing the business's financial condition using the Blank's model, it is evident that it is unstable and approaching a severe financial crisis. This suggests that the company is using financial resources to create illiquid assets without adding value to the company. The Altman model, analysed using the securities algorithm not focused on unlisted stocks, failed to reveal trends and distorted the research results, rendering the research data unusable.

During the research, sufficient data were available to reveal the business's financial condition and trends, indicating financial instability and the need to reorganise UAB Kopa into a new innovative business entity, UAB Nerija, by implementing advanced management models.

Research findings and recommendations

To improve and successfully achieve its goals, each organisation must employ advanced management methodologies and have a well-defined strategy, which is a systematic approach to company operations. Nerija UAB appeared as a result of reorganised Kopa UAB which had been operating since 1994. The main activities of the company are identified as goods production, wholesale and retail sales, and the organisation of food service establishments. The current operational focus of Nerija UAB is on provision of catering services. In a dynamically changing environment and intense competitive landscape, long-term organisational development planning – of which strategic planning is the key component – becomes increasingly important. The primary goals of any operational company are typically centred around maximising profit with minimal costs and ensuring business continuity. One of the most effective ways to accomplish these goals is through the formation and execution of a robust strategy. This implies that one of the key management tools for the company is a well-defined strategy, based on strategic planning methodologies and utilising new technologies and advanced management techniques. Therefore, when describing the strategy, it is important to distinguish between two aspects. According to H. Mintsberg, strategy can be understood both as a concept and as a process.

The digital revolution, changing consumer needs, and unexpected global events, such as the COVID-19 pandemic, acted as catalysts in this sector, encouraging an innovative approach to business development (Esposito et al. 2022; Michael Kaufman, Goldberg, and Jill Avery, 2020). The use of digital technologies in business increasingly becomes a decisive factor, in conjunction with the integration of artificial intelligence, the Internet of Things, and mobile technologies that change how restaurants interact with customers, manage operations, and plan their services (Calderon-Monge and Ribeiro-Soriano 2023; Trenerry et al. 2021). This technological integration has transformed the restaurant business paradigm, starting with complex reservation systems and personalised marketing solutions. Business concepts such as farm-to-table, the use of eco-friendly local products, etc., meet the expectations of discerning consumers and highlight the sustainability of food service businesses, their inclination towards "green business," and promote community support, up to automated inventory management and AI-based analysis of customer needs.

Analysing the financial condition of the business using the Blank's model, it is evident that it is unstable and approaching a significant financial crisis. This suggests that the company is using financial resources to create illiquid assets without adding value to the company. The Altman model, analysed using the securities algorithm not focused on unlisted stocks, failed to reveal trends and distorted the research results, rendering the research data unusable. During the research, sufficient data were available to reveal the business's financial condition and trends, indicating financial instability and the need to reorganise Kopa UAB into a new innovative business entity, Nerija UAB, by implementing advanced management models. To achieve results for Nerija UAB, it is essential to apply strategic stabilisation options focused on a continuous growth model, based on encouraging innovative activities and implementing advanced management models described in the study.

References

Adam, Ali. (2022). Farm to Table Restaurants: Everything You Need to Know About This Growing Trend. *Inter Press Service News Agency - Business*. Retrieved 4 February 2024 (https://ipsnews.net/business/2022/01/23/farm-to-table-restaurants-everything-you-need-to-know-about-this-growing-trend/).

Calderon-Monge, Esther, Domingo Ribeiro-Soriano. (2023). The Role of Digitalization in Business and Management: A Systematic Literature Review. *Review of Managerial Science*. doi: 10.1007/s11846-023-00647-8.

Carman, Kaley, Lauren, H. Sweeney, Lisa, A. House, Anne, E. Mathews, Karla, P. Shelnutt. (2021). Acceptability and Willingness to Pay for a Meal Kit Program for African American Families with Low Income: A Pilot Study. *Nutrients* 13(8):2881. doi: 10.3390/nu13082881.

Cho, Meehee, Mark, A. Bonn, Soyeon Moon, Howook (Sean) Chang. (2020). Home Chef Meal Kits: Product Attributes, Perceived Value and Repurchasing Intentions the Moderating Effects of Household Configuration. *Journal of Hospitality and Tourism Management* 45:192–202. doi: 10.1016/j.jhtm.2020.08.011.

Chua, Bee-Lia, Shahrim Karim, Sanghyeop Lee, Heesup Han. 2020. Customer Restaurant Choice: An Empirical Analysis of Restaurant Types and Eating-Out Occasions. *International Journal of Environmental Research and Public Health* 17(17):6276. doi: 10.3390/ijerph17176276.

Kotamaki, E. (2023) Ecommerce Subscription Models: Pros & Cons for Different Business Types. Retrieved 4 February 2024 (https://www.sniffie.io/blog/ecommerce-subscription-models-pros-cons/).

Esposito, Benedetta, Maria Rosaria Sessa, Daniela Sica, Ornella Malandrino. (2022). Service Innovation in the Restaurant Sector during COVID-19: Digital Technologies to Reduce Customers' Risk Perception'. *The TQM Journal* 34 (7):134–64. doi: 10.1108/TQM-01-2022-0016.

Fraser, Kylie, Penelope Love, Rachel Laws, Karen J. Campbell, Alison Spence. (2023.) Meal Kit Subscription Services and Opportunities to Improve Family Vegetable Consumption'. *Health Promotion International* 38(6):daad155. doi: 10.1093/heapro/daad155.

Gibson, Alice A., Stephanie, R. Partridge. (2019). Nutritional Qualities of Commercial Meal Kit Subscription Services in Australia'. *Nutrients* 11(11):2679. doi: 10.3390/nu11112679.

Isoni Auad, Lígia, Verônica Cortez Ginani, Eliana dos Santos Leandro, Elke Stedefeldt, Aline Costa Santos Nunes, Eduardo Yoshio Nakano, Renata Puppin Zandonadi. (2019). 'Brazilian Food Truck Consumers' Profile, Choices, Preferences, and Food Safety Importance Perception'. *Nutrients* 11(5):1175. doi: 10.3390/nu11051175.

Kraus, Sascha, Sandipan, Sen, Katrina, Savitskie, Sampath, K. Kumar, John, Brooks. (2022). Attracting the Millennial Customer: The Case of Food Trucks'. *British Food Journal* 124 (13):165–82. doi: 10.1108/BFJ-09-2021-0996.

Laporte, Lisa. (2020). Subscription Food Box Pros & Cons. Retrieved 4 February 2024 (https://medium.com/@lisadlaporte/subscription-food-box-pros-cons-41314b99c88e).

Lichy, Jessica, Vincent, Dutot, Maher Kachour. (2022). When Technology Leads Social Business: Food Truck Innovation. *Technological Forecasting and Social Change* 181:121775. doi: 10.1016/j.techfore.2022.121775.

Marsh, Kenneth, Betty, Bugusu. (2007). Food Packaging--Roles, Materials, and Environmental Issues. *Journal of Food Science* 72(3):R39-55. doi: 10.1111/j.1750-3841.2007.00301.x.

Martin-Rios, Carlos, Christine Demen Meier, Susana, Pasamar. (2022). Sustainable Waste Management Solutions for the Foodservice Industry: A Delphi Study'. *Waste Management & Research* 40(9):1412–23. doi: 10.1177/0734242X221079306.

Martin-Rios, Carlos, Christine Demen-Meier, Stefan Gössling, and Clémence Cornuz. (2018). 'Food Waste Management Innovations in the Foodservice Industry'. *Waste Management (New York, N.Y.)* 79:196–206. doi: 10.1016/j.wasman.2018.07.033.

Martinkienė, J., Valackienė, A., Vaikšnoras, M. (2021). Leadership through Empowerment of Human Resources during the Pandemics. Vadyba, Journal of Management, 2021 Vol. 2 (37), ISSN: 1648-7974, p. 47.

Michael, S. Kaufman, Lena G. Goldberg, Jill, Avery. (2020). Restaurant Revolution: How the Industry Is Fighting to Stay Alive. *HBS Working Knowledge*. Retrieved 4 February 2024 (http://hbswk.hbs.edu/item/restaurant-revolution-how-the-industry-is-fighting-to-stay-alive).

Milwood, Pauline, A., Sarah Hartman-Caverly. (2022). Food Chemistry: High-Stakes Experiential Entrepreneurship Education in a Pop-up Restaurant Project. *Entrepreneurship Education* 5 (1): 37–68. doi: 10.1007/s41959-022-00066-y.

Moores, Carly, J., Lucinda, K. Bell, Michael, J. Buckingham, Kacie, M. Dickinson. (2021). Are Meal Kits Health Promoting? Nutritional Analysis of Meals from an Australian Meal Kit Service. *Health Promotion International* 36(3):660–68. doi: 10.1093/heapro/daaa095.

Nigro, Claudio, Enrica, Iannuzzi, Naomi di Santo, Roberta, Sisto. (2022). 'Food Delivery, Ghost Kitchens and Virtual Restaurants: Temporary or Long-Lasting Game Changers?' *British Food Journal* 125(6):2217–33. doi: 10.1108/BFJ-02-2022-0095.

Norris, Cortney L., Scott Taylor Jr, D. Christopher Taylor, (2021). Pivot! How the Restaurant Industry Adapted during COVID-19 Restrictions. *International Hospitality Review* 35 (2):132–55. doi: 10.1108/IHR-09-2020-0052.

Pot, F., Vass, F. (2008). Social Innovation: The Dutch Experience. THEMENSCHWERPUNKT/PERSONALFÜHRUNG 7/2. International Journal of Productivity and Performance Management Vol. 57 No. 6, 2008 pp. 468-473 q Emerald Group Publishing Limited 1741-0401 DOI 10.1108/17410400810893400

Pirani, Sanaa, I., Hassan, A., Arafat. (2014). Solid Waste Management in the Hospitality Industry: A Review. *Journal of Environmental Management* 146:320–36. doi: 10.1016/j.jenvman.2014.07.038.

Robinson-Oghogho, Joelle, N., Roland ,J. Thorpe, Roni, A., Neff. (2022). Dietary Behaviors among New Users of Meal-Kit Services during the Early Months of the COVID-19 Pandemic. *Nutrients* 14(19):3953. doi: 10.3390/nu14193953.

Seo, Kyung, Hwa, Jee Hye Lee. (2021). Understanding Risk Perception toward Food Safety in Street Food: The Relationships among Service Quality, Values, and Repurchase Intention. *International Journal of Environmental Research and Public Health* 18(13):6826. doi: 10.3390/ijerph18136826.

Shapiro, Aaron. (2023). Platform Urbanism in a Pandemic: Dark Stores, Ghost Kitchens, and the Logistical-Urban Frontier. *Journal of Consumer Culture* 23(1):168–87. doi: 10.1177/14695405211069983.

Snyder, Garrett. (2020.) 'Rise of the Ghost Kitchens: How Virtual Restaurants Are Reshaping L.A.'s Dining Economy. *Los Angeles Times*. Retrieved (https://thehalalguys.com/wp-content/uploads/2020/11/Rise-of-the-ghost-kitchens_-How-virtual-restaurants-are-reshaping-L.A.s-dining-economy-Los-Angele.pdf).

Spence, Charles, Maurizio Mancini, Gijs Huisman. (2019). Digital Commensality: Eating and Drinking in the Company of Technology. *Frontiers in Psychology* 10:2252. doi: 10.3389/fpsyg.2019.02252.

Spence, Charles, Jozef Youssef, Carmel, A. Levitan. (2021). Delivering the Multisensory Experience of Dining-Out, for

Those Dining-In, During the Covid Pandemic. *Frontiers in Psychology* 12:683569. doi: 10.3389/fpsyg.2021.683569.

Sullivan, Vanessa, S., Madison, E. Smeltzer, Gregory, R. Cox, Kristen, L. MacKenzie-Shalders. (2021). Consumer Expectation and Responses to Environmental Sustainability Initiatives and Their Impact in Foodservice Operations: A Systematic Review. *Journal of Human Nutrition and Dietetics: The Official Journal of the British Dietetic Association* 34(6):994–1013. doi: 10.1111/jhn.12897.

Thompson, Richard, Rennew Media. (2021). The Pros and Cons of Starting a Food Truck Business. *Entrepreneurial Chef*. Retrieved 4 February 2024 (https://entrepreneurialchef.com/the-pros-and-cons-of-starting-a-food-truck-business/).

Tippins, Michael, J., Kathleen ,M. Rassuli, Stanley, C., Hollander. (2002). An Assessment of Direct Farm-to-table Food Marketing in the USA. *International Journal of Retail & Distribution Management* 30 (7):343–53. doi: 10.1108/09590550210433329.

Tony, Chen, Ken, Fenyo, Sylvia, Yang, Jessica, Zhang. (2018.) Thinking inside the Subscription Box: New Research on e-Commerce Consumers. *McKinsey & Company*. Retrieved 4 February 2024 (https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/thinking-inside-the-subscription-box-new-research-on-ecommerce-consumers#/).

Trenerry, Brigid, Samuel, Chng, Yang, Wang, Zainal, Shah Suhaila, Sun, Sun Lim, Han, Yu Lu, Peng Ho Oh. (2021). Preparing Workplaces for Digital Transformation: An Integrative Review and Framework of Multi-Level Factors. *Frontiers in Psychology* 12.

Wallace, Edward, V. (2021). Urban Mobile Food Truck Policies: Reducing Disparities and Building a Culture of Health in the United States. *Journal of Public Health Policy* 42(2):271–80. doi: 10.1057/s41271-021-00274-1.

Widener, Michael, J., Linda, Ren, Chloe, C. Astbury, Lindsey, G. Smith, Tarra L. Penney. (2021). An Exploration of How Meal Preparation Activities Relate to Self-Rated Time Pressure, Stress, and Health in Canada: A Time Use Approach. *SSM - Population Health* 15:100818. doi: 10.1016/j.ssmph.2021.100818.

Yrjölä, Mika, Timo Rintamäki, Hannu Saarijärvi, Johanna Joensuu, Gauri Kulkarni. (2019). A Customer Value Perspective to Service Experiences in Restaurants. *Journal of Retailing and Consumer Services* 51:91–101. doi: 10.1016/j.jretconser.2019.05.030..2019.05.030.

RECEIVED: 12 December 2023 ACCEPTED: 02 April 2024 PUBLISHED: 29 October 2024

Angele Lileikiene, Doctor of Social Sciences. Author of more than 88 scientific articles published in domestic and foreign scientific research journals, 8 scientific and methodological tools, expert in 6 international projects. Interned in the USA, Norway, Denmark, Portugal, Spain, Romania, Malta, Cyprus, Italy, Germany, Sweden. The direction of scientific research is the sustainability problems of the financial system. Address: Turgaus St. 21, Klaipėda LP- 91249, Lithuania, +37065792742, angele.lileikiene@ltvk.lt. ORCID ID: 0000-0002-8414-5906.

Justinas Jonusas, MSc in Health Sciences and current PhD candidate at Vilnius University. Author of 14 publications in journals indexed in the WoS database. Principal Investigator of 5 biomedical research projects. Scientific research focuses on digital medicine and its applications. Adress. Mykolo Lietuvio 41-, Vilnius LP 34215, Lithuania + 370 614 56067, justinas.jonusas@ltvk.lt. ORCID ID: https://orcid.org/0000-0002-5793-6382

Jurgita Martinkiene, Doctor of Social Sciences, Associate Professor. Participated in the Erasmus teaching and training exchange program in foreign higher schools: Bulgaria, Cyprus, Hungary, Latvia, Ukraine, Estonia, Jordan, North Macedonia, Poland. 21 scientific articles were published in international databases, 6 methodological tools were published together with co-authors. From 2021 Management / Journal of Management editorial board member and coordinator. Research directions: development of managerial competences, their assessment in business companies, higher education institutions, business simulation companies, development of strategic and managerial competences of managers. Address: Turgaus St. 21, Klaipėda, +370 610 46728, jurgita.martinkene@ltvk.lt. ORCID ID:http://orcid.org/ 0009-0007-5190-3508.

Modestas Vaiksnoras, Master of Business Management. Lithuania Business College, Head of Strategic Development and Communication Department. Research Interests: Social Sciences. Work position at the Lithuanian Business College as the head of the Strategic Development and Communication Department and a lecturer at the Department of Management. Conducted research: Research on employee empowerment AB Klaipėdos baldai, Changing the organization's business model using various technologies UAB Paslaugų orbita. Address: Turgaus St. 21, Klaipėda, Lithuania. E-mail: modestas.vaiksnoras@gmail.com ORCID ID: http://orcid.org/ 0009-0008-9546-1956.

https://doi.org/10.38104/vadyba.2024.2.02

Vadyba
Journal of Management
2024, No. 2 (40)
ISSN 1648-7974

MAIN STAGES OF EMPLOYEE EMPOWERMENT STRENGTHENING IN PRODUCTION ORGANIZATIONS

Algirdas Giedraitis[1, 2], Rasa Romeryte-Sereikiene[1], Modestas Vaiksnoras[1]
[1]Lithuania Business College, [2]Klaipėda University

Abstract
As management strategies and organizational structures change, the aim is to discover ways that will help make the activities of each employee, as well as the entire production organization, more efficient. In each successful organization, the leader's and employee's ability to understand each other and to work together in a team is very important. At present, a new term is being emphasized and promoted- empowerment – the leader's actions towards the employee in order to successfully achieve the goals of the organization. Dimensions of structural empowerment: opportunities - the employee's perception of the extent to which he has opportunities to perform challenging work using existing abilities and at the same time acquiring new abilities, information - to the extent that, in the employee's perception, information is available to him in a wider context than his individual work, support - to the extent that the employee feels that he can receive advice or feedback during the performance of various tasks, resources - to what extent all the necessary resources are available to the employee to perform the planned tasks.
Empowerment is essentially a democratic process that allows employees to have more say in decisions that are currently made by managers in traditional command and control centers. A model for strengthening employee empowerment is presented, consisting of 3 stages, which allows identifying employee empowerment problems when making decisions on quality issues and providing solutions. The quantity of features and characteristics of a product reflects its quality. One of the most important aspects is that managers and executors (team members) must understand the importance of quality and know what factors affect it and what solutions take place with identified problems. Based on the identification of product quality from the point of view of managers and executives, problems are identified, and solutions are provided to change the situation. If they do not have a common understanding of product quality issues, the situation in production only worsens. Organizations must empower their frontline employees with the authority and training to make decisions related to equipment operation and maintenance.
The obtained results of a quantitative study carried out in a manufacturing company proved that employees partially feel empowered by managers to make decisions: especially in the second stage, which is associated with work performance, quality requirements, job satisfaction and efficiency. Recommendations are provided for management to develop a sense of personal efficacy through employee empowerment. The role of managers is to empower their subordinates to make decisions on their own, relying on established (approved) requirements.
This research about employee empowerment can be useful for organizations in assessing the effectiveness of measures, enabling leadership, and the innovations implemented, as well as in forming a holistic approach to the phenomenon of employee empowerment, combining the assumptions that make up empowerment into a common system and the consequences that are significant for work and the organization.
KEY WORDS: employee empowerment, management, quality, manufacturing company, leadership.
JEL: 015; M54.

Introduction

As management strategies and organizational structures change, the aim is to discover ways that will help make the activities of each individual, as well as the entire organization, more efficient. Empowering all employees, whether at the managerial or operational level, is essential to changing their behavior in organizations. In some cases, managers perceive empowerment as a motivational concept when the relationship between managers and employees changes little, but it aims to develop employees' sense of personal efficacy and commitment to organizational policies and goals. Although a personal and individualized reward system determines the bulk of the motivational package, an organization cannot allow individualism to become too dominant, as this can lead to a level of employee competition that can harm both output and employee satisfaction levels. To be effective in creating feelings of empowerment, empowered employees must value what they have been empowered to do and feel that their empowerment includes meaningful action.

In a rapidly changing economic situation, service recipients expect ever higher quality of service, so both public and private sector organizations are constantly trying to renew what can be done inside the organization by having employees who are characterized by innovative behavior (Echebiri, Engen, 2020). It is difficult to imagine employee empowerment being successful in an organization that is not fully committed to employee empowerment. For empowerment to be effective, it is necessary to create an appropriate atmosphere of trust. The ability to make own decisions increases employee motivation, which in turn contributes to higher levels of work and well-being. Empowerment requires managers to give their employees the tools they need to make high-quality decisions.

According to E. Jokubauskienė ir J. Lazauskaitė Zabielskienė (2015) from H. K. S. Laschinger (2001)distinguishes the following dimensions of structural empowerment: opportunities - the employee's perception of the extent to which he has opportunities to perform challenging work using existing abilities and at the same time acquiring new abilities, information - the extent to which, in the employee's perception, information is available to him in a wider context than his individual work, support - to the extent that the employee feels able to receive advice or feedback when performing various tasks, resources - to what extent all the necessary

resources are available to the employee to perform the planned tasks.

Empowerment encourages managers to work effectively through the wise use of human resources in the organization. As organizations seek employees who take initiative and who respond creatively to work challenges, empowerment becomes important at both individual and organizational levels (Ramos et al., 2014).

If the object is a production process, then product quality assurance is essential to the success of the organization. Product quality assurance has replaced quality control. Improving product quality occurs by meeting customer and stakeholder requirements Quality influences customers' perceived playfulness and flow, which in turn influences their satisfaction and purchase intention (Hsu et al., 2011). Perception will affect product quality (Shukla and Garg, 2017). Adequate continuous maintenance of product quality is required in order to accurately identify performance inconsistencies and their cause. Quality is a certain degree of craftsmanship and is one of the important factors in the implementation of the production process. Increasing product quality improves operational efficiency (Firli et al., 2017). Continuous improvement of product quality gives customers confidence in using the product.

According to Martinkienė, J., Giedraitis, A., Vaikšnoras, M. (2016) in the business world, it's important for business companies to be able timely respond not only to ongoing external changes, but also to internal ones.

When employees are not used to making decisions, they are not given more responsibility for making decisions, and they often try to figure out problems on their own without clear guidance or support. Even the most capable and enthusiastic employees wonder if they are doing the right thing. It can be risky, they worry about the consequences if things go wrong. Regardless of whether employees are frustrated that the promise of more power and autonomy isn't followed through on and they don't see an opportunity for improvement. Therefore, the problem is that *managers failure to understand the purpose (nature) of empowerment, and organizational policies tend to create overly optimistic expectations of employee empowerment, and existing power structures often remain unchanged.* Therefore, the aim is to look for more opportunities to strengthen the empowerment of employees.

The problem. Construct stages of employee empowerment to identify empowerment issues in a manufacturing company and provide solutions.

Research methodology. *The research participants-respondents are* 128 employees of the manufacturing company, divided into 12 groups .

The research instrument is a questionnaire. The questionnaire consists of 4 blocks: STATUS OF EMPOWERMENT OF EMPLOYEES - 13 statements; CHANGING EMPLOYEES' BEHAVIOR (-IS) - 12 statements; RESULT - EMPOWERING EMPLOYEE EXPERIENCE - 12 statements; DEMOGRAPHIC DATA: about participants' gender, age, education, length of service in the organization, duties. fifteen-item version of the scale.

Assessments of the statements were carried out according to the Likert scale from 1 (" completely disagree") to 5 ("completely agree").

The research sample was created using the convenience sampling method, the survey was conducted during a break in the rest room.

Data analysis. EXEL and *IBM SPSS statistics 22.0* and *AMOS 23.0* programs were used to analyze the data, the internal consistency of the subscales was assessed with Cronbach's α indicators from 0.7 to 0.9.

The research is conducted in a large production company in the Klaipeda region, in 2023 , in the months of June-August.

Theoretical background

Some definitions of empowerment begin with a discussion of empowerment. One definition of 'empowerment' in the Oxford English Dictionary suggests that it means 'legally or formally invested with authority: to authorize, to license', which reinforces the delegation of authority. The authors, Chinomona et al., (2017) argue that empowerment is a form of employee involvement initiative that refers to how employees are encouraged to make certain decisions independently and is emphasized as an organizational dynamic, but on the other hand, empowerment is initial, fundamental and an extraordinary aspect of the success and growth of any organization that increases productivity and can be used as a tool to help achieve the company's goals and key objectives. Some authors, Senge et al., (1999), define empowerment as persuading employees to take full responsibility for their job satisfaction. The main goal of employee empowerment is to redistribute power between management and employees, usually by increasing employee authority, responsibility, and influencing commitment (Potnuru et al., 2018). Empowerment is a relational construct that describes how managers in an organization share power, information, and resources with organizational employees (Potnuru et al., 2018). Employee empowerment is important because it increases employee responsibility, confidence, reduces stress and improves work-life balance (Ahmad, Manzoor, 2017). It is important that employees feel empowered in an environment characterized by equal opportunities, a sense of organizational support, and access to necessary information and resources (Yasmeen et al., 2020). When employees are empowered and given autonomy and flexibility, they are likely to be more motivated and take full responsibility, finding new ways and developing new skills in response to new challenges (Potnuru et al., 2018). And the most important thing is that employee empowerment is created by creating a work environment where employees are allowed to make their own decisions according to certain work-related conditions, and precisely because of this, an empowered employee, applying his knowledge and skills, will develop competence to actively perform his work tasks (Hanaysha, 2016).

Organizations must empower their frontline employees with the authority and training to make decisions related to equipment operation and maintenance (Giedraitis et. al., 2023).

According to Martinkienė, J., Valackienė, A., Vaikšnoras, M. (2021), analysis of the concept of empowerment explicitly shows that human resources in the organization are empowered by the leader; empowerment depends on management style, character of impact on employees and style of behavior. Employee empowerment in the organization should be a continuous process depending on the management traits and qualities of the leader and through various tools provided by the leader to employees: required information, various trainings, employee promotion and motivation would develop an empowered employee, who is able to address various encountered problems much more promptly in a self- directed way, to offer various problem solving methods and to strive for the aims and objectives set by the organization.

Beyond products, services, and new revenue streams, leaders are integrating societal impact into their core strategies. Executives said they have been Success personified in the Fourth Industrial Revolution particularly effective preparing for the impact that Industry 4.0 solutions will have on society (Deloitte, 2019).

The proliferation of cyber-physical systems introduces the fourth stage of industrialization, commonly known as Industry 4.0. The vertical integration of various components inside a factory to implement a flexible and reconfigurable manufacturing system, i.e., smart factory, is one of the key features of Industry 4.0 (Wang et. Al., 2016l).

Analysis of research publications allows noticing that on the background of new changes in organizations and in the human resource management process, use of a term of managerial competence – empowerment has become increasingly common (Jokubauskienė et al., 2015).

According to Martinkienė, J., Vaikšnoras, M. (2019), successfully implement the aims and objectives of organization it shall be led by the leader, who possesses managerial competencies, i.e. – the leader, who predicts and clearly formulates the direction to be pursued by the organization.

Empowering leader behaviour manifests itself through four major dimensions, i.e., enhancing the meaningfulness of work of the organization's human resources, fostering participation in decision making, the leader's confidence in high performance of employees and provision of autonomy to employees (Valiulė, et al., 2018).

Empowering leader behaviour – leader's actions enhancing employee empowerment: enhancing the meaningfulness of work perceived by an employee, encouraging participation in decision making, allowing employees to act autonomously, expressing confidence in employees and their capability to perform a job (Tvarijonavičius, 2014). Empowerment is about the limits of what the 'empowered' can do, that the 'empowered' operate within the boundaries set. Decisions about what "authorities" are allowed and not allowed to do indicate potential differences in perception between those who decide the "boundaries" and those who must work within them - the boundaries. Second, the existence of subjective actions implies that there may be subjective differences between individuals. Both of these aspects require much more research and discussion than usual.

According Çuhadar, S., Rudnak, I. (2022) well-being and feelings of employee are the essential for managers. Organizational profit: it is essential to drive a business for success. Employee's engagement: it is associated with how strong commitment employee have for organization.

Knowledge sharing culture: it implies organizational culture that supports free exchange knowledge, information between employees and it is essential to drive a business based on sustainable leadership criteria.

From employee behaviour related to empowerment, comes the response it causes to the employee's performance. Even if employees feel that the changes introduced are empowering and improve their sense of personal worth, does this lead to changes in work behavior? Do more engaged employees increase their effort or just feel better about their work? Finally, even if empowered employees are committed to the organization, its goals and policies, and work harder, deliver better quality, and other requirements, what impact does this still have on the organization's performance? If the underlying premise is that empowered employees are more committed, these issues need to be addressed. Empowerment is therefore an ongoing and ongoing process in which an individual is given the power to act independently by using their abilities to develop or maintain pre-existing skills.

Companies whose employees and managers listen carefully stay informed, meet deadlines, and avoid problems. Managerial perceptions and expectations of the perceived benefits of employee empowerment are critical, as the organization's line management will judge the success or otherwise of the initiative depending on whether the empowerment experience meets expectations. Empowering managers act as authority figures for empowered employees. In order to be effective, the leader must motivate the followers properly by adapting the leadership style to the maturity level of the employees. From a motivational perspective, power is fundamentally based on the need for self-determination. Therefore, managers should employ methods that enhance employees' needs for self-determination and personal efficacy. This managerial focus on the motivational concept of empowerment allows us to consider the possibility for employees to develop a sense of personal efficacy, even in situations where relational power has not changed. Empowerment can help change employees' attitudes toward the organization, thereby increasing employee commitment to the organization.

As Conger and Kanungo (1988) emphasize, strengthening the psychological empowerment of employees may not always be directly related to better achievements at work, because the purpose of empowerment is to form and strengthen the employee's "can do" feeling, and not to unilaterally emphasize the significance of specifically planned increasingly better work results. But how do you know if an employee is empowered? The presented model of strengthening the empowerment of employees (Fig. 1) consists of 3 stages of strengthening, which aim not only to strengthen but also to maintain the level of empowerment.

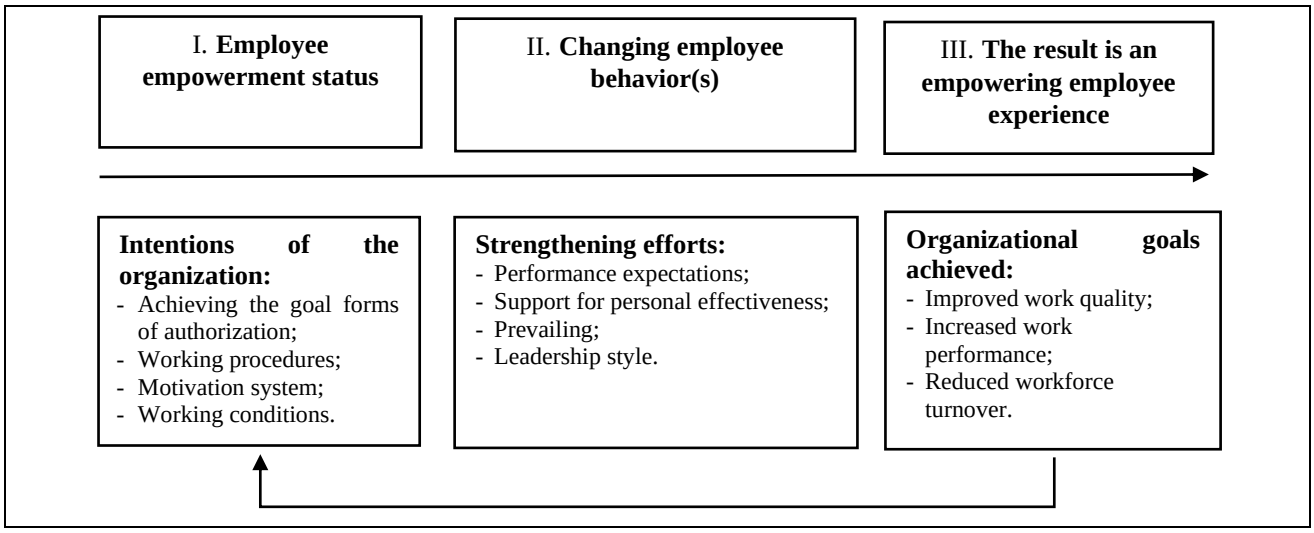

Fig 1. A Model for Strengthening Employee Empowerment

The model focuses on empowering employees at the individual level to solve internal problems within the organization. Each stage of employee empowerment has its own statements related to each element of the process:

STAGE I - EMPLOYEE EMPOWERMENT STATUS. Conditions leading to a state of impotence are identified. Conditions include those aspects of organizational performance that make employees feel powerless. This may include a number of bureaucratic procedures, an excessively high organizational structure that limits their ability to make decisions, or a command and control culture that imposes decisions from above. In other situations, the reward system limits initiative because such a system is arbitrary and does not reward effective employees. The nature of the work itself may be restricted and standardized in such a way as to limit discretion or to make the worker feel empowered to make a difference.

II. STAGE: CHANGING EMPLOYEE BEHAVIOR(S). This stage includes various management techniques that will help the employee to strengthen his sense of effectiveness. This may involve introducing more participatory management techniques, but again these must be set within a framework of analysis that recognizes the diversity of these tools. These include setting goals, creating appropriate feedback systems, reward systems that reward excellence, and supportive management styles, as well as creating workplaces that include diversity and diversity and allow for discretion.

III. STAGE: OUTCOME - EMPOWERING EMPLOYEE EXPERIENCE. Empowered employees strengthen their efforts and develop expectations of personal effectiveness. This in turn leads to behavioral changes. This focus on the motivational concept of empowerment allows us to consider the possibility for employees to develop a sense of personal efficacy, even in situations where power relations have not changed. Continuous efforts are made to achieve organizational goals through reliance on personal effectiveness. At this stage, employees are constantly provided with information about their performance from a variety of sources. Providing information about how each individual's efficacy is developing is considered an important feature in developing an individual's self-efficacy perception and belief. Information about personal efficacy comes from personal assessments of their development, from observing others, from verbal feedback, and through a supportive emotional environment that emphasizes confidence and builds trust.

Research results

This research was conducted to empower employees and create a more productive work environment, so it is critical to understand the root causes of this reluctance and implement solutions to address them.

In STAGE I, the question "how are product quality problems identified?" is addressed. 13 statements were presented, the ratings of which are presented in Table 1.

Table 1. Stage I - Employee empowerment status (N-128)

GROUPS OF RESPONDENTS												
STATEMENTS	Functional managers	Planning/logistics	Technologists	Quality Ch	Process Engineers	TAT	3rd floor varnishing	Example 3	2/1 p secondary+ primary	2/2 bedroom/pack	1/1 example	1/2 pam
1. I know how to recognize bad product quality	4.1	4.3	4.4	4.4	4.3	4.4	3.8	**4.5**	4.4	4.2	4.0	**4.5**
2. I am responsible for the quality of the product (parts, workpiece, product).	4.3	3,4	4	3.9	4.5	4	4.5	4.7	4.2	4.0	4.2	**4.7**
3.I am encouraged by the proper quality of the product	4.4	3.0	3.9	4	4	3,4	3.6	3.6	3.5	3.2	3.5	3.6
4. I determine the inappropriate quality of the product according to the requirements given to me and inform the manager about the inappropriate quality of the product	3.8	4.4	4.6	**4.9**	4.3	4.6	4.4	4.4	4.5	4.4	4.2	4.6
5. I determine the inappropriate quality of the product by evaluating it as a consumer	4.2	3,4	3.6	3.7	4.3	4.8	3,4	3.7	4.1	3.9	4.1	3.5
6. I determine the inappropriate quality of the product based on my knowledge	4.0	3.6	4.0	3.9	4.5	4.8	4	3.7	4.2	4.3	4	4.4
7. When identifying improperly used materials and raw materials, I can make decisions independently	4.1	**2.1**	4.1	3.6	3.5	3.8	**3.0**	**2.6**	3,4	**3.0**	3.1	3.5
8. I determine the inappropriate quality of the product based on the information and documentation provided by the manager	3.8	4.1	3.9	4.4	4	4.2	3.6	4.3	4.1	3.6	4.1	3.8
9. I determine the inappropriate quality of the product according to the requirements	4.1	**4.7**	**4.6**	4.4	4	4.6	4.3	4.4	4.4	4.3	4.2	4.4
10. I receive assignments on time and with quality requirements	3.7	3.9	3.1	4.4	4	3.6	3.9	4.1	4.2	3.9	4.1	4.1
11. I solve the inappropriate quality of the product after noticing the deviations of the technological modes	3.7	3,4	4.0	4.0	4.3	4.4	3.5	3.9	4.2	3.3	4	3.5
12. I stop malfunctioning technological equipment after noticing changes in product quality	3.9	3.9	3.7	3.9	4.3	4.2	3.8	4.4	4.4	4.2	3.9	3.9
13. I stop malfunctioning production equipment and wait for the manager's decisions	3.3	3.6	3.6	4.0	4.3	4.4	3.6	4.2	3.8	4.5	4.0	3.7

According to the data obtained in the first, second and ninth statements (Table 1) respondents claim that they know *how to recognize inappropriate product quality.* But not everyone knows how much (within what permissible limits) they are responsible for *the quality of the product (parts, workpiece, product)* - planning/logistics (3,4).

The respondents found that statement 7 " *I can make decisions independently when identifying inappropriately used materials and raw materials"* was the most does not support the planning/logistics ch. 2.1 and third shift (2.60). In a manufacturing plant, if employees are unable to make independent decisions to identify misused materials and raw materials, this can lead to inefficiencies, increased costs and quality problems. Addressing this issue requires a multifaceted approach that empowers employees, clarifies decision-making authority, and fosters a culture of continuous improvement. Define roles and responsibilities, including the authority to stop production or address issues immediately if misused materials are found. Clear guidelines and protocols need to be developed to identify and address misused materials and raw materials. This should include standard operating procedures (SOPs) that detail the actions to be taken when a problem is identified. Specific criteria for what constitute material misuse need to be documented. Provide regular training on quality standards, materials management and decision-making skills. Recommend comprehensive training programs so that employees understand the standards of use of materials and raw materials, quality requirements and the importance of proper handling.

Summarizing Table 1, it can be said that by performing these corrective actions, managers of a manufacturing company can empower their employees to act independently by identifying improperly used materials and raw materials. This not only strengthens quality control, but also promotes a more engaged and responsible workforce.

STAGE II aims to answer the question "HOW ARE DECISION-MAKING OPTIONS SELECTED?". 12 statements were presented, the ratings of which are presented in Table 2.

Table 2 . Phase II: Changing employee behavior (-is), (N-128)

GROUPS OF RESPONDENTS												
STATEMENTS	Functional MANAGERS	Planning/logistics	Technologists	Quality Ch.	Process Engineers	TAT	3/1 pam varnishing	3/2 p.m.	2/1 p secondary+ primary	2/2 bed room+pack	1/1 example	1/2 p.m.
1. I clearly understand when I do not have the right to make decisions	3.6	3.7	3.3	3.9	4.0	3.8	4.0	4.4	4.2	4.3	4.1	4.0
2. I know for which areas and tasks I am not responsible or related and I cannot make decisions	4.0	4.3	4.0	3.7	3.8	4.4	4.0	4.4	**4.6**	4.5	4.0	4.1
3. I do not make decisions if they do not meet the general requirements in the organization	3.7	4.4	4.1	**4.6**	4.0	4.2	3.9	4.5	4.5	4.5	4.1	4.2
4. I make decisions only when the established requirements are clear	**2.8**	4.7	3.6	4.0	4.3	3.8	3.9	4.4	4.4	4.2	4.2	3.8
5. I make decisions only by delegating to the manager with the necessary information in advance	**2.5**	3.7	**2.7**	4.0	3.8	3,4	3.9	4.3	4.3	4.1	4.0	4.0
6. I make decisions after obtaining the manager's permission in advance	**2,3**	3,4	**2.6**	3.1	3.8	3.6	3.5	3.9	4.4	3.8	4.3	3,4
7. I perform tasks while taking responsibility for the consequences	**4.6**	3.7	4.4	4.3	3.5	**4.8**	4.1	3.9	4.4	4.0	4.0	4.5
8. I solve the problems that arise by informing the manager about it	3.7	4	4.1	4.4	3.8	4.2	4.0	3.9	**4.7**	3.8	4.2	**4.6**
9. I make changes, after making them I inform the manager	3,4	3.6	4.4	**2.9**	4.3	3.8	**2.9**	**3.0**	3.7	3.5	3.1	3.8
10. I have permission to make decisions	4.5	**2.9**	4.0	3.6	3.5	**4.6**	3.6	**2.9**	3.6	4.0	3.3	3.5
11. I have the right to act regardless of the manager	3.9	**2,3**	3.7	**2.9**	**2.8**	3,4	**3.0**	**1.8**	**2.7**	**2.5**	**2,3**	**2.4**
12. I feel encouraged by the manager to make decisions independently	4.4	**2.9**	4.3	4.0	3.8	4.4	3.9	**2.8**	3,4	3.6	3.0	3,4

Respondents' ratings for statement 4 (Table 2) *"I make decisions only when the set requirements are clear"* shows that the functional managers themselves (2.80) have *insufficiently clear qualitative requirements.* As a result, functional managers may fear the consequences of making mistakes or feel insecure about their decision-making abilities. Company management should convince functional managers that their decisions are trusted and supported, and that there will be no negative consequences for well-considered decisions, even if they lead to mistakes. We need to promote a management culture in which mistakes themselves are viewed as learning opportunities rather than failures.

Another statement 5 rated by the respondents " *I make decisions only by delegating to the manager with the necessary information in advance* " shows that functional managers 2.5 and technologists 2.7 disagree the most. When employees in a manufacturing company are empowered to make decisions, but still fail to act despite having the information they need to do so, this indicates fundamental problems that need to be addressed. Employees may be *unclear about the scope of their decision-making authority* or may perceive that their authority is limited. Alternatively, if previous decisions made by employees are not followed or ignored by managers, employees may feel that their decisions are not important. Must be willing to adapt practices based on feedback and changing organizational needs. Create a matrix or diagram to guide decision-making processes and indicate when to escalate issues to higher management.

The statement 6 " *I make decisions after obtaining the manager's permission in advance* " rated by the respondents showed no support from functional managers (2.30) and technologists (2.60). They may *not have a clear understanding of their decision-making authority, or the processes involved.* Managers may not trust their employees' judgment or abilities, fearing that mistakes could have serious consequences. May also feel the need to control every aspect of the work process. In order to change the current situation, it is necessary to create and distribute clear decision-making systems that outline the scope and limits of workers' power. Regular updates to these systems are needed to keep everyone on the same page. Managers and employees can discuss ongoing solutions, address any concerns, and provide assistance as needed.

Statement 9 - " *I make changes, I inform the manager when I make them* ", did not receive approval from the quality sk and 3/1 painting shift after (2.90) and 3/2 shift (3.0). *This is a lack of communication and feedback.* Therefore, employees will be reluctant to take action. It is necessary to create feedback mechanisms where employees can discuss their decision-making experiences and receive constructive feedback.

Statement 10 " *I have permission to make decisions* " is not supported by the planning section. (2.90) and logistics ch. (2.90). This means that *employees may not fully understand the extent of their autonomy or be afraid to cross the line.* It is necessary to ensure that employees understand the scope of their decision-making authority. Clear communication and documentation should be used

to clarify what decisions they can make independently. In this case, regular meetings are held to discuss decision-making processes and increase the autonomy given to employees

The respondents found that statement 11 " *I have the right to act regardless of the manager* " was given the lowest rating by the shift gr. (1.80). Other respondents' evaluations of this statement were also low: planning and logistics gr. (2.30) and 1/1 shift (2.30). Therefore, there may be more reasons. There may be *cultural or structural barriers, such as hierarchical inflexibility or unclear role expectations.* A culture that values and encourages empowerment and decentralized decision-making needs to be created. This includes leadership commitment and possibly changes in organizational values. Assess whether organizational structures such as rigid hierarchies prevent employees from feeling empowered. Consider aligning hierarchies or reorganizing teams to increase autonomy.

The ratings provided by the respondents for statement 12 " *I feel the manager's encouragement to make decisions independently* " were most disapproved by the third shift (2.80) and the planning/logistics section. (2.90). It is necessary to answer the question why motivational processes are disrupted when the consequences of decisions can be disastrous? The answer lies in the fact that *managers empowerment methods do not match subordinates' expectations* —for example, if they provide too much or too little autonomy and decision-making responsibility—subordinates may view such behavior negatively. It is necessary to improve the motivational system, which would harmonize the encouragement of all process participants for decision-making - the pursuit of the same goals. Recognize and reward employees who take initiative and make decisions, even if the results aren't always perfect. This can be formal recognition programs, bonuses or simply verbal recognition. Different extrinsic motivation can lead to a degree of intrinsic motivation.

Summarizing Table 2, it can be said that employees have unclear quality requirements, unclear scope of decision-making authority, lack of clear understanding of their decision-making authority or related processes, communication breakdowns and lack of feedback, employees may not fully understand the extent of their autonomy or fear to cross boundaries, cultural whether structural barriers, such as hierarchical inflexibility or unclear role expectations, managers' empowerment methods do not align with subordinates' expectations. When employees do not make decisions despite having clearly defined requirements, receiving the necessary information, and even clearly being given permission by managers, this indicates deeper organizational and cultural problems. Implementation of empowerment improvement policies must clearly promote decision-making at all levels. This could include decision-making systems, empowerment initiatives and clear management communication. By addressing these issues, organizations can create an environment where employees feel empowered and confident to make decisions. This not only increases efficiency, but also increases employee engagement and satisfaction.

STAGE III aims to answer the question "what are the possible results of decision-making in order to achieve production quality?" 12 statements were presented, the ratings of which are presented in Table 3.

Table 3 . Phase III: Result - empowering employee experience (N-128)

GROUPS OF RESPONDENTS												
STATEMENTS	Functional managers	Planning/logistics	Technologists	Quality Ch.	Process Engineers	TAT	3rd floor varnishing	Example 3	2/1 p secondary+ primary	2/2 bed room+pack	1/1 example	1/2 p.m.
1. When making individual decisions, I follow the documentation and improve the quality of the product	4.0	4.0	**4.6**	4.0	4.3	4.2	4.0	3.7	4.2	3.9	3.9	3.5
2. I make appropriate decisions to improve product quality when the manager shares experience or other information with me	3.8	3.6	3.7	4.0	4.0	4.2	3.8	3.6	4.1	3.7	3.9	3.8
3. By making individual decisions, I strengthen my skills, which allows me to improve the quality of the product	3.8	3,4	4.1	4.3	4.3	4.2	3.8	3.7	4.1	4.3	3.6	3.5
4. I believe that all my decisions, working with various technologies in the production process, guarantee a good final result	3.8	3,4	3.9	4.1	4.0	4.2	3.9	3.7	4.2	4.1	3.9	4
5. I know that the permission given by the manager to make my own decisions guarantees a good final result - a quality product	3.7	3.6	3,4	4.1	4.0	4.2	3.8	3.3	4.1	3.7	3.9	3.5
6. I make appropriate decisions guaranteeing a good final result when the manager shares experience or other information with me	3.6	4.0	3.6	4.3	4.3	4.2	3.8	3.5	4.3	4.1	4.0	3.7
7. I feel inner satisfaction after making the right decisions	**4.6**	**4.6**	**5.0**	4.4	**4.8**	**4.6**	4.0	3.5	4.3	4.3	4.2	3.8
8. Various incentive measures are applied to me after proper decision-making and solving of production problems	3.8	**2.9**	**3.0**	3,4	3.3	3,4	3.6	**2.6**	3.3	3.2	3.0	**2.7**

9. For me, the manager helps me understand how my goals, activities and performance results relate to the goals of the organization and this increases the meaning of work	4.4	3.9	4.1	4.3	3.8	4.2	4.1	3,4	3.9	3.9	3.5	3.5
10. I improve by participating in the decision-making process	4.3	4.1	4.1	3.9	4.3	4.4	4.1	3.6	4.4	4.0	4.0	3.7
11. I am encouraged by the manager to be innovative and make decisions after assessing the risks	4.4	3.1	4.0	3.9	3.8	4.0	4.0	**2.9**	3.6	3.6	3.2	3.5
12. When I make decisions independently, I realize that the manager thus helps to improve my abilities	4.3	3.3	3.9	3.9	4.0	4.4	3.8	3,4	3.9	4.1	3.7	3.5

The highest approvals of the respondents are for statement 7 (Table 3) "I feel internal satisfaction after making the right decisions" - 3.8 - 5.0. This means that these employees (especially technologists) actively participate in problem-solving processes, which is why they feel inseparable from the company's success. By continuing to develop these strengths and practices, a manufacturing company can maintain and increase the intrinsic satisfaction of its employees, ensuring a motivated and productive workforce. The company fosters a positive work environment. It is necessary to further encourage employees to contribute to ideas and solutions, to identify and implement the best proposals, in which employees feel valued and respected, contributing to their internal satisfaction.

Statement 8 stands out the most: *"I receive various incentive measures after making appropriate decisions and solving production problems"* in which the majority of respondents gave a negative answer - from 2.6 to 3.0. When *employees are not incentivized to make decisions,* and managers are not encouraging decision-making, a comprehensive approach is needed to reshape company culture, improve communication, and align incentives with desired behavior. Employees may feel that incentives do not adequately reward their effort or risk. The company needs to ensure that incentives are closely aligned with the company's strategic goals, such as innovation, risk-taking, and problem-solving. Awards should be recognized not only for results, but also for process and effort. Offer a variety of incentives, including cash bonuses, recognition programs, professional development opportunities, and non-monetary rewards such as extra time off or flexible work options.

Respondents also disagree with statement 11 " *I am encouraged by the manager to be innovative and make decisions after assessing risks* " - the lowest is 2.90. Reason: lack of communication about innovation decision-making processes and ways of setting incentives. Because managers who have assessed the risks do not encourage innovation and do not support employees in making decisions. If the organization has clear goals for innovation, the risk-taking associated with this activity becomes more acceptable and thus encouraged. The necessary supportive management attitude can help employees engage in uncertain innovation activities where there is a risk of failure. A key potential solution is to teach managers how to foster an innovative environment and help their teams take calculated risks. This includes encouraging creative thinking and being open to new ideas. This requires the creation of programs that specifically recognize and reward innovative ideas and the successful implementation of new solutions. It is important to emphasize that these achievements need to be developed in the company's communication to show the right examples. It is possible to create a system where employees can try new ideas without fear of failure. A mindset that sees failure as an opportunity for learning and growth needs to be fostered.

Summing up Table 3, it can be said that *the incentives for employees to make decisions are not adequate, there is a lack of communication about decision-making processes on innovation issues and ways of determining incentives.* Most importantly, criteria and processes for setting incentives need to be established within the manufacturing company. Ensure that all employees understand how their contribution is measured. Create opportunities for open dialogue between employees and management regarding incentives, challenges and expectations. These could be regular meetings, focus groups or suggestion boxes. Ensure that employees have access to the necessary resources, such as time, tools and training, to carry out innovative projects or solve problems. Foster cross-functional collaboration to bring diverse perspectives and experiences to bear on problems. This can lead to more innovative solutions and a broader understanding of the business. Reduce hierarchical barriers that can inhibit communication and decision-making. Empower employees at all levels to contribute ideas and solutions. Involve employees in decision-making processes, especially those that affect their job or department. This involvement can increase their investment in the results and make them feel more valued. Actions to support innovation should be implemented to encourage employees to engage in challenging innovation activities, highlight tolerance for mistakes, and offer rewards that encourage an active approach to innovation. By implementing these solutions, a manufacturing company can create a more conducive environment for innovation and decision-making, align incentives with employee and company goals, and foster a culture that values and rewards proactive problem-solving and risk-taking.

According to the research results, the reasons why employees think they lack empowerment (autonomy) and some of the most common solutions for improvement are presented (Table 4):

Table 4. Concepts of strengthening employee empowerment

	CAUSES OF FAILURES	SOLUTIONS FOR IMPROVEMENT
I. THE CONCEPT OF ORGANIZATIONAL MANAGEMENT	INFLEXIBILITY OF THE HIERARCHICAL STRUCTURE: the organization has a strict hierarchy, decision-making authority is often concentrated at higher levels, so employees have little opportunity to act independently; unclear job descriptions and expectations can leave employees unsure of what they can and cannot do without their manager's approval.	Limit the number of subordinates with whom one boss can effectively work. Align the organizational structure and empower employees at all levels to make decisions based on their work area. Clearly define roles, responsibilities and decision-making boundaries. Ensure that all employees understand their authority.
	PROBLEMS OF OPERATIONAL MANAGEMENT: managers who closely monitor and supervise every aspect of their employees' work can stifle initiative and make employees feel like they need approval for every action.	Encourage operational managers to delegate tasks and trust that employees will complete them independently. Provide guidance on when to seek approval and when to take initiative.
	IMPROPER MANAGEMENT OF EMPLOYEES: inconsistent messages or actions from management lead to confusion as to whether employees are encouraged to act independently; misaligned company policies and practices.	Ensure consistent management communication about the value of employee autonomy. Ensure that company policies encourage, not discourage, independents. Provide training to managers on how to effectively delegate, trust and empower their teams.
	DISADVANTAGES OF THE MOTIVATION SYSTEM: when employees only perform their duties, which in turn does not raise self-esteem; when employees perceive that they are not adequately rewarded for the decisions they make, they may feel demotivated.	Coordinate the promotion of all process participants for decision-making. Provide employees with individual opportunities for motivational tools. Create clear communication channels and feedback so that employees feel encouraged and confident in their decisions.
II. CONCEPT OF ORGANIZATIONAL CULTURE	TRUST LACK: employees perceive that their managers do not trust their decisions or capabilities, so they feel they must always ask for permission.	Create a culture of trust by recognizing and rewarding employees' successful independent actions. Offer training and support to help managers build confidence in their teams.
	FEAR OF POTENTIAL CONSEQUENCES: employees may fear making a mistake or facing negative consequences if they act without express approval from their manager.	Create a safe environment where mistakes are seen as learning opportunities. Encourage a growth mindset and provide constructive feedback.
	INSUFFICIENT TRAINING (-SIS): employees may feel unprepared or ill-equipped to make decisions for themselves if they lack the necessary skills or resources.	Provide comprehensive training and access to resources to empower employees to operate independently. Offer opportunities for continuous professional development.
	Imperfection of organizational culture: an organizational culture that values conformity over innovation can discourage employees from taking initiative.	To develop an organizational culture that values creativity, initiative, and problem solving. Celebrate the success of independent actions.

Obtained results of the study - the shortcomings of employee empowerment are grouped into two concepts:

I. The OV concept emphasizes the problems of increasing the productivity of individual workers with the structuring of work organization and monetary incentives as a motivation for higher levels of production. Large manufacturing organizations often face problems related to their management structure and management. Functional managers tend to control every aspect of their employees' work, leaving little room for independent decision-making. Managers may fear that employees will make mistakes that may reflect poorly on them or the team.

Each worker's work is divided into components, each part is planned, and all parts are rearranged into the most efficient way of working. But a key part of the organizational management concept in solving problems is developing an understanding of management. Understanding of decision-making can be more advanced when given the opportunity to influence and control the future. When solutions are effective and fit for purpose, better organizational performance is achieved. Motivational disturbances in a manufacturing company can occur at multiple levels of control, which is the case when there are many interacting participants. It is necessary to promote the professional development and growth of all employees (and bosses), as well as strengthen communication mechanisms aimed at strengthening employer-employee relations and communication between colleagues. Therefore, it is useful to organize changes in the behavior of employees to something that encourages focusing on the development of the organization - empowering employees to make decisions.

II. The OK concept emphasizes the fact that the cultural factor is not sufficiently taken into account in the production organization. Imperfect organizational cultures often convey different meanings to employees. This includes not only working in different cultures, but also relationships between managers and executives with different organizational cultures. If the employees' personalities clash with the organization's culture, the organization is unlikely to thrive and the employees are unlikely to develop. Mistrust arises when leaders consistently fail to deliver on their promises. Managers need to show employees that they are trusted, delegate tasks, and give their team members as much autonomy as possible. Recognition not only helps build trust, but also makes employees feel valued as it motivates them to improve every day. Simplified, this process provides a framework that helps employees direct themselves toward creativity and autonomy in making decisions related to the improvement of organizational performance and progress. It is critical that managers support a culture of achievement by striving to deliver an unparalleled employee experience every day.

By addressing these empowerment issues and implementing these improvements through the stages of empowerment, organizations can create an environment where employees feel empowered to act independently,

fostering a more dynamic, innovative and resilient workplace. Changes are needed in the training of managers about the importance of delegation and trust. Encourage them to give employees autonomy in making tasks and decisions. Empower employees to make decisions within established boundaries, especially when they identify resources being misused. To achieve the goal, it is necessary to clearly define the powers of employees and the possibilities of decisions they have the right to make.

Conclusions

Although an analysis of the research literature on empowerment provides many meanings, the published literature largely assumes that empowerment is fundamentally related to the relationship between managers and employees. Empowerment is essentially a democratic process that allows employees to have more say in decisions that are currently made by managers in traditional command and control centers. Empowerment is a big change for managers who work in traditional, hierarchical organizations where decisions are made by a select few and many decisions are left unspoken. Employees cannot achieve the desired level of performance if they are not empowered to make decisions and understand how their role contributes to the overall success of the company. When employees are empowered to make decisions, it shows that managers trust them. By allowing employees to make decisions, managers free up time for work in other areas. Therefore, strengthening the empowerment of employees is an initiative of Management, which aims to enhance the responsibility of employees in making decisions to improve the quality of products. The model for strengthening employee empowerment is presented, consisting of 3 stages (1. EMPOWERMENT STATE; 2. EMPLOYEES BEHAVIORAL CHANGE(S); 3. RESULT – EMPOWERMENT EXPERIENCE OF EMPLOYEES) allowing to identify problems and choose solutions.

The results of a quantitative study conducted in a manufacturing company proved that employees partially feel empowered by managers to make decisions, which is associated with work performance, quality requirements, job satisfaction and efficiency. The data analysis gave several main results: *in the first stage*, the quality requirements are not clear enough to the employees therefore, employees cannot independently make decisions about improperly used materials and raw materials, which can lead to inefficiency, increased costs and quality problems; *in the second stage* , employees does not make decisions when he does not have the necessary information in advance, does not make decisions without prior permission from the manager, does not make changes without informing the manager, does not have permission to make decisions, does not have the right to act without taking into account the manager, does not feel encouraged by the manager to make decisions independently - managers do not share their power; *thirdly* , employees are not given various incentive measures after making decisions and solving production problems, managers are not encouraged to be innovative and make decisions based on risk assessment - managers do not encourage employees to be creative. Managers would like their employees to be empowered based on their perception of the desired outcomes needed to meet expectations. But not all managerial initiatives that are empowering involve employees in the decisions that managers themselves make. Encouraging decision-making is a best practice when dealing with problematic quality issues. Incentive systems can effectively address these problems arising from inflexible enabling policies. It is important for managers to encourage employees with diverse thoughts and opinions so that more innovative solutions are constantly discovered. Therefore, managers must promote a "no-blame" culture that focuses on problem-solving rather than blame. When employees are more empowered at work - they feel a greater sense of autonomy or less control in their work, they feel that their work has meaning and is in line with their values, they feel that they are competent in their abilities and that they can change results.

Management must develop a sense of personal efficacy through employee empowerment. The role of managers is to empower their subordinates to make decisions on their own based on the established requirements. Empowerment must be carried out by involving employees in production processes, I aim to develop employees' sense of personal effectiveness through various consultative processes closer to colleagues and direct managers. Arguably, the empowerment aspect is necessary for operational effectiveness. The personal development of each employee is essential if managers and employees are to share a sense of personal responsibility in decision-making.

References

Ahmad, I., Manzoor, SR (2017). Effect of Teamwork, Employee Empowerment and Training on Employee Performance. International Journal of Academic Research in Business and Social Sciences, 7(11). https://doi.org/10.6007/ijarbss/v7-i11/3472

Chinomona, E., Popoola, BA, & Imuezerua, E. (2017). The influence of employee empowerment, ethical climate, organizational support and top management commitment on employee job 55 satisfaction. A case of companies in the Gauteng Province of South Africa. Journal of Applied Business Research, 33(1), 27–42. https://doi.org/10.19030/jabr.v33i1.9865

Çuhadar, S., Rudnak, I. Importance of Sustainable Leadership and Sustainable Leadership Practices Among Middle-Level Hungarian Managers. Vadyba, Journal of Management, 2022 Vol. 2 (38), ISSN: 1648-7974, p. 106

Conger, JA, & Kanungo, RN (1988). The empowerment process: Integrating theory and practice. Academy of Management Review, 13 (3), 471–482. doi:10.2307/258093.

Deloitte. (2019). Success personified in the fourth industrial revolution: Four leadership personas for an era of change and uncertainy. https://www2.deloitte.com/content/dam/Deloitte/ global/Documents/gx-davos-DI_Success-personified-fourthindustrial-revolution.pdf.

Echebiri, C., Amundsen, S., & Engen, M. (2020). Linking structural empowerment to employee-driven innovation: The mediating role of psychological empowerment. Administrative Sciences, 10(3). https://doi.org/10.3390/admsci10030042

Jokubauskienė, E., Zabielskė-Lazauskaitė, J. (2015). Darbuotojų psichologinis įgalinimas ir jo dimensijos: teorija ir praktika. Organizacijų vadyba: sisteminiai tyrimai. Nr. 74, p. 67-83. ISSN 1392-1142.

Yasmeen, A., Ahmad, M., Raziq, MM, & Khan, ML (2020). Structural empowerment, cultural diversity, and interpersonal conflict: Evidence from international NGOs in Pakistan. International Journal of Cross Cultural Management, 20(2), 125–139. https://doi.org/10.1177/1470595820904391

Firli, A., Priminia, I., Kaltum, U., Oesman, YM, Herwany, A., Azis, Y. and Yunani, A. (2017) 'CAPEX efficiency and service quality improvement view tower sharing in the Indonesian telecommunication industry: optimization model using comparison of genetic algorithm and simulated annealing methods', International Journal of Services, Economics and Management, Vol. 8, Nos. 1/2, pp. 90–108.

Giedraitis, A., Romeryte – Šereikiene, R., Vaikšnoras, M. Product quality (PQ) identification in manufacturing companies: The perspective of managers and executives. Vadyba, Journal of Management, 2023 Vol. 2 (39), ISSN: 1648-7974, p. 15.

Hanaysha, J. (2016). Examining the Effects of Employee Empowerment, Teamwork, and Employee Training on Organizational Commitment. Procedia - Social and Behavioral Sciences, 229, 298– 306. https://doi.org/10.1016/j.sbspro.2016.07.140

Hsu, CL, Chang, KC and Chen, MC (2011) 'The impact of website quality on customer satisfaction and purchase intention: perceived playfulness and perceived flow as mediators', Information Systems and E-business Management, Vol. 10, no. 4, pp. 549–570.

Kenrick, DT, Griskevicius, V., Neuberg, SL, & Schaller, M. (2010). Renovating the pyramid of needs: Contemporary extensions built upon ancient foundations. Perspectives on Psychological Science, 5, 292–314.

Martinkienė, J., Giedraitis, A., Vaikšnoras, M. The possibilities for elimination of the determinants of employee turnover in the business company. Vadyba, Journal of Management, 2016 Vol. 1 (28), ISSN: 1648-7974, p. 53.

Martinkienė, J., Vaikšnoras, M. (2019). Importance of Managerial Competencies and Management in Empowerment. Vadyba, Journal of Management, 2019 Vol. 1 (34), ISSN: 1648-7974, p. 59.

Martinkienė, J., Valackienė, A., Vaikšnoras, M. (2021). Leadership through Empowerment of Human Resources during the Pandemics. Vadyba, Journal of Management, 2021 Vol. 2 (37), ISSN: 1648-7974, p. 47.

Potnuru, RKG, Sahoo, CK, & Sharma, R. (2019). Team building, employee empowerment and employee competencies: Moderating role of organizational learning culture. European Journal of Training and Development, 43(1–2), 39–60. https://doi.org/10.1108/EJTD-08-2018-0086 .

RAMOS, A. O., BORREGO-ALÉSB, Y. (2014). Empowering Employees: Structural Empowerment as Antecedent of Job Satisfaction in University Settings. Psychological Thought Vol. 7(1), p. 28–36.

Senge, PM, Kleiner, A., Robert, C., Ross, R., Roth, G. and Smith, B. (1999), The Dance of Change: The Challenges to Sustaining Momentum in Learning Organizations, Doubleday, New York, New York (PDF) Creating learning organizations: A systems perspective. Available from: https://www.researchgate.net/publication/247628510_Creating_learning_organizations_A_systems_perspective [accessed Aug 15 2024].

Shukla, OP and Garg, SK (2017) 'Perception of faculty members on factors affecting quality education and employability skills in technical education sector: an empirical analysis', International Journal of Services, Economics and Management, Vol. 8, Nos. 1/2, pp. 109–131.

Tvarijonavičius, M., Bagdžiūnienė, D. (2014). Vadovo įgalinančio elgesio ir struktūrinio įgalinimo reikšmė darbuotojų psichologiniam įgalinimui. International Journal of Psychology: A Biopsychosocial Approach, No. 14, p. 113–138.

Tvarijonavičius, M. (2014). Psichologinis darbuotojų įgalinimas : jo prielaidos ir vaidmuo organizacijoje. Daktaro disertacija. Socialiniai mokslai, psichologija (06 S) Vilnius. ISSN: 19417233.

Tvarijonavičius, M. (2015). Kaip įgalinti Lietuvių vadovų praktiniai pavyzdžiai tyrimų įžvalgos patarimai. Vilnius. Vaga. ISBN: 9785415024049.

Valiulė, V. Vaikšnoras, M. (2018). Vadovų vaidmuo įgalinant žmogiškuosius išteklius. Regional Formation and Development Studies. Vol. 25, No.2, p. 91-105.

Wang, S., Wan, J., Zhang, D., Li, D., & Zhang, C. (2016). Towards smart factory for industry 4.0: A self-organized multi-agent system with big data based feedback and coordination. Computer Networks, 101, 158–168. https://doi.org/10.1016/j.comnet.2015.12.017

RECEIVED: 10 April 2024 ACCEPTED: 20 September 2024 PUBLISHED: 24 October 2024

Algirdas Giedraitis, Doctoral degree in Social sciences, Klaipeda University, Lithuanian Business College, associate professor of the Management Department. Research Interests: organizational management, production management, HR management. In 1975 graduated from Gargždai secondary school. in 1979 He obtained the specialty of transport technician-mechanic at the Klaipeda Agricultural Technical School. in 1989 Kaunas Polytechnic Institute - engineer-mechanic specialty. in 2004 after graduating from Klaipėda University, he became a Master of Management and Business Administration. in 2012 At Vytautas the Great University, he defended his doctoral thesis "Evaluation of the suitability of the lowest level managers in manufacturing companies". Management experience in the field of production - 30 years. E-mail: algirdas.giedraitis@gmail.com ORCID ID 0000-0001- 6813-2980.

Rasa Romeryte–Sereikiene, Master of Educology. Associate professor of the Department of Management in Lithuanian Business College, Head of Pe's Biurometa. Research Area - Human Resource Management. Address: Turgaus str. 21, Klaipeda, Lithuania. E-mail: rasa.romeryte@gmail.com ORCID ID 0009-0008-3508-9726.

Modestas Vaiksnoras, Master of Business Management. Lithuania Business College, Head of Strategic Development and Communication Department. Research Interests: Social Sciences. Work position at the Lithuanian Business College as the head of the Strategic Development and Communication Department and a lecturer at the Department of Management. Address: Turgaus str. 21, Klaipeda, Lithuania. E-mail: modestas.vaiksnoras@gmail.com ORCID ID 0009-0008-9546-1956.

https://doi.org/10.38104/vadyba.2024.2.03

Vadyba
Journal of Management
2024, № 2 (40)
ISSN 1648-7974

EXPLORING SUSTAINABLE CLOTHING CONSUMPTION IN ROMANIA: THE MIDDLE-INCOME CHALLENGE

Anastasia Cosma
Bucharest University of Economic Studies

Abstract
Immense pressure is placed on the textile industry in middle-income countries like Romania, where natural resources are becoming increasingly scarce due to the growing demand for clothing fueled by excessive consumerism. The significant amount of clothing waste in Romania highlights the negative effects of fast fashion, despite growing public awareness of its environmental consequences. During these times it is important to advocate sustainable clothing consumption behaviors, like choosing recyclable clothes over new items or preferring sustainable clothing items over fast fashion. There is a need to shift consumers' clothing consumption towards a more sustainable one. Promoting sustainable practices and economic growth in middle-income countries like Romania can reduce the negative impacts of excessive clothing consumption and decrease the burden on the textile industry. To enhance sustainable clothing consumption, it is important to apprehend the factors that predict consumers' intentions to purchase sustainable clothing consumption. However, the literature provides limited research exploring the underlying factors that determine consumers' intention to purchase sustainable clothing in middle-income countries. Moreover, the impact of consumers' environmental awareness on their sustainable clothing purchase motivation is underexplored. To fill the research gap, this study intends to analyze the problem by providing an exploration of the sustainable consumption field through the development of a comprehensive framework that examines the behavioral factors influencing consumers in Romania to buy sustainable clothing. This study's novelty integrates social value orientations with the theory of planned behavior and analyzes data from 1,018 Romanian respondents using statistical methods like partial least squares path modeling. The findings of the study reveal that altruistic values, social norms, and positive attitudes significantly impact Romanian consumers' intentions to purchase sustainable clothing. These discoveries grant significant guidance for promoting sustainable clothing consumption and provide practical implications for the textile industry in middle-income countries like Romania when addressing clothing overconsumption.
KEY WORDS: Sustainability, Sustainable clothing consumption, Theory of planned behavior, Social value orientation, Overconsumption
JEL classification: L67, D12, Q56

Introduction

The accelerated growth of fast fashion in the textile industry within middle-income countries (MICs), has favored increased consumerism, resulting in overproduction and waste of clothing. This unsustainable cycle weakens natural resources and advances the ongoing climate change phenomenon. (Apaolaza et al., 2023; Armstrong et al., 2016; Manley et al., 2023) When defining middle-income countries (MICs), the World Bank officially classifies them as countries with a gross national income (GNI) between $1,026 and $12.475. This category includes influential players like China and European nations like Romania, Bulgaria, and Hungary.

The volume of textile exports has consistently grown over the years, representing 16% of all manufactured goods exported globally in 2020 and reaching a 7.3% figure in 2021, even with the challenges posed by the COVID-19 pandemic. (World Trade, 2021, 2023) In this context, China and several European MICs, like Romania and Bulgaria, accounted for at least 5% of global textile imports in 2021. Romania imported approximately 188,104.2 tons, representing a 6.5% increase from the previous year. (Eurostat, 2021a; WITS, 2021) Moreover, the growing trend of overconsumption has driven up the demand for clothing. (Eurostat, 2021c) This has led to increased textile production, impulsive buying, excessive clothing disposal, and the diminishing of valuable resources. (Achabou & Dekhili, 2013; Bhardwaj & Fairhurst, 2010; Nayak & Patnaik, 2021)

The disposal of over ten thousand tons of clothing in Romania, as evidenced by landfill statistics in 2020 (Eurostat, 2021b), accentuates the consequences of fast fashion, even as awareness of its negative impact increases. Addressing the harmful effects of clothing overconsumption and reducing the pressure on the textile industry to satisfy consumer needs would foster sustainable consumption and development in MICs like Romania. Moreover, there is a lack of studies investigating the factors influencing consumers in MICs to adopt sustainable clothing practices.

According to Rausch and Kopplin's (2021) definition, sustainable clothing consumption suggests environmentally responsible practices at every stage of a garment's life, from acquisition to disposal, including pre-purchase, purchase, storage, use, care, and disposal or post-purchase (Rausch & Kopplin, 2021), in this sense business sustainability, encompassing both economic and social values, is essential (Geissdoerfer et al., 2018; Mansoor & Paul, 2022). However, the adoption of sustainable products remains low, especially in the fashion industry, despite growing awareness (Kong et al., 2016; Salem & Alanadoly, 2020). Individual values play a significant role in motivating sustainable lifestyles and influencing purchasing decisions (Heuer & Becker-Leifhold, 2018). While existing research on sustainable clothing consumption primarily focuses on drivers and inhibitors in developed countries, there is a significant need in the literature for a comprehensive framework that incorporates the influence of consumers' social value orientations (altruistic, biospheric, and egoistic) on

sustainable clothing consumption (Armstrong et al., 2016; Goworek et al., 2020). Additionally, cultural and economic variations can influence consumer attitudes in MICs and might lead to differing consumer attitudes (Stern, 2000; Stern et al., 1993, 1999).

Grounded in the Theory of Planned Behavior (TPB) (Ajzen, 1991), this study's objectives are to 1) investigate the established predictors, including subjective norms, greenwashing concern, and sustainable attitude, that impact sustainable clothing consumption in Romania; 2) explore the influence of consumers' value orientations as predictors of sustainable clothing purchases; and, 3) uncover the factors that shape Romanian consumers' attitudes towards sustainability. In addressing these objectives, we will focus on the following research questions:

(1) To what extent do external factors, including subjective norms and greenwashing concern, influence consumers' purchase intentions for sustainable clothing in Romania?
(2) To what extent do Romanian consumers' social value orientations, such as altruistic, biospheric, and egoistic values, influence their purchase intentions for sustainable clothing?
(3) What are the factors that shape Romanian consumers' sustainable attitudes, and how do these attitudes impact their purchase intentions for sustainable clothing?

We employ and adaptation of the instruments from Rausch & Kopplin (2021) and Roos & Hahn (2019) and conduct a Partial Least Square (PLS) path modeling analysis using data from 1,018 Romanian respondents.

Our research findings contribute to the literature on sustainable clothing consumption by emphasizing the significance of social value orientations in determining purchase intentions in Romania. Furthermore, we highlight the distinct process involved in shaping sustainable attitudes within the MICs context, that differ from those observed in developed countries, and provide practical implications for endorsing sustainable clothing purchases and mitigating overconsumption.

The paper has the following structure we first review relevant literature on sustainable clothing consumption and identify research gaps. We then propose our hypotheses based on the TPB and prior research, after which we present our integrated research framework. Subsequently, we detail our methodology and outline the findings, along with theoretical and practical implications, as well as future research opportunities.

Literature review

Sustainable clothing is defined as garments and other fashion apparel that are environmentally friendly, economically responsible, and socially equitable throughout their lifecycle. It incorporates environmentally friendly practices and materials to reduce the fashion industry's environmental impact. Furthermore, sustainable clothing consumption involves choosing garments that minimize the waste of natural resources, the use of toxic materials, and the generation of environmental pollution. It can be divided into three phases: production or post-consumption, consumption, and disposal or post-consumption.

While previous studies have predominantly focused on post-consumption behaviors like reuse, recycling, and donation (Goworek et al., 2020), some have also examined consumer behavior, such as purchasing recyclable, biodegradable, or secondhand clothing. (Armstrong et al., 2016; Bahl et al., 2023) However, there has been less attention to the pre-consumption stage of sustainable clothing, where the purchasing intentions of consumers are susceptible to external factors, like consumption and industrial norms, knowledge and environmental concerns, and social value orientations. Rausch and Kopplin's 2021 findings suggest a positive attitude toward sustainable clothing is a strong predictor of purchase intentions. Moreover, environmental knowledge, particularly environmental concerns, plays a significant role in forming these attitudes. The study does not explore sustainable clothing consumption in a MIC, like Romania, but instead focuses on a high-income country with a well-developed and advanced economy. Also, it does not consider the role of social value orientations in understanding the purchasing intention of sustainable clothing.

This study aims to confirm existing behavioral constructs and investigate the role of social value orientations in influencing purchase intentions of sustainable clothing in Romania. Thus, grounded on the Theory of Planned Behavior (TPB) theoretical framework, we introduce our research model and hypotheses in this new context.

According to the Theory of Planned Behavior (TPB), an individual's intentions to engage in a behavior are determined by subjective norms associated with the behavior, their attitudes towards the behavior, and their perceived behavioral control. (Ajzen, 1991; Fishbein & Ajzen, 1975) Subjective norms reflect how an individual perceives the social pressure exerted by others, motivating or discouraging specific behavior. Conversely, individual attitudes are formed internally based on personal knowledge and perceptions, reflecting an individual's emotional state (e.g. negative or positive emotions). (Fishbein & Ajzen, 1975) Perceived behavioral control is an individual's assessment of the potential risks and benefits of engaging in a behavior, impacted by value propositions and personalities. (Cameron et al., 1998)

In this sense, a consumer's decision to purchase sustainable clothing products may be influenced by external norms, like social norms and the opinions of others. Norms are external guidelines and expectations that influence individuals to behave in ways that are considered appropriate or acceptable and discourage them from engaging in socially unacceptable behavior.

A component of external norms is subjective norm (SN) which is considered a social predictor that significantly affects an individual's perception of social pressure to engage in or avoid a particular behavior. (Ajzen, 1991) Word-of-mouth (WOM), especially among friends, is a powerful influence on shaping one's decision. Environmentally conscious consumers are likely to spread awareness of eco-friendly practices among their peers and those recommendations,

particularly from close friends, can foster trust and reduce skepticism, emphasizing the social pressure of acting sustainably.(Brandão & Costa, 2021; Salem & Alanadoly, 2020) Herding or behavioral contagion is the main trigger of social groups in convincing the consumer to purchase eco-friendly products. (Salazar et al., 2013). Thus, we formulate the following hypothesis:

H1: Consumers' intention to purchase sustainable clothing is positively influenced by their subjective norms towards sustainable clothing products.

Greenwashing concerns (GC) involve misleading consumers with claims of environmental friendliness to enhance a company's public image, which can lead to reputational and financial damage. (Lyon & Montgomery, 2015) Moreover, the widespread practice of greenwashing in the textile industry of MICs can undermine consumers' trust, resulting in negative WOM and a norm of distrust, potentially discouraging their purchase intentions. (Rausch & Kopplin, 2021) However, there is disagreement within the TPB regarding its impact on consumers' intentions to purchase sustainable clothing. (Goh & Balaji, 2016; Zhang et al., 2020). We suggest additional investigation into consumer distrust and its influence on green purchasing intentions:

H2: Consumers' intention to purchase sustainable clothing is negatively influenced by their greenwashing concerns towards sustainable clothing products.

Attitude (ATT), an important predictor of behavioral intention within the TPB framework, reflects one's positive or negative assessment of the behavior, of purchasing sustainable clothing in this given context. (Ajzen, 1991) Studies suggest a positive relationship between attitudes and the purchase intention for sustainable clothing products, thus we propose:

H3: Consumers' intention to purchase sustainable clothing is positively influenced by their attitudes towards sustainable clothing products.

Environmental knowledge and concerns may play a role in forming one's attitudes, as well as intentions toward purchasing sustainable clothing. Perceived environmental knowledge (PEK) plays a key role in influencing one's intention to engage in environmentally friendly behaviors, like purchasing sustainable products. (Rausch & Kopplin, 2021). Individuals with greater environmental knowledge are more likely to engage in eco-conscious clothing consumption, impacting both their attitudes and intentions toward purchasing sustainable clothing. (Harris et al., 2016) On the same note, Environmental concern (EC) is an individual's level of interest and involvement in environmental issues. (Dagher & Itani, 2014) Those who are more concerned about the environment are prone to engage in green purchasing behavior and have positive attitudes toward sustainable products. (Rausch & Kopplin, 2021) Thus, we assume the following hypotheses:

H4: Consumers' intention to purchase sustainable clothing is positively influenced by their perceived environmental knowledge of sustainable clothing products.

H5: Consumers' attitude to purchasing sustainable clothing is positively influenced by their perceived environmental knowledge of sustainable clothing products.

H6: Consumers' intention to purchase sustainable clothing is positively influenced by their environmental concern about sustainable clothing products.

H7: Consumers' attitude to purchasing sustainable clothing is positively influenced by their environmental concern about sustainable clothing products.

Furthermore, individuals' different social value orientations (altruistic, biospheric, and egoistic) (Schultz, 2000; Stern, 2000; Stern et al., 1993, 1999) may influence their perceptions of the costs linked with purchasing sustainable clothing products (i.e. perceived lower quality, exclusion from fashion trends). (Amin & Tarun, 2021; Lundblad & Davies, 2016) Altruistic values (ALTR) focus on the well-being of others, while biospheric values (BIOS) emphasize the preservation of the natural environment and other species. (Han & Lee, 2016) Egoistic values (EGO) prioritize the personal advantages and disadvantages of engaging in green conduct. Although the literature does not provide sufficient evidence on the roles of these three value orientations in influencing consumers' intentions to purchase sustainable clothing, individuals with altruistic and biospheric values are more likely to engage in pro-environmental behavior and green purchasing, while egoistic values may hinder these actions. (Schwartz, 1992) Thus, we propose further research into these factors:

H8: Consumers' intention to purchase sustainable clothing is positively influenced by their altruistic values toward sustainable clothing products.

H9: Consumers' intention to purchase sustainable clothing is positively influenced by their biospheric values toward sustainable clothing products.

H10: Consumers' intention to purchase sustainable clothing is negatively influenced by their egoistic values toward sustainable clothing products.

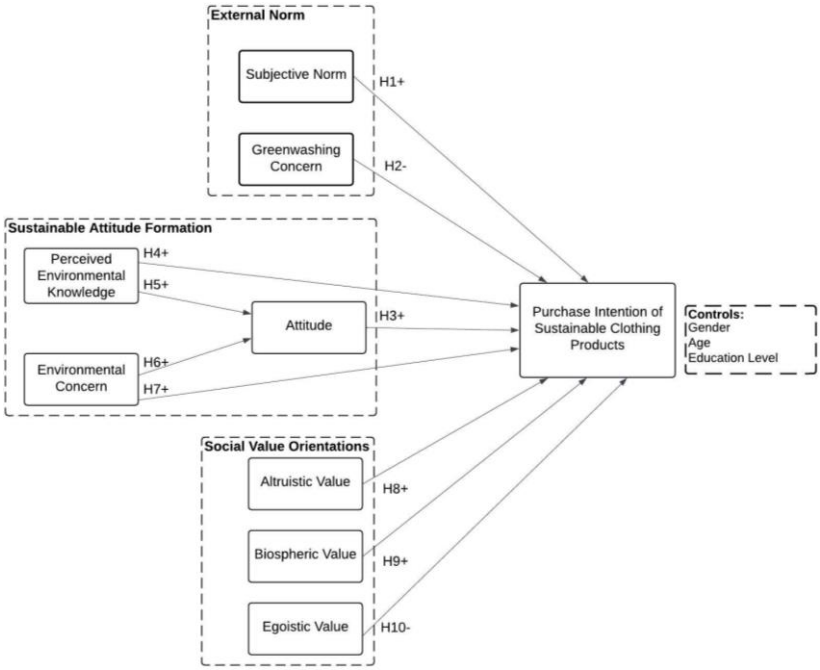

Fig. 1. Research model for purchase intention of sustainable clothing products

Methodology

Data used for this study was gathered in Romania from November to December 2020, using an online, self-administered questionnaire that was distributed on various popular social media platforms (i.e. Facebook, LinkedIn, WhatsApp, etc.). The sample includes 1,087 respondents aware of the study's purpose who gave their informed consent to participate voluntarily and anonymously. The questionnaire incorporated a combination of two sampling techniques, namely convenience sampling (Baltar & Brunet, 2012) and snowball sampling. (Browne, 2005; Heckathorn, 2011) The questionnaire is grounded in Rausch and Kopplin's conceptual framework, incorporating the TPB predictors ATT, SN, and PEK, along with the environmental dimensions of EC and GC, (Rausch & Kopplin, 2021) and we have further enhanced it with the social value orientations: ALTR, BIOS, and EGO. (Roos & Hahn, 2019) All items were translated from English to Romanian and assessed using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). We, then, used the WarpPLS 7.0 software (WarpPLS, 2022) to conduct a partial least square-path modeling (PLS-PM) analysis of the relationships between variables, employing a structural equation model (SEM). (Joreskog, 1982) This method involves a measurement (outer) model that assesses the relationship between measurement variables and their underlying latent constructs, and a structural (inner) model that looks at the relationships among latent variables. (Haenlein & Kaplan, 2004; Hair et al., 2011)

Results and discussion

The final sample included 1,018 respondents, of whom 87.3% were female, with ages ranging from 10 to 80 (mean 33.75, SD = 11.88). A significant majority, 84.2%, had a monthly income exceeding 1,000 RON. Our results are organized into three sections: firstly, we focus on the easurement model, then present the inner model, and finally, we explore the study's implications.

Measurement model. The first table demonstrates the reliability of the measurement model. Table 1, provides the composite reliability of each latent construct, which indicates the performance of the measurement model. All results met the recommended threshold of 0.7, (C.Nunnally & H.Bernstein, 1994) with values ranging from 0.852 (ATT) to 0.959 (SN). The model has strong internal consistency, with all of Cronbach's Alpha values exceeding the 0.7 limit. (Cortina, 1993) The same goes for the AVE (average variance extracted) values that were higher than the required boundary of 0.5 (Fornell & Larcker, 1981), indicating adequate convergent validity.

Table 1. Reliability of Measurement Model

Dimension	Abbreviation	Composite reliability index (* > 0.7)	Cronbach's Alpha (* > 0.7)	Average of variance extracted (* > 0.5)
Dependent variables				
Purchase intention	PI	0.916	0.876	0.731
TPB independent variables				
Attitudes	ATT	0.852	0.736	0.658

Subjective norms	SN	0.959	0.935	0.885
Perceived Environmental knowledge	PEK	0.943	0.919	0.805
Additional predictors				
Environmental concern	EC	0.938	0.912	0.791
Greenwashing concern	GC	0.922	0.876	0.798
Altruistic Value Orientations	ALT	0.870	0.775	0.690
Biospheric Value Orientations	BIO	0.913	0.869	0.722
Egoistic Value Orientations	EGO	0.871	0.777	0.692

Moving forward, we see that all diagonal values provided in the second table, Table 2, are higher than the corresponding off-diagonal, which also exceeded the threshold of 0.8. (Kennedy, 2008)

Table 2. Correlations among latent variables with square roots of AVE

Dimension	PI	ATT	SN	PEK	EC	GC	ALT	BIO	EGO
PI	**0.855**	0.650	0.421	0.412	0.529	0.490	0.341	0.356	0.068
ATT	0.659	**0.811**	0.526	0.449	0.519	0.456	0.299	0.364	0.003
SN	0.421	0.526	**0.941**	0.492	0.390	0.409	0.194	0.259	0.090
PEK	0.412	0.449	0.492	**0.897**	0.595	0.500	0.275	0.393	0.123
EC	0.529	0.519	0.390	0.595	**0.890**	0.648	0.374	0.547	0.083
GC	0.490	0.456	0.409	0.500	0.648	**0.893**	0.264	0.400	0.083
ALT	0.341	0.299	0.194	0.275	0.374	0.264	**0.831**	0.568	0.179
BIO	0.356	0.364	0.259	0.393	0.547	0.400	0.568	**0.849**	0.170
EGO	0.068	0.003	0.090	01.23	0.083	0.083	0.179	0.170	**0.832**

The third table, Table 3, shows the combined loadings and cross-loadings of our latent variables. The values of loadings exceed the 0.7 limit, ranging from 0.736 to 0.935. Considering these findings, both convergent and discriminant validity are established.

Table 3. Combined loadings and cross-loadings

Dimension	PI	ATT	SN	PEK	EC	GC	ALT	BIO	EGO
PI1	**0.791**	- 0.078	-.0.056	- 0.037	0.023	- 0.052	- 0.023	- 0.043	0.031
PI2	**0.874**	0.078	0.119	0.069	0.008	0.037	0.002	- 0.011	0.020
PI3	**0.920**	0.033	- 0.015	- 0.021	0.012	0.009	- 0.013	0.013	- 0.035
PI4	**0.830**	- 0.044	- 0.056	- 0.015	- 0.043	0.000	0.034	0.037	- 0.011
ATT1	0.120	**0.838**	- 0.077	0.035	- 0.036	0.026	0.018	0.087	0.036
ATT2	- 0.256	**0.709**	0.054	0.035	- 0.013	- 0.030	- 0.003	- 0.138	- 0.114
ATT3	0.093	**0.878**	0.029	- 0.062	0.044	- 0.001	- 0.015	0.028	0.057
SN1	- 0.026	0.022	**0.922**	- 0.012	0.029	0.007	- 0.006	- 0.010	0.010
SN2	0.005	- 0.020	**0.948**	- 0.004	- 0.014	- 0.018	- 0.011	0.002	0.025
SN3	0.020	- 0.001	**0.951**	0.016	- 0.014	0.010	0.017	0.008	- 0.034
PEK1	- 0.002	0.129	0.172	**0.846**	- 0.027	0.003	- 0.023	- 0.026	0.010
PEK2	0.015	- 0.004	- 0.036	**0.916**	- 0.010	0.007	0.020	- 0.054	- 0.041
PEK3	0.023	- 0.039	- 0.081	**0.933**	- 0.016	0.008	0.024	0.016	- 0.021
PEK4	- 0.038	- 0.079	- 0.041	**0.890**	0.053	- 0.018	- 0.024	0.064	0.055
EC1	- 0.007	0.045	- 0.047	0.124	**0.894**	- 0.106	0.019	0.024	0.003
EC2	0.046	0.063	- 0.024	0.065	**0.897**	- 0.020	0.005	- 0.063	- 0.028
EC3	- 0.029	- 0.089	0.056	- 0.031	**0.886**	0.021	- 0.039	0.009	0.002
EC4	- 0.011	- 0.020	0.016	- 0.162	**0.881**	0.107	0.015	0.031	0.023
GC1	- 0.043	- 0.031	0.122	0.005	0.003	**0.890**	- 0.013	- 0.007	0.012
GC2	0.036	- 0.048	0.023	0.025	- 0.049	**0.935**	- 0.013	- 0.007	0.012
GC3	0.006	0.085	- 0.152	- 0.033	0.051	**0.852**	0.043	0.006	- 0.004

ALT1	0.010	- 0.012	0.021	- 0.024	0.023	0.083	**0.837**	- 0.069	- 0.022
ALT2	- 0.024	0.053	0.035	0.048	- 0.020	- 0.059	**0.831**	- 0.020	- 0.025
ALT3	0.014	- 0.041	- 0.056	- 0.024	0.023	0.083	**0.824**	0.090	0.048
BIOS1	- 0.041	- 0.009	0.001	0.057	- 0.174	- 0.007	0.240	**0.736**	0.052
BIOS2	- 0.015	0.016	0.033	0.011	-0.063	0.054	- 0.053	**0.874**	- 0.022
BIOS3	- 0.038	0.078	- 0.044	- 0.030	0.133	- 0.054	- 0.030	**0.901**	- 0.008
BIOS4	0.090	- 0.088	0.011	-0.028	0.073	0.007	- 0.118	**0.872**	- 0.013
EGO1	0.021	0.016	- 0.110	0.034	- 0.065	0.017	0.177	0.114	**0.796**
EGO2	0.065	0.039	- 0.110	- 0.048	0.014	- 0.011	0.011	- 0.063	**0.876**
EGO3	- 0.089	- 0.057	0.126	0.018	0.048	-0.005	- 0.125	- 0.043	**0.822**

Structural model. Table 4 summarizes the results of the PLS mode. The model accounts for 50.9% of the total variation in the intention to purchase sustainable clothing (adjusted R^2 = 50.3%), while attitudes towards the purchase of sustainable clothing explain 30.4% (adjusted R^2 = 30.3%). Our analysis revealed no evidence of endogeneity, statistical suppression, or Simpson's paradox. The average block variance inflation factor (VIF) is below the recommended threshold of 3.3, with a value of 1.624, while the Tenehaus Goodness-of-fit result indicated a good model fit, with a value of 0.575.

Table 4. Results of the structural equation model

	Direct effects		**Direct effect sizes (f2)**		**Indirect effects**	**Total effects (via PI)**
Estimated coefficients	**Purchase Intention**	**ATT**	**Purchase Intention**	**ATT**		
PI	-	-	-	-	-	-
ATT	**0.453*** (<0.001)**	-	0.295	-	-	0.453*** (<0.001)
SN	**0.055* (0.019)**	-	0.023	-	-	0.055* (0.019)
PEK	- 0.000 (0.497)	**0.211*** (<0.001)**	0.000	0.096	0.096*** (<0.001)	0.096** (0.004)
EC	**0.146*** (<0.001)**	**0.396*** (<0.001)**	0.078	0.208	0.180*** (<0.001)	0.326*** (<0.001)
GC	**0.139*** (<0.001)**	-	0.069	-	-	0.139*** (<0.001)
ALT	**0.112*** (<0.001)**	-	0.039	-	-	0.112*** (<0.001)
BIO	0.012 (0.329)	-	0.005	-	-	0.012 (0.329)
EGO	0.013 (0.329)	-	0.001	-	-	0.013 (0.329)
Gender	0.022 (0.170)	-	0.002	-	-	0.022 (0.170)
Age	- 0.006 (0.429)	-	0.001	-	-	- 0.006 (0.429)
Education	**0.039. (0.094)**	-	0.003	-	-	0.039 (0.094).
The goodness of fit measures						
R2 / R2 Adjusted	50.9% / 50.3%	30.4% / 30.3%	-	-	-	-
Tenehaus GoF	0.575 (large)	-	-	-	-	-
SRMR	0.054	-	-	-	-	-
SMAR	0.040	-	-	-	-	-

Note: ***-p value <0.001; **-p value <0.01; *-p value <0.05; -p value <0.10;
Note: Teenehaus GoF: small >= 0.1, medium >= 0.25, large >= 0.36;

In terms of the TPB constructs, both ATT ($\beta = 0.453$, $p < 0.001$) and SN ($\beta = 0.055$, $p = 0.019$) have a positive, statistically significant relationship with consumers' intention to buy sustainable clothing, supporting H1 and H3. We fail to accept H2 since GC ($\beta = 0.139$, $p < 0.001$) does not have a negative influence on the dependent variable. Effect sizes exceeding 0.02 may be considered meaningful for practical interventions and policy development. (Cohen, 2013) In this context, ATT (0.295) has a moderate effect size, while SN (0.023) and GC (0.069) are considered to have small effect sizes.

Concerning the formation of sustainable attitudes, our results suggest accepting H7, with EC ($\beta = 0.146$, $p < 0.001$) positively influencing purchasing intention, and rejecting H4 for PEK negatively impacting PI. However, PEK positively influences the sustainable attitude formation process ($\beta = 0.211$, $p < 0.001$), with an indirect effect size (0.096) that suggests a total mediation between the connection of ATT and PI. Moreover, EC ($\beta = 0.180$, $p < 0.001$) remains a significant player in controlling for the mediator, providing the needed evidence to confirm hypotheses H5 and H6.

Regarding the social value orientation constructs, we reject H9 and H10 and accept H8, with BIO ($\beta = 0.012$, $p = 0.329$) and EGO ($\beta = 0.013$, $p = 0.329$) not showing a statistically significant impact on PI, in contrast of ALT ($\beta = 0.112$, $p < 0.001$) that along with the strong statistical relationship, also shows a small effect size of 0.039.

Among the control variables used, only Education ($\beta = 0.039$, $p = 0.094$) influences the formation of sustainable purchasing intention.

The quantitative findings are consistent with previous research on green consumer behavior. Several studies have found that subjective norms have no significant influence (Rausch & Kopplin, 2021), through accepting the third hypothesis our results revealed a reasonable level of significance for this predictor. Furthermore, our findings on the positive impact of greenwashing concern on purchase intention are inconsistent with other green literature studies, since we have rejected the second hypothesis. (Goh & Balaji, 2016; Zhang et al., 2020) Altruistic values as the sole predictor representing social values in the formation of the dependent variable, adheres to other findings in the literature. (Schultz, 2000; Schwartz, 1992; Stern, 2000) Our results adhere to the literature findings, gratitude to accepting hypotheses six, seven, five, and six that show attitudes towards sustainable clothing play a crucial role in shaping consumers' decisions when purchasing sustainable clothing, with environmental concerns and perceived environmental knowledge significantly influencing the formation of attitudes toward purchase intention. (Jaiswal & Kant, 2018) Consistent with previous research, environmental concerns are significantly related to the dependent variable. However, our results for perceived environmental knowledge are distinctive, suggesting a complete mediation effect on attitude formation and no direct impact on purchase intention. Thus, we contribute to the existing literature with a new perspective on the process of forming sustainable attitudes.

The findings of this study provide a foundation for implementing policies that can benefit consumers, manufacturers, and stakeholders. To encourage the intention to purchase sustainable clothing, one strategy is to implement nudges or informational campaigns focusing on shaping consumers' attitudes and changing the subjective norms within the group. Moreover, these findings add to the green literature by expanding the TPB framework with new determinants, thereby broadening the theoretical understanding of green consumer behavior. A theoretical implication of this paper consists in validating the applicability of the TPB to explaining green consumer behavior in Romania, a MIC representative.

Conclusions

The growing emphasis on sustainability, especially in the textile industry, highlights the crucial need to understand the factors that drive sustainable clothing consumption in middle-income countries like Romania. This study aims to address a gap in the existing green literature by exploring the connection between the TPB constructs, green predictors, and social values, focusing on purchasing intention as the outcome variable and considering attitudes towards purchasing intention. It underscores the crucial role played by a set of variables like attitude, social norms, perceived environmental knowledge, environmental concern, and greenwashing concern, along with social value orientations represented by altruistic, biospheric, and egoistic values in predicting the intention of consumers to purchase sustainable clothing.

On a sample of 1,087 respondents, the PLS-PM method is employed to evaluate the proposed framework, eventually contributing to the green literature and providing insights into the Romanian context as a representative MIC. Based on the analysis that was done, our study has tested ten hypotheses, however, we have found enough evidence to confirm six of them. Our findings go in line with the discussed literature and highlight attitudes as a key driver of the intention to purchase sustainable clothing, with perceived environmental knowledge serving as a crucial mediator in this relationship. Furthermore, altruistic values are positively associated with Romanian's intention to purchase sustainable clothing, accentuating the importance of fostering a mindset of compassion for sustainable fashion among consumers. We found the level of sustainable attitudes toward purchasing sustainable clothing along with the influence of social pressure, greenwashing concerns, and altruistic and biospheric values to shape the decision on whether or not to purchase sustainable clothing, in the context of a middle-income representative country.

Based on the discussion provided by looking through our findings, the study contributes with both theoretical and practical implications. Firstly, we participate to the green literature by offering insights into understanding consumer behavior towards sustainable clothing consumption and exploring different green predictors. Secondly, the study offers a starting point for drawing on

policies that can shape both consumers and manufacturers or stakeholders toward a more sustainable future.

Finally, despite its strengths, the study acknowledges certain limitations, such as an exclusive concentration on intention rather than behavior, possible prejudices in data collection, and biases in respondent demographics. Future research should employ more effective sampling methods and account for cultural differences in environmental concerns and value orientations. Notwithstanding its limitations, this study provides valuable insights into behavioral strategies to encourage sustainable clothing consumption, laying the foundation for future exploration of sustainable consumption behaviors.

References

Achabou, M. A., & Dekhili, S. (2013). Luxury and sustainable development: Is there a match? Journal of Business Research, 66(10), 1896–1903. https://doi.org/10.1016/j.jbusres.2013.02.011

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50, 179–211. https://doi.org/10.1016/0749-5978%2891%2990020-T

Amin, S., & Tarun, M. T. (2021). Effect of consumption values on customers' green purchase intention: A mediating role of green trust. Social Responsibility Journal, 17(8), 1320–1336. https://doi.org/10.1108/SRJ-05-2020-0191

Apaolaza, V., Policarpo, M. C., Hartmann, P., Paredes, M. R., & D'Souza, C. (2023). Sustainable clothing: Why conspicuous consumption and greenwashing matter. Business Strategy and the Environment, 32(6), 3766–3782. https://doi.org/10.1002/bse.3335

Armstrong, C. M., Niinimäki, K., Lang, C., & Kujala, S. (2016). A Use-Oriented Clothing Economy? Preliminary Affirmation for Sustainable Clothing Consumption Alternatives. Sustainable Development, 24(1), 18–31. https://doi.org/10.1002/sd.1602

Bahl, R., Panwar, T., Padhye, R., & Nayak, R. (2023). Are Australian Consumers Ready to Wear Recycled Clothing to Practice Sustainable Consumption? Sustainability, 15(21), Article 21. https://doi.org/10.3390/su152115451

Baltar, F., & Brunet, I. (2012). Social research 2.0: Virtual snowball sampling method using Facebook. Internet Research, 22(1), 57–74. https://doi.org/10.1108/10662241211199960

Bhardwaj, V., & Fairhurst, A. (2010). Fast fashion: Response to changes in the fashion industry. The International Review of Retail, Distribution and Consumer Research, 20(1), 165–173. https://doi.org/10.1080/09593960903498300

Brandão, A., & Costa, A. G. da. (2021). Extending the theory of planned behaviour to understand the effects of barriers towards sustainable fashion consumption. European Business Review, ahead-of-print(ahead-of-print). https://doi.org/10.1108/EBR-11-2020-0306

Browne, K. (2005). Snowball sampling: Using social networks to research non-heterosexual women. International Journal of Social Research Methodology, 8(1), 47–60. https://doi.org/DOI: 10.1080/1364557032000081663

Cameron, L. D., Brown, P. M., & Chapman, J. G. (1998). Social Value Orientations and Decisions to Take Proenvironmental Action1. Journal of Applied Social Psychology, 28(8), 675–697. https://doi.org/10.1111/j.1559-1816.1998.tb01726.x

C.Nunnally, J., & H.Bernstein, I. (1994). Psychometric theory. http://vlib.kmu.ac.ir/kmu/handle/kmu/84743

Cohen, J. (2013). Statistical Power Analysis for the Behavioral Sciences. Academic Press.

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. Journal of Applied Psychology, 78(1), 98–104. https://doi.org/10.1037/0021-9010.78.1.98

Dagher, G. K., & Itani, O. (2014). Factors influencing green purchasing behaviour: Empirical evidence from the Lebanese consumers. Journal of Consumer Behaviour, 13(3), 188–195. https://doi.org/10.1002/cb.1482

Eurostat. (2021a). International Trade in Goods since 2002 by CPA 2.1 (ds-059268). https://ec.europa.eu/eurostat/databrowser/view/ds-059268__custom_9198135/default/table?lang=en

Eurostat. (2021b). Treatment of waste by waste category, hazardousness and waste management operations (env_wastrt). https://ec.europa.eu/eurostat/databrowser/view/env_wastrt__custom_9235730/default/table?lang=en

Eurostat. (2021c, April 21). Where do our clothes come from? Where Do Our Clothes Come From? https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20210424-1

Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention and behaviour: An introduction to theory and research (Vol. 27).

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39–50. https://doi.org/10.2307/3151312

Geissdoerfer, M., Vladimirova, D., & Evans, S. (2018). Sustainable business model innovation: A review. Journal of Cleaner Production, 198, 401–416. https://doi.org/10.1016/j.jclepro.2018.06.240

Goh, S. K., & Balaji, M. S. (2016). Linking green skepticism to green purchase behavior. Journal of Cleaner Production, 131, 629–638. https://doi.org/10.1016/j.jclepro.2016.04.122

Goworek, H., Oxborrow, L., Claxton, S., McLaren, A., Cooper, T., & Hill, H. (2020). Managing sustainability in the fashion business: Challenges in product development for clothing longevity in the UK. Journal of Business Research, 117, 629–641. https://doi.org/10.1016/j.jbusres.2018.07.021

Haenlein, M., & Kaplan, A. M. (2004). A Beginner's Guide to Partial Least Squares Analysis. Understanding Statistics, 3(4), 283–297. https://doi.org/10.1207/s15328031us0304_4

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. Journal of Marketing Theory and Practice, 19(2), 139–152. https://doi.org/10.2753/MTP1069-6679190202

Han, J. H., & Lee, E. (2016). The different roles of altruistic, biospheric, and egoistic value orientations in predicting customers' behavioral intentions toward green restaurants. 관광연구저널, 30(10), 71–81. https://doi.org/10.21298/IJTHR.2016.10.30.10.71

Harris, F., Roby, H., & Dibb, S. (2016). Sustainable clothing: Challenges, barriers and interventions for encouraging more sustainable consumer behaviour. International Journal of Consumer Studies, 40(3), 309–318. https://doi.org/10.1111/ijcs.12257

Heckathorn, D. D. (2011). SNOWBALL VERSUS RESPONDENT-DRIVEN SAMPLING. Sociological Methodology, 41(1), 355–366. https://doi.org/10.1111/j.1467-9531.2011.01244.x

Heuer, M., & Becker-Leifhold, C. (2018). Eco-Friendly and Fair: Fast Fashion and Consumer Behaviour. Routledge.

Jaiswal, D., & Kant, R. (2018). Green purchasing behaviour: A conceptual framework and empirical investigation of Indian consumers. Journal of Retailing and Consumer Services, 41, 60–69. https://doi.org/10.1016/j.jretconser.2017.11.008

Joreskog, K. G. (1982). The ML and PLS techniques for modeling with latent variables: Historical and comparative aspects. Systems under Indirect Observation, Part I, 263–270.

Kennedy, P. (2008). A Guide to Econometrics. John Wiley & Sons.

Kong, H. M., Ko, E., Chae, H., & Mattila, P. (2016). Understanding fashion consumers' attitude and behavioral intention toward sustainable fashion products: Focus on sustainable knowledge sources and knowledge types. Journal of Global Fashion Marketing, 7(2), 103–119. https://doi.org/10.1080/20932685.2015.1131435

Lundblad, L., & Davies, I. A. (2016). The values and motivations behind sustainable fashion consumption. Journal of Consumer Behaviour, 15(2), 149–162. https://doi.org/10.1002/cb.1559

Lyon, T. P., & Montgomery, A. W. (2015). The Means and End of Greenwash. Organization & Environment, 28(2), 223–249. https://doi.org/10.1177/1086026615575332

Manley, A., Seock, Y.-K., & Shin, J. (2023). Exploring the perceptions and motivations of Gen Z and Millennials toward sustainable clothing. Family and Consumer Sciences Research Journal, 51(4), 313–327. https://doi.org/10.1111/fcsr.12475

Mansoor, M., & Paul, J. (2022). Consumers' choice behavior: An interactive effect of expected eudaimonic well-being and green altruism. Business Strategy and the Environment, 31(1), 94–109. https://doi.org/10.1002/bse.2876

Nayak, R., & Patnaik, A. (2021). Waste Management in the Fashion and Textile Industries. Woodhead Publishing.

Rausch, T. M., & Kopplin, C. S. (2021). Bridge the gap: Consumers' purchase intention and behavior regarding sustainable clothing. Journal of Cleaner Production, 278, 123882. https://doi.org/10.1016/j.jclepro.2020.123882

Roos, D., & Hahn, R. (2019). Understanding Collaborative Consumption: An Extension of the Theory of Planned Behavior with Value-Based Personal Norms. Journal of Business Ethics, 158. https://doi.org/10.1007/s10551-017-3675-3

Salazar, H. A., Oerlemans, L., & Stroe-Biezen, S. van. (2013). Social influence on sustainable consumption: Evidence from a behavioural experiment. International Journal of Consumer Studies, 2(37), 172–180. https://doi.org/10.1111/j.1470-6431.2012.01110.x

Salem, S., & Alanadoly, A. B. (2020). Personality traits and social media as drivers of word-of-mouth towards sustainable fashion. https://doi.org/10.1108/jfmm-08-2019-0162

Schultz, P. W. (2000). New Environmental Theories: Empathizing With Nature: The Effects of Perspective Taking on Concern for Environmental Issues. Journal of Social Issues, 56(3), 391–406. https://doi.org/10.1111/0022-4537.00174

Schwartz, S. H. (1992). Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries. In M. P. Zanna (Ed.), Advances in Experimental Social Psychology (Vol. 25, pp. 1–65). Academic Press. https://doi.org/10.1016/S0065-2601(08)60281-6

Stern, P. C. (2000). New Environmental Theories: Toward a Coherent Theory of Environmentally Significant Behavior. Journal of Social Issues, 56(3), 407–424. https://doi.org/10.1111/0022-4537.00175

Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism. Human Ecology Review, 6(2), 81–97.

Stern, P. C., Dietz, T., & Kalof, L. (1993). Value Orientations, Gender, and Environmental Concern. Environment and Behavior, 25(5), 322–348. https://doi.org/10.1177/0013916593255002

WarpPLS. (2022). WarpPLS. https://www.warppls.com/

WITS, D. (2021). World Integrated Trade Solution Data—Textiles and Clothing Imports. Textiles and Clothing Imports by Country in US$ Thousand 2021. https://wits.worldbank.org/CountryProfile/en/Country/WLD/Year/LTST/TradeFlow/Import/Partner/by-country/Product/50-63_TextCloth

World Trade, O. (2021). World Trade Statistical Review 2021. WTO iLibrary. https://doi.org/10.30875/604b3e6d-en

World Trade, O. (2023). World Trade Statistical Review 2022. WTO iLibrary. https://doi.org/10.30875/9789287053534

Zhang, L., Wu, T., Liu, S., Jiang, S., Wu, H., & Yang, J. (2020). Consumers' clothing disposal behaviors in Nanjing, China. Journal of Cleaner Production, 276, 123184. https://doi.org/10.1016/j.jclepro.2020.123184

RECEIVED: 17 February 2024 ACCEPTED: 15 July 2024 PUBLISHED: 29 October 2024

Anastasia Cosma is a PhD student at the Economic Cybernetics and Statistics Doctoral School, Bucharest University of Economic Studies, Bucharest, Romania. She focuses on areas within the dissertation topic such as consumer behavior, overconsumption, sustainability, and well-being. She discovered her passion for research during her second year of undergraduate studies when she conducted her first study on compulsive online shopping. Her enthusiasm for the field has only grown since then, determining her to explore more of the consumer behavior spectrum. Outside of academia, she enjoys traveling, taking long walks, and spending quality time with her family. E-mail: cosmaanastasia21@stud.ase.ro ORCID ID: https://orcid.org/0000-0002-8815-499X

https://doi.org/10.38104/vadyba.2024.2.04

Vadyba
Journal of Management
2024, № 2 (40)
ISSN 1648-7974

DOMESTIC VIOLENCE PROTECTION ORDER APPLICATION GAPS AS A VIOLATION OF HUMAN RIGHTS

Egidijus Nedzinskas, Renata Sliaziene
Lithuania Business College

Abstract
The article examines the main gaps of the implementation of the new version of the Law on Protection Against Domestic Violence, which entered into force in Lithuania on the 1st of July 2023, and its accompanying legislation. The topic analysed in the article is of great relevance today, because the number of criminal offences related to domestic violence in Lithuania is increasing. Domestic violence is defined as any form of physical, emotional, sexual or psychological abuse, it is a violation of human rights. The new version of the Law on Protection Against Domestic Violence introduced a new concept called the Domestic Violence Protection Order, which is a preventive protection measure designed to protect a victim of domestic violence, and which obliges abuser to move temporarily from the place of residence. This is an important step towards creating a secured society, however, there is a lack of information addressed to the problems of the implementation of Domestic Violence Protection Order in Lithuania in the context of the protection of human rights. It is therefore reasonable to investigate what problems are faced by police officers when issuing a domestic violence order and by the courts when dealing with complaints about compliance with the terms of the order issued. Thus, the object of the investigation is the Domestic Violence Protection Order. The aim of the article is to investigate the Domestic Violence Protection Order application gaps as a violation of human rights. The Objectives of the study are 1) To explore the concept of domestic violence and its legal regulation; 2) To carry out a case study of Lithuanian court practice of the Domestic Violence Protection Order application problems. The methods used for the investigation: analysis of literature and legislation and a case study of a court decision. To fulfil the purpose of the research, a specific case of court practice was analysed. In this case even several violations committed by police officers when issuing a domestic violence order for a person and checking the person's compliance with the terms of the domestic violence order were recorded and analysed in the court decision. It was found that despite police officers play an important role in ensuring the safety of the public, in some cases they decide without analysing and investigating the factual circumstances, without giving reasons and legal arguments. This creates several problems in terms of human rights protection. Thus, police officers in some cases violate the rights of the violent person and this highlights the problems faced by police officers when issuing a Domestic Violence Protection Order and by the courts when dealing with complaints about compliance with the terms of the order issued. A special attention of Lithuanian legislators should be given to these gaps of Domestic Violence Protection Order application as they can lead to the violation of human rights.
KEY WORDS: Domestic Violence, Human Rights, Criminal Offence, Domestic Violence Protection Order, Legal Responsibility.
JEL classification: K1, K10, K19

Introduction

Domestic violence is one of the most serious problems in the world and in Lithuania. To achieve a positive result in this area, it is necessary to adopt appropriate legislation and ensure that it is properly implemented. In Lithuania, legislation and its implementation are constantly being improved in the fight against domestic violence.

The new version of the Law on Protection Against Domestic Violence, and its accompanying legislation entered into force in Lithuania on the 1st of July 2023, introducing a new concept called the Domestic Violence Protection Order. The purpose of this measure is to protect and ensure the safety of a person who may be exposed to domestic violence. This means that an adult who may cause a risk of domestic violence is obliged to temporarily move out of his/her place of residence if he/she is living with a victim of domestic violence. This measure is intended to ensure the safety of the victim and to reduce the risk of violence posed by relatives, who are identified in the law as perpetrators of violence. This is an important step towards creating a safer society where individuals can feel protected from domestic violence and threats to their safety. However, the newly enforced law caused changes also brought confusion in its application, particularly in human rights protection.

Issues of domestic violence are of high interest in scholars' investigations. Haider et al (2024) examined violations of human rights and freedoms, where women and children are usually the victims of domestic violence. Gunawan et al (2024) examined the problems of children experiencing violence, emphasizing the importance of protecting children's rights. Said et al (2024) analysed the current issues of women's rights and the problems of domestic violence under international law. Cichowski (2016) and McQuigg (2014) analysed domestic violence in the context of the protection of human rights and freedoms. Ortiz-Barred and Vives-Cases (2013), and Winstock (2016) investigated the regulation of domestic violence from a criminal law perspective and have addressed the main issues. Douglas (2015) has elaborated on the specificities of the qualification of domestic violence.

Scholars have also researched the constantly changing law on protection against domestic violence in Lithuania. Gulbickaja (2013) wrote about the application of the Law on Protection against Domestic Violence, which was in force on 15 December 2011. Bučiūnas and Velička (2017) examined the challenges of success in identifying domestic violence. Sliaziene and Nedzinskas (2023) delved into the assessment of police officers dealing with

domestic violence at the junction of the old and the new versions of the Law on Protection against Domestic Violence. On the practical side, the problems of the imposition and implementation of domestic violence orders have been focused on by the President of the Kaunas Chamber of the Kaunas District Court Purvainis (2023, 2024).

However, there is a lack of information addressed to the problems of the implementation of Domestic Violence Protection Order in Lithuania in the context of the protection of human rights. No one has examined the problems related to the issuing of a domestic violence order, the control of its compliance, which may lead to violations of human rights and freedoms. It is therefore reasonable to investigate what problems are faced by police officers when issuing a domestic violence order and by the courts when dealing with complaints about compliance with the terms of the order issued, and how can this result in a violation of individual rights.

The object of the investigation is the Domestic Violence Protection Order.

In order to investigate the gaps in the application of the Order on domestic violence as a violation of human rights, the concept of domestic violence and its legal regulation are examined, and a case analysis of the application of the protection against domestic violence order in court practice is carried out.

The methods used for the investigation: analysis of literature and legislation and a case study of a court decision.

Theoretical Background

Scientific literature provides several definitions of domestic violence. Harefa (2021) states that domestic violence is defined as any form of physical, emotional, sexual or psychological abuse. Aragbuwa (2021) points out that together with women, men and children are also a subject of domestic violence. Lavédrine and Gruev-Vintila (2023) defined domestic violence as a violation of human rights and highlight that numerous studies show that the current situation is based on the concept that domestic violence is far from the experience of the victims and that criminalization and prevention of domestic violence are only partially effective. This human rights-based concept does not reduce it to some individual, psychological problem, because domestic violence is much closer to the victims' experiences, and therefore has led to legal innovations.

Judges, whose duty until now has been to prosecute and sentence offenders, have seen their role strengthened by the inclusion of protective measures against domestic violence (Jouanneau and Matteoli, 2018). However, criminal law still focuses on punishing domestic violence in violent incidents (Stark and Hester, 2019; Côté and Lapierre, 2021; Gruev-Vintila and Toledo 2021. Muller-Lagarde and Gruev-Vintila (2022) argue that victims may suffer without being under the control of the perpetrator. Despite the possibility that human rights against domestic violence will be implemented, there are still obstacles to their implementation. According to Stulginskienė (2014), the police are on the front line in the fight against domestic violence.

Article 21 of the Constitution of the Republic of Lithuania (1992) states that “it is prohibited to torture, mutilate, degrade the dignity of a human being, to treat him or her cruelly, and to impose such punishments." Based on this provision of the Constitution of the Republic of Lithuania, the Law on Protection against Domestic Violence was adopted on 26 May 2011. Thus, this law has been continuously improved, and 11 amending laws have been adopted up to 28 March 2023 and the new version with all accompanying legislation entered into force on 1 July 2023.

The essence of the Law on Protection from Domestic Violence is to ensure the safety of all persons, including children, from violence that often occurs in the domestic environment and threatens society. This legal instrument provides the legal preconditions for a rapid response to the threat of violence, for measures to prevent and protect against domestic violence, and for the provision of specialised and comprehensive assistance to those who have experienced domestic violence. Furthermore, the Act defines the competences of institutions and organisations to ensure the prevention of, protection against and specialised assistance to those who are at risk of or victims of domestic violence. This is an important step towards ensuring the safety of all individuals and preventing the threat of domestic violence.

The Law on Protection Against Domestic Violence defines what constitutes domestic violence and highlights that women are often the victims of domestic violence. It also establishes the rights of people who are at risk of or have experienced domestic violence and ensures the implementation of preventive measures against domestic violence. It also sets out the rights and obligations of those who are subject to a domestic violence protection order. The law defines specific procedures and steps on how this order can be applied for and how it can be obtained. This includes court decisions, applications and filing documents. It sets out who can appeal against this order.

The latest amendment to the Law on Protection against Domestic Violence entered into force on 1 July 2023. The introduction of a new concept in the Act, the Protection from Domestic Violence Order, as it is a preventive protection measure designed to protect a victim of domestic violence, and which obliges an adult who makes risk of domestic violence to move temporarily from the place of residence, if he/she is living with a victim of domestic violence, not to visit his/her place of residence, not to approach him/her and the adult persons and/or children living with him/her, not to communicate with them, not to seek contacts with them.

The police shall immediately carry out a domestic violence risk assessment if there are indications of a criminal offence. The police office has a duty to inform persons at risk and victims of violence of the decisions taken, either through electronic channels or in writing. Despite the common stereotype that police action is focused only on certain socially at-risk families, where violence is a daily occurrence, this is a misconception. Violence can occur in all segments of society and the provisions of the law on the protection of victims from perpetrators apply equally to all. Police officers play an

important role in ensuring the safety of the public, irrespective of social or economic status.

A simplified scheme of the issue of the Domestic Violence Order by police to the abuser and possible further scenarios are presented in Figure 1.

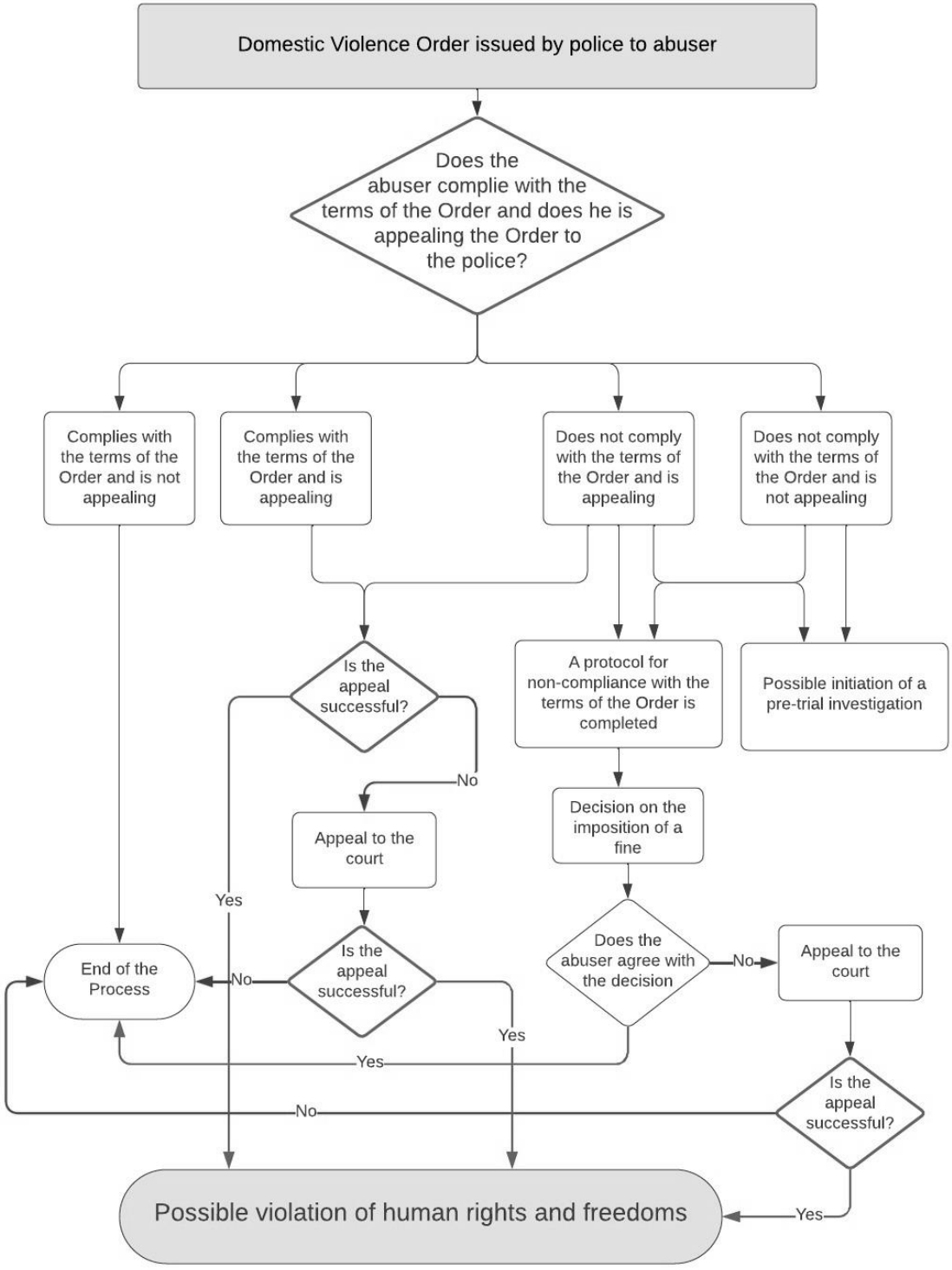

Fig. 1. Simplified scheme of the issue of the Domestic Violence Order and possible scenarios

However, according to Purvainis (2023), in some cases police officers decide without analysing and investigating the factual circumstances, without giving reasons and legal arguments. This creates several problems for those who disagree with the decisions and appeal them to the courts. This approves that there are some gaps in application of domestic violence order that should be investigated.

Methodology

To investigate domestic violence order application gaps as a violation of human rights, a case study is used in this article, which provides an opportunity to thoroughly analyse and describe one fact in a real context and explain the phenomenon under investigation, especially when the boundaries between the phenomenon and its context are not clear. Case studies are increasingly being used as a reliable research strategy (Stake, 2000). This is a qualitative research strategy where one or more specific cases that illustrate the research problem are examined in detail and in depth. Here, the greatest attention is paid to a specific case, which is attempted to be described and explained in as much detail as possible, and to answer the research questions. A case study can be defined as a sequential investigation of a phenomenon in a related context. The goal of such research is usually to provide an analysis of the context processes that would reveal the theoretical aspects of the phenomenon under study. When describing a unique or exceptional case, a new phenomenon, case studies can play an important role in generating hypotheses and constructing new theoretical models, highlighting testable theoretical aspects of the studied phenomenon.

The steps of the case study are:

• Identification of the selected case and determination of the boundaries of the case - an analysis of a specific court case is carried out

• Data collection – data related to the court case are collected about the situation, the process, the court decision.

• Data analysis. First, a detailed description of the case is presented, analysing the sequence of events and the actors of the case. The following is an analysis of the situation and its conditions. Finally, the court decision is analysed.

• Interpretation of the results - the conclusions of the conducted research are presented, new aspects of the analysed phenomenon are revealed, to demonstrate how the case study made it possible to deepen the understanding of the problem, what newly discovered facts could be further analysed and studied.

To fulfil the purpose of the research, a specific case was chosen to be analysed - a case in which even several violations committed by police officers when issuing a domestic violence order for a person and checking the person's compliance with the terms of the domestic violence order are recorded and analysed in the court decision.

Results and Discussion

The newly adopted version of the Law on Protection Against Domestic Violence (2023), which entered into force in 2023 July 1 should have brought many positive innovations, but with the implementation of this law, several problematic issues concerning the protection of human rights and freedoms arose.

Let's examine the Lithuanian Courts case of a person called Person Posing a Danger (PPD) according to the order - Z. T., who was fined for not complying with the domestic violence protection order to temporarily move out of the place of residence located at the address, not to visit the place of residence of the person in danger (PD), not to come within 100 meters of the person in danger - A. T., not to communicate, not to seek contact with a person in danger - A. T.

Article 8, Part 4 of the Law stipulates how police officers must immediately inform persons about the appointment of a violence warrant in accordance with the procedure established by the General Commissioner of the Lithuanian Police by means of electronic communication or in writing. 2023-06-20 of the General Commissioner of the Police of the Republic of Lithuania by order no. 5-V-506 p. 9 of the approved "Description of the procedure for responding to reports of domestic violence by police officers and accepting a decision on the protection against domestic violence warrant, its execution and control". stipulates that a police officer conducts a risk assessment of the danger of domestic violence using the functions of the Register of events registered by the Police (hereinafter referred to as the Register of Police Events) in the window "Primary result of information verification". After selecting "Domestic Violence danger risk assessment" in the classifier, fill in the personal data of the PD and PPD, indicate the phone number and (or) e-mail address. If these contact data are not available, notifications related to the granting or non-granting of a protection order against violence, and other mandatory PD and PPD to provide information specified in the Law of the Republic of Lithuania on Protection against Domestic Violence, upon completion of the domestic violence risk assessment, PD and PPD are handed over in paper form. After indicating the contact details of PD and PPD, notifications specified in Law on Protection Against Domestic Violence PD and PPD are sent by electronic means of communication automatically.

Control of how individuals comply with the obligations of the protection against violence order is entrusted to police officers (Article 8, Paragraph 6 of the Law). If it is determined that a person who poses a risk of domestic violence does not comply with the obligations of the protection against violence order, the latter shall be liable in accordance with the procedure established by the Code of Administrative Offenses of the Republic of Lithuania, i.e. i.e. he is subject to Article 489 of the Code of Administerial Offenses. 2 provides for administrative responsibility.

It can be seen from the data of the case (ruling of the Kaunas district court dated 01/09/2024 in the administrative offense case No. II-33-48/2024) that on 08/29/2023 9:15 p.m. Z. T. was issued a violence warrant no. 000000000000X, with which the latter had to temporarily move out of his place of residence for 15 days, not to visit the place of residence of a person at risk of domestic violence, not to approach a person at risk of domestic violence for 100 years. at a distance

Violence warrant Z. T. was served as stipulated by the above-mentioned legal regulation, by electronic means, which was indicated by Z. T. Vol. i.e. 2023-08-09 21:20 sent SMS to phone No. +370XXXXXXX, and an e-mail via e-mail zigote@gmail.com. Therefore, the obligation to submit a paper form did not arise.

The chief investigator of the Department of Administrative Misdemeanours of the Kaunas County Chief Police Commissariat in the presence of a person brought to administrative responsibility is Z. T., after examining the administrative offense case, in 2023 September 7 adopted a resolution by which, without determining Z. T. mitigating circumstances and after establishing one aggravating circumstance - the administrative offense was committed by a person who was drunk or under the influence of narcotic, psychotropic or other psychoactive substances and these circumstances had an influence on the commission of the administrative offense, found him guilty of committing the administrative offense provided for in Article 489, Part 2 of the Civil Code. By resolution Z. T. an administrative penalty was imposed on - a fine of 200 euros.

Z. T. of a person punished administratively and forwarded by the Institution to the Kaunas Chamber of the Kaunas District Court. Z. T.'s complaint regarding the annulment of the Authority's decision. The applicant Z. T. In the complaint submitted to the court, indicates that he does not agree with the violation specified in the resolution, since he learned about the Protection against domestic violence order in 2023. on August 10, when the officer who arrived at the house at the address explained that he had a 2023 August 9 9:15 p.m. a domestic violence protection order was issued. in 2023 August 9 9:15 p.m. when the police officers arrived, they did not submit a Domestic Violence Protection warrant and did not notify by electronic means. The Order was not handed over in paper form, was not introduced to it, and was not signed anywhere. No e-mail notification was received. Asked the court to cancel the appealed decision of the Authority, or after the court found that he was correctly and properly informed about the delivery of the Order, or to impose a minimal administrative penalty for an administrative offense.

The institution submitted a response to the applicant's Z. T.'s complaint requesting that the applicant's complaint be dismissed. Indicates that Z. T.'s violence warrant was served by electronic means, which was indicated by Z. T. Vol. i.e. 2023-08-09 21:20 sent SMS to phone No. 86XXXXXX, and a letter to e-mail by e-mail: xxxx1@gmail.com. Therefore, the obligation to submit a paper form did not arise. It should be noted that the person's contact details were carefully checked, even repeating several times and showing the person himself how the officer wrote them down, this was also recorded in the record in the file. In this case, such contact data was dictated by the person himself, therefore he himself is responsible for their correctness, and besides, the person was informed about the violence warrant not only by e-mail, but also by phone number via SMS message, and as you can see, the phone number matches the person's actual phone number contact number, which is also indicated when submitting a complaint. The SMS message, which is automated, also contained information about the issued violence warrant and the consequences of its non-execution, as well as the possibility to find out more information about it at the police station. Regarding the issue of individualization of the administrative penalty raised in the complaint, the Authority notes that after examining the administrative offense case, the amount of the administrative penalty was selected taking into account the nature of the committed administrative offense, the form and type of the offender's guilt, mitigating and aggravating circumstances, in accordance with Article 34, Part 2 of the Criminal Code, therefore there is no way to mitigate it. The institution requests the Applicant Z. T. to reject the complaint and leave the appealed resolution unchanged.

From the submitted response of the Institution to the complaint, the response is templated (templated), does not delve into the situation, does not individualize either the situation or the personality of the Order appointed by PPD, neither when assigning the Order nor when checking how the conditions of the appointed Order are being followed.

The witness M. D. indicates that he works in the 1st department of the Kaunas County Chief Police Station Response Board. Arriving at the call on August 9. issued a domestic violence warrant. He does not remember the exact circumstances, but he remembers that both persons were drunk, it was difficult to talk to them. When issuing the Order, the person is informed by e-mail. by mail and phone, he had to indicate contacts and was informed by them, and he was informed and verbally. It cannot be said whether the person understood the warrant issued to him.

The court satisfied the complaint and indicated that Article 641 of the Civil Code of the Republic of Lithuania establishes that the court, when considering a case regarding a complaint regarding a decision made outside court in an administrative offense case, verifies the legality and validity of the decision made by the institution. Pursuant to the provisions of Articles 563 and 567 of the Civil Code, the procedural decision adopted in the case shall be considered legal and reasonable only when all circumstances relevant to the correct resolution of the case are fully, thoroughly and objectively explained and evaluated.

Article 569 of the Code of Administrative Offenses of the Republic of Lithuania establishes that the body (official) evaluates the evidence according to its internal conviction, based on a comprehensive and objective examination of all the circumstances of the case, guided by the law and legal consciousness. From this legal norm, it can be concluded that the presence or absence of a certain fact can only be established based on the totality of the evidence collected in the case, and not on individual evidence. When determining legally significant circumstances, the totality of the evidence collected in the case, their sufficiency, consistency, their possible contradictions, logic, the circumstances of specifying the relevant data, and the reliability of the evidence sources must be evaluated.

From the material presented to the court, the applicant Z. T. was held administratively liable according to Article 489 of the Civil Code of the Republic of Lithuania. 2 d. due to the fact that in 2023 on August 10, at 12:30 p.m., failed to comply with a domestic violence protection order valid until 2023. August 25 08.42 a.m. to temporarily move out of the place of residence located at the address, not to visit the place of residence of the

person at risk, at the address, not to come within 100 meters of the person at risk - PD, not to communicate with, not to seek connections with PD.

In the complaint submitted to the court, the applicant Z. T. with the Institution's 2023 September 7 does not agree with the decision, because the Police officers did not properly inform him about the domestic violence protection order adopted against him, either in writing or by means of electronic communication. Also, the police officers did not inform him about the obligations imposed on him and his rights, which he learned about only when a protocol was drawn up for him.

Part 2 of Article 489 of the Criminal Procedure Code stipulates that non-compliance with the obligations of the domestic violence protection warrant entails a fine of eighty to three hundred and twenty euros.

It should be noted that from 2023 July 1 The wording of the Law of the Republic of Lithuania on protection against domestic violence (hereinafter - the Law) that came into force provides that in order to protect persons at risk of domestic violence from domestic violence, if there is a sufficient risk that domestic violence may be used, persons at risk of domestic violence a protection against violence order may be issued (Purvainis, 2024). Paragraph 12 of Article 9 of the Law states that the complaints referred to in this Article, filed with the district or district court, to the extent not specified in this Law, are examined in accordance with the Code of Criminal Procedure of the Republic of Lithuania (hereinafter referred to as the Criminal Procedure Code) order It should be noted that Article 18 of the Law provides for administrative liability in accordance with the procedure established by the Code of Administrative Offenses for persons who falsely reported domestic violence, abused the rights of persons at risk of domestic violence, abused the rights of persons who experienced violence, and did not comply with the obligations of a protection against violence order. Paragraph 2 of Article 8 of the Law stipulates that a protection order against domestic violence is issued by a police officer for a period of 15 days, when he receives a report of possible domestic violence, and after conducting a risk assessment, the risk of domestic violence is determined.

Article 8, Part 3 of the aforementioned Law specifies that after the issuance of a protection against violence warrant, a person posing a risk of domestic violence is obliged for a period of 15 days from the moment of the issuance of a protection against violence warrant: 1) to temporarily move out of the place of residence, if he lives with a person at risk of domestic violence person, regardless of who owns the property; 2) not to visit the place of residence of a person at risk of domestic violence, regardless of whether the person at risk of domestic violence lives there or not together with the person at risk of domestic violence; 3) not to approach the person at risk of domestic violence and adult persons living with him and/or children living in an environment where the risk of domestic violence has been caused, within the distance specified in the protection against violence order; 4) not to communicate, not to seek connections with a person at risk of domestic violence and adult persons and/or children living with him. Part 4 of this article specifies that the police officer must immediately inform about the decision on the issuance of a protection against violence warrant (if it is decided to issue a protection against violence warrant, the date and time of the issuance of the protection against violence warrant) in accordance with the procedure established by the General Commissioner of the Lithuanian Police via electronic means of communication or in writing: 1) a person who poses a risk of violence in the intimate environment - about the issuance of a protection against violence order, the obligations applicable to him, the duration of their application, responsibility for non-compliance with the applicable obligations, the procedure for appealing the decision to issue a protection against violence order, established in paragraph 1 of Article 9 of this law, the nearest institutions where accommodation services are provided, as well as about opportunities to attend a violent behaviour change program (training) (names of legal entities, addresses of places of activity, telephone numbers, e-mail addresses are indicated); 2) a person at risk of domestic violence, when a protection against violence order is issued - about the granting of a protection against violence order, obligations applicable to a person posing a risk of domestic violence, the duration of their application, responsibility for non-compliance with applicable obligations, the right of a person posing a risk of domestic violence appeal the decision to issue a protection against violence order; when a protection against violence warrant is not issued, - about the decision not to issue a protection against violence warrant, the procedure for appealing a decision not to issue a protection against violence warrant, established in Article 9 of this law. 1, as well as on responsibility for abuse of the rights of persons at risk of domestic violence; 3) The State Child Rights Protection and Adoption Service or its authorized territorial departments - about the fact of issuing a protection against violence order, the obligations applied to a person who poses a risk of violence in the close environment, and the duration of their application (specify the child's name, surname, date of birth, address of the child's location, the circumstances of issuing a protection against violence order If they are known at the time) If a child lives with a person at risk of domestic violence, the person at risk of domestic violence is a child, the child has witnessed domestic violence or lives in an environment where violence has occurred; 4) the center of specialized comprehensive assistance and transfer to it the results of the risk assessment of the danger of domestic violence, carried out in accordance with part 2 of this article. The center of specialized comprehensive assistance must contact the person at risk of domestic violence and offer him specialized comprehensive assistance, if he agrees to receive it. Paragraph 5 of the same article states that when a person who poses a risk of domestic violence is subject to the obligation to temporarily move out of the place of residence where he lives together with a person who is at risk of domestic violence, police officers immediately ensure the removal of the person posing a risk of domestic violence.

2023 of the General Commissioner of the Lithuanian Police June 20 by order no. 5-V-506 was approved "Description of the procedure for the response of police officers to reports of domestic violence and the adoption

of a decision on the adoption of a protection warrant against domestic violence, its execution and control (hereinafter - the Description)". Part 9 of Chapter III of the description indicates that the police officer performs the risk assessment of the danger of domestic violence by using the functions of the Register of Events Recorded by the Police in the window "Primary information verification result". After choosing "Domestic Violence risk assessment of danger" in the classifier, fill in the data of the potentially violent or dangerous person and the dangerous person, indicate the phone number and/or e-mail address. If these contact details are not available, notifications related to the granting or non-granting of a protection against violence order and other mandatory PD (person who has experienced or is at risk of domestic violence) and PPD (person who is violent or poses a risk) to submit the information specified in the Law on Protection Against Domestic Violence, after the risk assessment of the risk of domestic violence is completed, the PD and PPD are delivered in paper form. After indicating the contact data of PD and PPD, the messages specified in Law on Protection Against Domestic Violence, PD and PPD are sent by electronic means of communication automatically. After the issued protection order against violence has been handed over to the PPD in paper form and signed by the PPD, the police officer must take a photo or scan it and upload it to the PRĮR. When the PPD is not present at the scene of the incident, the police officer who responded to the incident delivers the warrant of protection against violence to him, and if this cannot be done for objective reasons, the delivery is organized by the Operational Management subsection. After the notification of the issued or not issued protection order against violence has been delivered to the PD in paper form, it does not need to be signed and uploaded to the PRĮR.

The court, after checking the evidence in the case and hearing the testimonies of the witnesses, has no reason to agree with the assessment of the evidence presented in the Authority's decision and concluded that the case contains reliable data that would allow an indisputable conclusion about Z. T. is guilty of committing the administrative offense he was charged with, provided for in Article 489 of the Civil Code. 2 d. The Authority did not base such a procedural decision on a comprehensive and objective examination of all the circumstances of the case, did not remove the doubts existing in the case regarding the guilt of the person being held administratively responsible, therefore the appealed decision cannot be recognized as reasonable and legal.

From the domestic violence protection warrant in the case, it can be seen that PPD, the time of issuing the warrant is 2023. August 9 9:15 p.m., the warrant is valid until 2023. August 25 8:42 a.m. PPD has the following obligations: 1) to temporarily move out of the place of residence located at the address 2) not to visit the place of residence of the person experiencing danger located at the address; 3) do not approach within 100 meters of the PD; 4) not to communicate or seek connections with PD. Witness A. T. confirmed during the court hearing that she also did not know anything about the issued warrant and cannot confirm that her brother was informed about the issued warrant. After writing the Order, the witness M. D. confirmed during the court hearing that the persons were drunk, but he did not confirm whether the person understood the Order issued to him. Witness E. B. explained during the court hearing that when he came to check whether the person complied with the issuance of the warrant, he found Z. T at home. Z. T. and immediately explained to him why he had come. The witness also did not confirm that Z. T. knew about the Order issued to him.

After evaluating the data in the case, the court heard the witnesses A. T, E. B. and M. D.'s testimony given in court, decides that in the case under consideration it cannot be established that the applicant Z. T. was properly informed about the domestic violence warrant issued against him. It should be noted that the Institution is responsible for ensuring that the person is properly informed about the domestic violence protection order issued against him, the obligations imposed on the person, the duration of their application, responsibility for non-compliance with the applicable obligations, the procedure for appealing the decision to issue a protection against violence order, the nearest institutions, which provide accommodation services, as well as about opportunities to attend a violent behaviour change program (training). The response of the Institution in the case indicates that the applicant was informed by e-mail and phone number via short message. However, the file contains the response of UAB "Bitė Lietuva", which indicates that in the period from 08/09/2023. 8:00 p.m. until 10/08/2023 12:00 p.m. there are no fixed incoming SMS messages to the subscriber. It can be seen from the case file that on August 9, 2023, at 9:16 p.m. email a domestic violence protection order was sent by mail (xxxx1@gmail.com). However, there is no data that such an e-mail address is listed in the state information systems register. As can be seen from the correspondence presented in the case, Z. T.'s e-mail address is xxxx0@gmail.com. In the case, there is no other written evidence and/or other data confirming that the applicant Z. T.'s domestic violence protection warrant would be sent via electronic means of communication in accordance with the procedure established by the Lithuanian Police General Commissioner, and there is no data to confirm that the warrant was delivered to him with a signature. It should be noted that the previously discussed and stated legal regulation specifies and explains the procedure and grounds for issuing a domestic violence warrant, therefore both the newly enacted legal regulation and the application of a domestic violence warrant to a person who has experienced or is at risk of domestic violence and to a person who may have committed violence or is in danger the person causing domestic violence must be served with a warrant in accordance with the procedure and grounds established by law, i.e. i.e. the person must be properly informed about the obligations applied to him, the duration of their application, responsibility for non-compliance with the applicable obligations, the procedure for appealing the decision to issue a protection against violence order, etc. In this case, there is no objective data in the case that the applicant Z. T. would be informed in accordance with the

procedure established by law about the protection against violence warrant applied to him, the obligations imposed by it and the impending responsibility for non-compliance with the obligations imposed and deny the applicant's claims that the warrant was not served on him, and he was not informed about the obligations applied to him and the responsibility for non-compliance with the obligations of course.

It is because of these circumstances that the court concludes that the person brought to administrative responsibility, Z. T. is guilty according to Article 489 of the Criminal Code of the Republic of Lithuania. 2 d. there are too many doubts, which should be evaluated in favor of the applicant, to presume signs of a confirmed administrative offense. Taking into account the rules for the distribution of the burden of proof, i.e. i.e. that the entire risk of failure to provide evidence or failure to remove doubts rests with the Institution that drew up the administrative offense protocol, it can be concluded that in this case no reliable and indisputable data has been collected, which undoubtedly confirms that Z. T. 2023 August 10 12:30 p.m. did not comply with the obligations of the protection against domestic violence order, and thus committed an administrative offense, provided for in Article 489 of the Civil Code. 2 d.

In the case law of the cassation instance, it has been repeatedly stated that the indictment cannot be based on assumptions, the court's conclusions must be based on evidence that indisputably confirms the guilt of the person and other important circumstances of the case. The principle of *in dubio pro reo* obliges, after exhausting all possibilities to eliminate doubts and failing to do so, to evaluate all doubts in favour of the person held responsible (cassation rulings No. 2K-594/2012, 2K-110/2013). A person can be found guilty of committing an administrative offense only after gathering sufficient unquestionable evidence of that person's guilt. Data based on which it can only be assumed that a violation of the law may have been committed is not sufficient to draw conclusions about the person's guilt and impose an administrative penalty. A person's guilt can be established when, after examining the evidence collected during the trial, there is no reasonable doubt that the person being prosecuted committed an act for which a penalty must be imposed.

After evaluating the material in the case and the evidence examined in court, the court states that Z. T. was unjustifiably arrested, therefore the appealed decision is annulled and the administrative offense case against him must be terminated (Code of Administrative Offenses, Article 565-1, d. 1, p. 1, Art. 642, d. 1, p. 2). The court, based on Article 642 of the Civil Code of the Republic of Lithuania. 1 d. 2 p., art. 644, art. 646, decided to satisfy the complaint: to cancel the decision of the Administrative Misconduct Division of the Kaunas County Chief Police Commissariat of 7 September 2023 in the case of administrative misconduct and to terminate the administrative misconduct proceedings against Z.T. in the absence of an administrative misconduct in his actions provided for in Article 489 of the Civil Code of the Republic of Lithuania. 2nd, composition.

The case study has shown that several violations committed by police officers when issuing a domestic violence order for a person and checking the person's compliance with the terms of the domestic violence order were recorded.

Conclusions

Domestic violence is defined as any form of physical, emotional, sexual or psychological abuse, it is a violation of human rights, therefore, it is necessary to apply a set of aid measures for persons at risk of domestic violence. The new version of the Law on Protection Against Domestic Violence, and its accompanying legislation entered into force in Lithuania on the 1st of July 2023, introducing a new concept called the Domestic Violence Protection Order - a preventive protection measure designed to protect a victim of domestic violence, and which obliges a person who makes risk of domestic violence to move temporarily from the place of residence. The police must immediately carry out a domestic violence risk assessment if there are indications of a criminal offence. Police officers play an important role in ensuring the safety of the public, however in some cases police officers decide without analysing and investigating the factual circumstances, without giving reasons and legal arguments. This creates several problems in terms of human rights protection.

The case study has shown that several violations committed by police officers when issuing a domestic violence order for a person and checking the person's compliance with the terms of the domestic violence order were recorded. Thus, police officers in some cases violate the rights of the violent person and this highlights the problems faced by police officers when issuing a Domestic Violence Protection Order and by the courts when dealing with complaints about compliance with the terms of the order issued. A special attention of Lithuanian legislators should be given to these gaps of the Domestic Violence Protection Order application as they can lead to violation of human rights.

References

Aragbuwa, A. (2021). A standard reading of selected online readers' comments on domestic violence against men in Nigeria. Men and masculinities, 24(3), 451-467.

Bin Md Said, M. H., Grace, K. E., Cahyani, T. D., & Hidayani, P. P. (2024). Prospects And Challenges of Women's Right Against Domestic Violence Under International Law. KnE Social Sciences, 893-912.

Gruev-Vintila, A., Boccabella, J., Frédérique, F., Roselyne, H., Pierre, J., & Léa, K. C. (2022). Violences conjugales-La notion de contrôle coercitif: état des lieux et perspectives. La Semaine juridique. Édition générale, 9(9), 476-479.

Bučiūnas, G., & Velička, V. (2017). Information exchange and inter-institutional cooperation in the investigation of domestic violence cases. Public Security and Public Order, (18).

Cichowski, R. A. (2016). The European court of human rights, amicus curiae, and violence against women. Law & Society Review, 50(4), 890-919.

Côté, I., & Lapierre, S. (2021). Pour une intégration du contrôle coercitif dans les pratiques d'intervention en matière de violence conjugale au Québec. Revue Intervention, 153, 115-25.

Douglas, H. (2015). Do We Need a Specific Domestic Violence Offence?. 39 (2) Melbourne University Law Review 434-471.

Gruev-Vintila, A., & Toledo, F. (2021). Le contrôle coercitif. Repérer les violences au sein du couple dans les interactions et le rapport de pouvoir entre l'auteur et la victime. L'emprise et les Violences au Sein du Couple, 277-290.

Gulbickaja, J. (2013). Aspects of domestic violence and the practice of law application. Celebration of scientific thought 2013: scientific conference reports. ISSN 1822-993X.

Gunawan, Y., Fernando, D., Wardani, R. M., & Arumbinang, M. H. (2024). The Children Right Violation in the Conflict of Sudan: Government Negligence. Sociological Jurisprudence Journal, 7(1), 67-74.

Haider, A., Ali, A., & Zeb, B. (2024). Broken Laws, Broken Lives: When Organized Crime Shreds Human Rights. Al-NASR, 1-18.

Harefa, A. (2021). Faktor-faktor Penyebab Terjadinya Tindak Pidana Kekerasan Dalam Rumah Tangga. Jurnal Panah Keadilan, 1(1), 18-21.

Jouanneau, S., & Matteoli, A. (2018). Les violences au sein du couple au prisme de la justice familiale. Invention et mise en œuvre de l'ordonnance de protection. Droit et société, (2), 305-321.

Constitution of the Republic of Lithuania. Valstybės žinios (Official Gazette), 1992, No. 33-1014.

Lavédrine, M., & Gruev-Vintila, A. (2023). Redefining domestic violence in France as a violation of human rights: coercive control. Journal of gender-based violence, 7(3), 435-449.

Law on the Procedure for Approval, Entry into Force and Implementation of the Administrative Offences Code of the Republic of Lithuania. Code of Administrative Offences of the Republic of Lithuania. (2015). (The Code of Administrative Offences shall enter into force on 01.01.2017. The entry into force of the Code was amended by Law No. XII-2275 of 25 March 2016.)

Lithuanian Courts. Retrieved on internet from liteko.teismai.lt/viesasprendimupaieska/detalipaieska.aspx?detali=2

Lithuanian Supreme Court cassation ruling 2K- 110/2013 https://eteismai.lt/byla/22851948744707/2K-110/2013.

Description of the Procedure for the Response of Police Officers to Reports of Domestic Violence and the Adoption, Execution and Control of the Decision on the Protection Order against Domestic Violence" approved by the Order of the Commissioner General of the Police of Lithuania No. 5-V-506 of 2023-06-20.

Law on Approval, Entry into Force and Implementation of the Criminal Procedure Code of the Republic of Lithuania. Code of Criminal Procedure. Entered into force on 9 April 2002 (the Law enters into force on 9 April 2002. The Code enters into force on 1 May 2003). Law published in: Žin. 2002, No. 37-1341; Žin. 2002, No 46-0, i.c. 1021010ISTA00IX-785.

Law on Protection against Domestic Violence of the Republic of Lithuania. New wording as of 1.7.2023: No. XIV-934, 15.3.2022, published in the TAR on 22.3.2022, i.k. 2022-05117. [Retrieved August 16, 2023] https://eseimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.400334/asr

McQuigg, R. J. (2014). The European Court of Human Rights and Domestic Violence. Lithuania. The International Journal of Human Rights, 18(7-8), 756-773.

Muller-Lagarde, Y., & Gruev-Vintila, A. (2022). Violences au sein du couple: pour une consécration pénale du contrôle coercitif. Actualité Juridique–Pénal, 5, 251-54.

Ortiz-Barreda, G., & Vives-Cases, C. (2013). Legislation on violence against women: overview of key components. Revista panamericana de salud publica, 33(1), 61-72.

Purvainis (2023). Chief Justice Purvainis: I see a lot of gaps in the application of the Protection from Violence Order. https://www.delfi.lt/news/daily/law/teismo-pirmininkas-purvainis-apsaugos-nuo-smurto-orderio-taikyme-matau-daug-spragu-94461611

Purvainis (2024). Kaunas court overturns fine against man who was unaware of sanctions imposed on him. https://m.kauno.diena.lt/naujienos/kaunas/nusikaltimai-ir-nelaimes/kauno-teismas-panaikino-bauda-vyrui-jis-nezinojo-apie-jam-pritaikytas-sankcijas-1157857

Stake, R. (2000). Case studies in N. Denzin and Y. Lincoln (eds), Handbook of Qualitative Research scond, edition Thousand Oaks, CA: Sage.

Stark, E., & Hester, M. (2019). Coercive control: Update and review. Violence against women, 25(1), 81-104.

Stulginskienė, L. (2014). Domestic violence. Methodological recommendations for police officers dealing with domestic violence. Trakai: UAB "Grafija", 2014. p. 46. ISBN 978-609-8048-17-9.

Supreme Court of Lithuania cassation ruling No. 2K-594/2012 https://eteismai.lt/byla/196034563924889/2K-594/2013

Sliaziene, R., & Nedzinskas, E. (2023). Domestic violence: the perspective of police officers. Vadyba / Jornal of Management. No. 2 (39), pp. 85-90. https://doi.org/10.38104/vadyba.2023.2.10

Winstok, Z. (2016). A new definition of partner violence. Aggression and Violent Behavior, 28, 95-102.

2024-01-09 d. Kaunas District Court's ruling in Administrative Offence Case No. II-33-48/2024.

RECEIVED: 10 October 2023 ACCEPTED: 30 May 2024 PUBLISHED: 29 October 2024

Egidijus Nedzinskas, PhD of Social Sciences, Associate Professor in the Department of Law**,** Lithuania Business College. Scientific research areas in Law (01S) and Education (07S). He published more than 40 scientific articles. The scientific research has been carried out in the fields of legal liability and social responsibility, international compatibility of legislation, domestic violence, legal regulation of migration processes, study process optimisation, student educational traineeships, methods of applied studies, factors of selection of study programmes. Tel. +37068666880. Email egidijus.nedzinskas@ltvk.lt, ORCID ID: https://orcid.org/0009-0000-7495-450X.

Renata Sliaziene, Associate Professor of Law, Head of Department of Law, Lithuania Business College. Scientific research areas in Law (01S). Published more than 10 scientific articles. The scientific research has been carried out in the fields of legal liability and social responsibility, international compatibility of legislation, domestic violence, legal regulation of migration processes, study process optimisation, student educational traineeships, methods of applied studies, factors of selection of study programmes. Has been attending and presenting at various international conferences for more than 10 years, as well as participating in and evaluating student research conferences on legal topics. Prepared more than 20 research papers with students for international conferences. Tel. +37065653964. email renata.sliaziene@ltvk.lt, ORCID ID: https://orcid.org/0000-0002-1630-0863.

https://doi.org/10.38104/vadyba.2024.2.05

Vadyba
Journal of Management
2024, № 2 (40)
ISSN 1648-7974

FROM ENERGY INTENSITY TO SUSTAINABILITY: AN ANALYSIS OF TRENDS IN THE ALUMINIUM INDUSTRY

Halyna Mishchuk, Viktor Tryhuba
National University of Water and Environmental Engineering

Abstract
The article analyses trends in the aluminium industry from the point of view of sustainable development and energy efficiency. The significant impact of industrial enterprises on the environment is discussed, particularly, the high level of greenhouse gas emissions caused by energy consumption in aluminium smelting. Possibilities of reducing the negative impact due to the use of renewable energy sources, such as hydropower, as well as the implementation of energy-efficient practices, have been identified. A taxonomic analysis was used to assess the sustainable development of aluminium enterprises due to its advantage in identifying problems and directions for production improvement. The proposed method of analysis is based on the system of factors that influence the development of the industry and correspond to the concept of sustainable development. Based on the available data of the International Aluminium Institute (IAI), the analysis was carried out using the following factors: economic (volume of production, energy intensity of primary aluminium smelting, total energy consumption of production, labour productivity, impact of energy intensity on emissions), environmental (emissions of greenhouse gases and energy consumption of aluminium smelting using different energy sources), social (million hours reported worked, lost time accident rate, restricted work/medical treatment accident rate). Approbation of the proposed methodology on the example of international statistical data makes it possible to determine the biggest gaps in ensuring the sustainable development of aluminium industry production, including the use of various energy sources. Based on the results of the analysis, it was found that none of the factors used in monitoring the activities of aluminium producers reach the reference values. In the block of economic factors, the taxonomic indicator varies between 0.18 and 0.38 (the worst efficiency is observed in terms of total production volumes). Environmental factors have taxonomic values in the range of 0.07–0.36 (the largest reserves exist in ensuring the efficiency of energy consumption using hydropower, as well as reducing greenhouse gas emissions in the process of primary aluminium production). Among the social factors, the biggest problems are labour safety and lost working hours; as a result, the taxonomic indicator for this block is in the range of 0.04 - 0.33. The obtained results indicate the need for constant improvements in the production of aluminium, which is one of the main producers of greenhouse gases due to the high energy intensity of production. The proposed approach for conducting an analysis can be improved depending on the available statistical data and the goals of the analysis. In any case, it is valuable for obtaining information on the most critical areas in supporting the sustainable development of the industry.
KEY WORDS: sustainable development, aluminium industry, energy efficiency, greenhouse gas emissions, taxonomic analysis.
JEL classification: C43, L61, O13.

Introduction

Aluminium production belongs to the sectors of the economy with a stable demand for products However, considering growing volume of production the environmental problems of the industry remain within the area of sustainable development. Despite projected efforts to reduce emissions by approximately 80%, demand for aluminium products is also expected to grow. Global demand for primary aluminium will increase by up to 40% in the coming decades, and aluminium scrap recycling will more than triple by 2050. Such forecast estimates are based on the constant development of the economy and industries that actively use aluminium in their own production, as well as active urbanization and infrastructure development (Haraldsson et al., 2021).

Industrial enterprises have a significant environmental footprint due to the large total volumes of production. This reduces their positive contribution to the economy and social stability. This sector is the dominant consumer of energy and producer of greenhouse gases. Almost 70% of emissions during aluminium production are caused by electricity consumption during smelting. This process accounts for about 4% of global electricity consumption, with up to 70% of electricity coming from fossil fuels (mainly coal) and the remaining 30% from renewable sources, mainly hydropower (WEF, 2023).

On the other hand, such data highlight the enormous potential of foundries worldwide to achieve sustainable development. Implementation of energy-efficient practices is a winning strategy for realizing sustainable energy in energy-intensive industries (Prashar, 2019). In addition, the use of sustainable development goal reporting based on sustainable energy indicators helps foundries to reduce stakeholder risks and establish their identity in the global marketplace.

Considering the importance of the aluminium industry in the economy, as well as the existing intra-industry problems of its development (primarily energy efficiency and environmental impact), an urgent scientific and applied task is to identify opportunities for improving management in this industry based on the principles of sustainable development. Considering this, the purpose of our study is to assess trends in the aluminium industry and identify current opportunities to ensure its sustainable development.

To achieve the goal, the method of taxonomic analysis was applied. Its advantages comparing to other methods of analysis of the certain processes and systems development, are in possibilities for determining gaps in the achievement of reference values.

Theoretical background

Sustainable development has a growing scientific interest, which is confirmed by the increasing number of

studies devoted to various aspects in the field. Significant contribution to investigation the sustainable development issues connected with industrial development is done by G. Brundtland with her work "Our Common Future" (Brundtland, 1987), T. Jackson (2016) with the model of green economy (Jackson, 2016), J. Elkington with the concept of three pillars of sustainable of development, where sustainable development was first clearly defined in the unity of three components (economic, social, environmental) (Elkington, 1994), as well as J. Sachs, who summarized the problems in the process of complex choices faced by states when trying to simultaneously achieve three key goals: economic growth, social justice and environmental sustainability (Sachs, 2015). In addition, the researcher singled out the fourth mandatory element - managerial. Its importance was proven with the conclusions that to ensure the quality characteristics of political institutions and decisions made by the government, it is necessary to make quality state decisions, which can be of decisive importance in the implementation of specific goals and objectives of long-term development (Sachs, 2015). The findings on institutional quality importance are aligned with recent studies in the field (Mukhtarov et al., 2023).

Current research indicates the importance of sustainable development in light of ecological footprint leading to climate change (Ojaghlou & Uğurlu, 2023) and the necessity for constant development of corporate social responsibility in energy consumption (Kontautienė et al., 2024).

One of the main challenges researchers faced is finding a balance between qualitative and quantitative approaches in assessing sustainable development. The use of taxonomic analysis makes it possible to achieve this balance through the creation of synthetic indicators of the effectiveness of the evaluated measures. These indicators are called synthetic indexes or taxonomic indicators. The biggest difficulty in creating them is determining the elements that should be included and assigning them the appropriate rank (Jędrzejczak-Gas et al., 2021).

Therefore, the development of appropriate synthetic indicators remains an urgent research problem. Existing indicators need to be verified and updated considering new concepts of assessing the level of economic development, available statistical and experimental data. This will allow creating a more complete picture of the effectiveness of implemented measures in the context of sustainable development.

Examples of the application and methodology of the taxonomic analysis of economic processes, suitable for the purposes of our study, can be found in the works of Debbarma & Choi (2022) and Jędrzejczak-Gas et al. (2021). These works use complex approach to the analysis of sustainable development combining qualitative and quantitative indicators. Cheba & Bąk (2019) emphasize that one of the most common mistakes in sustainable development research is the analysis of a set of characteristics describing this development. Particularly, the problem may lie in the insufficient consideration of sustainable development factors as well as the insufficient correspondence of the selected indicators to the changes occurring in each sustainable development direction. Therefore, the stage of selecting indicators for analysis is very important.

Methodological principles and cases of using taxonomic analysis to improve the management of industries with a significant ecological footprint are well described in studies of transport activities (Czech & Lewczuk, 2016; Gružauskas & Burinskienė, 2022), wind energy (Chudy-Laskowska et al., 2020), innovative business development (Oliinyk et al., 2023) and circular economy in general (Kasztelan, 2020; Oyeranmi & Navickas, 2023). Even though the technique of taxonomic analysis is known, in its application there are still "main questions: (1) what to measure, (2) where to measure, and (3) how to measure" (Fraccascia & Giannoccaro, 2020).

One of the most ubiquitous issues in taxonomic analysis is the selection of a system of indicators suitable for further application and decision-making based on the performed analysis (Law et al., 1998). In the foundry industry, particularly, in aluminium production, the problem is the availability of initial data. At the same time, it is important to have relevant key performance indicators and information on final energy consumption for energy efficiency and greenhouse gas reduction decisions (Haraldsson et al., 2021; Saevarsdottir et al., 2021). And if at the company level this is not a problem, the analysis at the industry level is complicated by the reluctance of companies to disclose their information. However, energy efficiency research is important for the realization of the "2050 net-zero scenario", which is actively supported by scientists (Browning et al., 2023; Dafnomilis et al., 2023; Johnson et al., 2023) in the light of discussions on green deal, sustainable development goals achieving and transition to carbon-neutral society (Mishchuk et al., 2023; Olzhebayeva et al., 2023; Pinczynski et al., 2024; Zhang et al., 2024). Especially it has sense in industries that use critical materials, including aluminium (Liang et al., 2023).

Methods

To analyse the tendencies in aluminium production industry alongside with energy intensity the data of the International Aluminium Institute (IAI) were used (International Aluminium, 2024a) for the available period of 2019 – 2023. Data are analysed using traditional approach of dynamic analysis. The data are grouped according to IAI approach by the regions of world representing aluminium producers.

To find the problems of energy efficiency and sustainable development of aluminium production, we use taxonomic analysis.

Its implementation involves the following stages:

1) formation of a matrix of initial data for the research;

2) standardization of matrix values (the studied indicators);

3) division of the studied indicators into stimulators and de-stimulators;

4) formation of a standard vector for the development of each functional component of the system;

5) determination of the distance between individual variables and the reference vector;

6) calculation of the taxonomic indicator of system development.

A detailed description of the procedures for the above stages is well-described by Czech & Lewczuk (2016), Chudy-Laskowska et al. (2020), Oliinyk et al. (2023).

Standardisation of initial data is carried out according to the formula:

$$z_{ij} = \frac{x_j - x_{ij}}{s_j}, j = 1, 2, \dots, m; \quad (1)$$

where x_{ij} — is an arithmetic mean value of the j-th indicator;

s_j — standard deviation of the j-th indicator;

x_j— value of the j-th indicator for the i-th object.

m — number of indicators.

Grouping of values as stimulators and de-stimulators is the basis for building a developmental etalon - reference point with coordinates:

$$P_0 = (z_{01}, z_{02}, \dots, z_{0m}) \quad (2)$$

where $z_{0s} = \max z_{rs}$, if $s \in I$;

$z_{0s} = \min z_{rs}$, if $s \notin I$; $s = 1, \dots, m$);

I — *set of values;*

z_s — *the standardized value of feature s for object r.*

Construction of the distance (c_{io}) of the value of each indicator to the reference point (P_0)

$$c_{io} = \sqrt{\sum_{j=1}^{m}(Z_{ij} - Z_{oj})^2} \quad (3)$$

The calculated distances are input values used to calculate the indicator of the level of development:

$$d_i^* = 1 - \frac{c_{io}}{c_o} \quad (4)$$

where

$$c_0 = \bar{c_0} + 2 * S_0 \quad (5)$$

$$\bar{c_0} = \frac{1}{w}\sum_{i=1}^{w} c_{i0}; \quad (6)$$

$$S_0 = \sqrt[2]{\frac{1}{w}\sum_{i=1}^{w}(c_{io} - \bar{c_0})}. \quad (7)$$

The set of indicators for the taxonomic analysis was carried out according to the logic of the analysis of sustainable development, with the isolation of the "economic", "ecological", "social" blocks. At the same time, the limitations regarding the availability of statistical data regarding the aluminium industry were considered.

Data on the development of the industry for 2019 - 2022 in the world are retrieved from International Aluminium (2024a, b, c), Aluminium Stewardship Initiative (2024) (Table 1).

Table 1. Initial data for taxonomic analysis of the aluminium industry development

Indicators	Measures	Notation
Economic		
Production volume	thousand tons	X_1
Energy intensity of primary aluminium	kilowatt-hours per ton of aluminium	X_2
Total energy consumption of production	GW-hours	X_3
Labour productivity	tons per mil. of man-hours	X_4
Indicator of the influence of energy intensity on CO_2 emissions	coefficient	X_5
Ecological		
Energy consumption of primary aluminium smelting:	GW-hours	
- hydro	GW-hours	X_6
- other renewables	GW-hours	X_7
- other non-renewable	GW-hours	X_8
- coal	GW-hours	X_9
- oil	GW-hours	X_{10}
- natural gas	GW-hours	X_{11}
- nuclear	GW-hours	X_{12}
Greenhouse gas emissions, aluminium production totally	mil. tons of CO_2	X_{13}
Greenhouse gas emissions intensity, primary aluminium	tons of CO_2 per 1ton of primary aluminium	X_{14}
Social		
Hours Reported Worked	mil. of man-hours	X_{15}
Lost Time Accident Rate (per MHW)	incident/1 million man-hours worked	X_{16}
Restricted Work/Medical Treatment Accident Rate (per MHW)	incident/1 million man-hours worked	X_{17}

Sources: International Aluminium (2024a, b, c), Aluminium Stewardship Initiative (2024).

Results

The production of aluminium has a steady tendency to increase worldwide (Table 2).

As it is seen from the dynamics of aluminium production, there is a stable growth in general and in the most of regions, except for Africa, Russia and Europe (especially Western and Central where the decrease is obtained). Due to the most significant volumes of production China is analysed separately by IAI being excluded from Asia region. The Chinese leadership is obvious in this regard – more than half of the total world production belongs to Chinese producers with the most steadily increasing dynamics comparing to other countries. The total world production increased significantly too – about 7 thousand metric tonnes in 2023 comparing to 2019. Totally 335,693 thousand metric tonnes of aluminium are produced in 2019 - 2023.

Table 2. Production of primary aluminium in 2019 – 2023, thousand metric tonnes of aluminium

Region	2019	2020	2021	2022	2023
Africa	1,643	1,605	1,59	1,62	1,594
North America	3,809	3,976	3,880	3,743	3,897
South America	1,079	1,006	1,163	1,288	1,466
Asia (ex China)	4,395	4,14	4,499	4,591	4,673
Western & Central Europe	3,449	3,334	3,329	2,913	2,713
Russia & Eastern Europe	4,157	4,153	4,139	4,081	4,016
Oceania	1,916	1,912	1,888	1,843	1,884
Gulf Cooperation Council	5,654	5,833	5,889	6,074	6,217
China (Estimated)	35,795	37,337	38,837	40,43	41,666

Unreported to IAI	1,76	2,029	1,878	2,455	2,455
Total	63,657	65,325	67,092	69,038	70,581

Source: International Aluminium (2024a)

The energy intensity dynamics is given in Table 3.

Table 3. Energy intensity of primary aluminium production, in 2019 – 2022, Kilowatt hours 1000 per tonne

Region	2019	2020	2021	2022
Africa	14,527	14,567	14,499	14,463
North America	15,499	15,008	14,634	14,944
South America	15,51	17,169	16,708	15,572
Asia (ex China)	14,9	14,888	14,669	14,739
Europe	15,474	15,499	15,146	15,481
Oceania	14,501	14,515	16,513	15,027
Gulf Cooperation Council	15,126	15,129	16,513	14,833
China	13,531	13,543	13,519	13,448
World	14,255	14,243	14,209	14,103

Source: International Aluminium (2024a)

Analysing the energy intensity indicators of primary aluminium smelting, China is the most energy efficient region. This was achieved thanks to the active development of nuclear energy and alternative energy sources after 2010. In average, there is a slow dynamics of decreasing energy consumption which is achieved due to compliance with the "2050 net-zero scenario". However, the average level remains high enough.

To find possibilities to improve aluminium production in terms of energy efficiency and sustainable development, taxonomic analysis is used.

The initial data selected for analysis are standardized using formula (1). Standardization was carried out considering the maximum values of stimulators (S) and minimum values of destimulators (D) for each functional component of the system (Table 4).

Taxonomic indicators of factors calculated according to formulas (2 - 7) are shown in Table 5.

As we can see from the results, there is confirmed steady increase in the production of primary aluminium (X_1) to meet consumer demand (International Aluminium, 2024a). However, comparing these data with the environmental impact of aluminium production (according to indicators X_6 - X_{14}), the production process is mainly accompanied by an aggravation of the environmental situation, with minor exceptions according to the results of 2022.

Significant negative consequences of the growth of aluminium production are manifested in the increase in energy consumption, especially due to the use of coal and oil. This indicates the need for a more detailed study of possible ways to reduce the negative impact and the implementation of approaches that would contribute to the sustainable development of the industry.

The existing trends are not aligned with SDG7 with its focus on providing reliable and clean energy. The similar inconsistencies exist regarding the sustainable development goals indicated by aluminium producers (European Aluminium, 2019).

Table 4. Initial and standardized values of factors

Initial data					Standardized values						S/D
X	2019	2020	2021	2022	x_{ij}	s_j	2019	2020	2021	2022	
X_1	63657	65325	67092	69038	66278,0	2313,6	-1,13	-0,41	0,35	1,193	S
X_2	14255	14243	14209	14103	14202,5	69,1	0,76	0,59	0,09	-1,44	S
X_3	846345	835273	843222	903980	857205,0	31529,8	-0,34	-0,7	-0,40	1,49	D
X_4	319,88	281,57	333,79	310,98	311,558	22,084	0,38	-1,36	1,01	-0,03	S
X_5	0,0012	0,0012	0,001	0,001	0,001	0,000	1,07	0,50	-0,34	-1,22	D
X_6	221294	250953	263542	310270	261515	37015,5	-1,09	-0,29	0,05	1,32	S
X_7	57003	29076	10882	38039	33750	19182,4	1,21	-0,24	-1,19	0,22	S
X_8	968	1310	1070	142	873	507,66	0,19	0,86	0,39	-1,44	D
X_9	468891	465236	479679	455337	467286	10052,3	0,16	-0,20	1,23	-1,19	D
X_{10}	309	26	37	207	145	137,31	1,20	-0,86	-0,78	0,45	D
X_{11}	90 485	82314	81812	94910	87380	6403,4	0,48	-0,79	-0,87	1,18	D
X_{12}	7395	6358	6202	5075	6258	949,6	1,20	0,11	-0,06	-1,25	S
X_{13}	1131	1133	1127	1112	1126	9,50	0,55	0,76	0,13	-1,45	S
X_{14}	16,8	16,4	15,8	15,1	16	0,74	1,05	0,51	-0,30	-1,25	D
X_{15}	199	232	201	222	213,5	16,13	-0,899	1,15	-0,78	0,53	S
X_{16}	1,3	1	1,3	1,3	1,225	0,15	0,500	-1,50	0,50	0,50	D
X_{17}	2,9	2,2	2,4	2,1	2,4	0,36	1,405	-0,56	0,00	-0,84	D

Source: authors' calculations based on International Aluminium (2024a, b, c), Aluminium Stewardship Initiative (2024).

Table 5. Taxonomic indicators

Values	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}	X_{16}	X_{17}
Reference value	2,95	2,30	2,22	2,66	2,99	3,15	2,98	3,36	2,94	2,45	2,45	2,96	2,31	3,04	2,87	3,46	2,42
Distance to the reference point	0,82	0,64	0,62	0,74	0,83	0,88	0,83	0,93	0,82	0,68	0,68	0,82	0,64	0,85	0,80	0,96	0,67
Taxonomic indicator	*0,18*	*0,36*	*0,38*	*0,26*	*0,17*	*0,12*	*0,17*	*0,07*	*0,18*	*0,32*	*0,32*	*0,18*	*0,36*	*0,15*	*0,20*	*0,04*	*0,33*

Source: authors' calculations

Information on the energy intensity of processes at mining and foundry enterprises is critically important for determining energy efficiency indices used in taxonomic analysis. A positive thing is that there is a slight decrease in energy intensity in the production of primary aluminium. This indicates a gradual increase in energy efficiency and, as a result, a positive impact on both the environmental and economic sustainability of enterprises. The transition to energy sources with lower carbon emissions, such as natural gas, renewable energy sources or electricity with low CO_2 emissions, is especially relevant.

Our research, based on taxonomic analysis, confirms that hydropower and nuclear power have the greatest potential for sustainable development of the aluminium industry. They positively differ in low taxonomic indicators and surpass coal in terms of environmental characteristics.

The analysis of taxonomic indicators revealed that the smallest deviation from the reference value is observed for indicators X_{10} (0.68), X_{11} (0.32) and X_{17} (0.67), which indicates their high compliance with the standard. At the same time, the largest deviation was recorded for indicators X_{16} (0.96) and X_8 (0.93), which indicates the need for further improvements in these areas. However, it is advisable to draw generalized conclusions based on taxonomic indicators.

The taxonomic indicator is an integrated assessment that reflects the level of closeness to reference values. The greater the value of the indicator, the closer it is to the ideal. For example, X_{16} (0.04) and X_8 (0.07) show a significant deviation, indicating the need for further improvements. On the contrary, indicators X_2 (0.36), X_3 (0.38) and X_{13} (0.36) show better results compared to others.

Low taxonomic indicators indicate the presence of problems in this field, which requires a more detailed analysis of each individual criterion. This will allow a deeper understanding of the main challenges and identify priority directions for further development and improvement.

Conclusions

At the current stage, the aluminium industry plays a key role in meeting production needs that cannot currently be replaced by alternative technologies. At the same time, its further development should be based on the principles of sustainable management, which considers the economic, environmental and social components of efficiency. Our study, based on available statistical data, demonstrated the effectiveness of taxonomic analysis as a method of identifying problematic aspects in the development of aluminium production, particularly, in aspect of energy efficiency.

However, not only energy consumption and ecological factors are important. Social factors such as the risk of occupational injuries have a significant impact on industry and cannot be ignored. Occupational safety is an important element of the social responsibility of enterprises, therefore compliance with occupational health and safety rules should become a priority task. For the sustainable development of the foundry industry, it is necessary not only to improve technical processes, but also to maintain labour and environmental ethics of employees.

The obtained results emphasize the analytical value of applying the taxonomic approach to managing the sustainable development of the industry. This method allows not only to identify key problems, but also to create a basis for developing a strategy to eliminate the identified shortcomings. Among the priority measures of the sustainable development policy, it is worth highlighting the improvement of the energy efficiency of enterprises, the reduction of injuries at work, the transition to energy sources with zero emissions (or close to zero) and the introduction of innovative technologies that correspond to the concept of sustainable development. These steps will contribute to reducing the environmental burden and increasing the competitiveness of the industry.

Overall, our research confirms that an integrated approach to energy efficiency analysis, considering the environmental and social aspects of production, is essential to ensure the long-term sustainability of the aluminium industry. Further research in this direction will allow for the development of more accurate tools for assessing and managing environmental and social challenges, which will contribute to the harmonious development of the industry.

References

Aluminium Stewardship Initiative. (2024). Sustainability priorities. Retrieved July 16, 2024, from https://aluminium-stewardship.org/why-aluminium/responsible-aluminium-asi-role/

Browning, M., McFarland, J., Bistline, J., Boyd, G., Muratori, M., Binsted, M., ... & Weyant, J. (2023). Net-zero CO2 by 2050 scenarios for the United States in the energy modeling forum 37 study. *Energy and Climate Change*, *4*, 100104.

Brundtland, G. (1987). Report of World Commission on Environment and Development: Our Common Future. Chapter 7: Energy: Choices for Environment and Development. Oxford, New York.

Cheba, K., & Bąk, ID (2019). The Application of Multi-Criteria Taxonomy to Comparative Analysis of Structures of Sustainable Development. *Acta Universitatis Lodziensis. Folia Oeconomica*, *5*(344), 29-48. DOI 10.18778/0208-6018.344.03

Chudy-Laskowska, K., Pisula, T., Liana, M., & Vasa, L. (2020). Taxonomic analysis of the diversity in the level of wind energy development in European Union countries. *Energies*, *13*(17), 4371. https://doi.org/10.3390/en13174371

Czech, A., & Lewczuk, J. (2016). Taxonomic and econometric analysis of road transport development in Poland–the voivodship approach. *Engineering Management in Production and Services*, *8* (3), 79-88. DOI: 10.1515/emj-2016-0026

Dafnomilis, I., den Elzen, M., & van Vuuren, DP (2023). Achieving net-zero emissions targets: An analysis of long-term scenarios using an integrated assessment model. *Annals of the New York Academy of Sciences*, *1522* (1), 98-108.

Debbarma, J., & Choi, Y. (2022). A taxonomy of green governance: A qualitative and quantitative analysis towards sustainable development. *Sustainable Cities and Society*, *79*, 103693. https://doi.org/10.1016/j.scs.2022.103693

Elkington, J. (1994). Towards the sustainable corporation: Win-win-win business strategies for sustainable development. *California management review*, *36* (2), 90-100.

European Aluminium. (2019). European Aluminium and the Sustainable Development Goals. Connecting the Sustainability Roadmap 2025 to the UN Sustainable Development Goals. Retrieved July 28, 2024, from https://european-aluminium.eu/wp-content/uploads/2022/10/european-aluminium_connecting-the-sustainability-roadmap-2025-to-the-sdgs-_december_2018_final.pdf

Fraccascia, L., & Giannoccaro, I. (2020). What, where, and how measuring industrial symbiosis: A reasoned taxonomy of relevant indicators. Resources, conservation and recycling, 157, 104799. https://doi.org/10.1016/j.resconrec.2020.104799

Gružauskas, V., & Burinskienė, A. (2022). The development of sustainable transportation for e-grocery. *Management/Vadyba (16487974)*, *38* (1), 69–74.

Haraldsson, J., Johnsson, S., Thollander, P., & Wallén, M. (2021). Taxonomy, saving potentials and key performance indicators for energy end-use and greenhouse gas emissions in the aluminum industry and aluminum casting foundries. *Energies*, *14* (12), 3571. https://doi.org/10.3390/en14123571

International Aluminium. (2024a). International Aluminium. Statistics. Primary Aluminium Production. Retrieved August 2, 2024, from https://international-aluminium.org/statistics/primary-aluminium-production

International Aluminium. (2024b). Statistics. Primary Aluminium Smelting Power Consumption. Retrieved August 2, 2024, from https://international-aluminium.org/statistics/primary-aluminium-production

International Aluminium. (2024c). Aluminium's Contribution to the UN Sustainable Development Goals. Retrieved July 15, 2024, from https://international-aluminium.org/resource/aluminiums-contribution-to-the-un-sustainable-development-goals/

Jackson T. (2016). Prosperity without Growth: Foundations for the Economy of Tomorrow. Abingdon: Routledge, P. 350.

Jędrzejczak-Gas, J., Barska, A., & Wyrwa, J. (2021). Economic development of the European Union in the relation of sustainable development—Taxonomic analysis. *Energies*, *14*(22), 7488. https://doi.org/10.3390/en14227488

Johnson, E., Betts-Davies, S., & Barrett, J. (2023). Comparative analysis of UK net-zero scenarios: The role of energy demand reduction. *Energy Policy*, *179* , 113620.

Kasztelan, A. (2020). How circular are the European economies? A taxonomic analysis based on the INEC (Index of National Economies' Circularity). *Sustainability*, *12*(18), 7613. https://doi.org/10.3390/su12187613

Kontautienė, R., Stravinskas, T., & Barkauskas, V. (2024). Forecasts of sustainable consumption in small economies. *Journal of International Studies, 17*(2), 9-37. doi:10.14254/2071-8330.2024/17-2/1

Law, K. S., Wong, C. S., & Mobley, W. M. (1998). Toward a taxonomy of multidimensional constructs. Academy of management review, 23(4), 741-755.

Liang, Y., Kleijn, R., & Van der Voet, E. (2023). Increase in demand for critical materials under IEA Net-Zero emission by 2050 scenario. *Applied Energy*, *346*, 121400.

Mishchuk, H., Czarkowski, J. J., Neverkovets, A., & Lukács, E. (2023). Ensuring Sustainable Development in Light of Pandemic "New Normal" Influence. *Sustainability*, *15*(18),13979. https://doi.org/10.3390/su151813979

Mukhtarov, S., Aliyev, J., Borowski, P.F., & Disli, M. (2023). Institutional quality and renewable energy transition: Empirical evidence from Poland. *Journal of International Studies, 16*(3), 208-218. doi:10.14254/2071-8330.2023/16-3/12

Ojaghlou, M., & Uğurlu, E. (2023). Urbanization and climate change: Environmental Kuznets Curve (EKC) and STIRPAT analysis for Turkey. *Economics and Sociology, 16*(1), 259-270. doi:10.14254/2071-789X.2023/16-1/16

Olzhebayeva, G., Buldybayev T., Pavalkis D., Kireyeva, A., & Micekiene, A. (2023). Is there interest in green deal research in Central Asia?. *Economics and Sociology*, *16*(3), 302-322. doi:10.14254/2071-789X.2023/16-3/16

Oyeranmi, S. G., & Navickas, V. (2023). The Circular Economy Transition in the European Union. *Management/Vadyba (16487974)*, *39*(2), 97–103.

Oliinyk, O., Mishchuk, H., Vasa, L., & Kozma, K. (2023). Social Responsibility: Opportunities for Integral Assessment and Analysis of Connections with Business Innovation. *Sustainability*, *15* (6), 5608. https://doi.org/10.3390/su15065608

Pinczynski, M., Kasperowicz, R., Azzopardi, B., Bilan, Y., & Štreimikienė, D. (2024). Malta's low carbon transition towards sustainability. *Sustainable Development*, *32*(5), 5120-5128. https://doi.org/10.1002/sd.2967

Prashar, A. (2019). Towards sustainable development in industrial small and Medium-sized Enterprises: An energy sustainability approach. Journal of Cleaner Production, 235, 977-996. https://doi.org/10.1016/j.jclepro.2019.07.045

Sachs, J. (2015). The Age of Sustainable Development. Columbia University Press, 544 p.

Saevarsdottir, G., Magnusson, T., & Kvande, H. (2021). Reducing the carbon footprint: primary production of aluminum and silicon with changing energy systems. *Journal of Sustainable Metallurgy*, *7* (3), 848-857.

WEF (2023). Net-Zero Industry Tracker. Retrieved August 1, 2024, from https://www.weforum.org/publications/net-zero-industry-tracker-2023/in-full/aluminium-industry-net-zero-tracker/

Zhang, Z., Karimi, MS, Weerasinghe, NM, Bilan, Y., & Shahzad, U. (2024). Interplay between economic progress, carbon emissions and energy prices on green energy adoption: Evidence from USA and Germany in context of sustainability. *Renewable Energy , 232*, 121038. https://doi.org/10.1016/j.renene.2024.121038

RECEIVED: 20 February 2024 ACCEPTED: 07 May 2024 PUBLISHED: 29 October 2024

Halyna Mishchuk, ScD., Professor, Head of Labour Resources and Entrepreneurship Department, National University of Water and Environmental Engineering (Ukraine). Field of scientific research: business development, competitiveness, employment, sustainability. Address: Soborna str. 11, 33028 Rivne, Ukraine, E-mail: h.y.mischuk@nuwm.edu.ua ORCID: 0000-0003-4520-3189

Viktor Tryhuba, Post-graduate Student, Institute of Economics and Management, National University of Water and Environmental Engineering (Ukraine). Field of scientific research: foundry industry, business development, competitiveness, ESG, sustainable development. Address: Soborna str. 11, 33028 Rivne, Ukraine, E-mail: v.y.tryhuba@nuwm.edu.ua ORCID: 0009-0001-2568-976X

https://doi.org/10.38104/vadyba.2024.2.06

Vadyba
Journal of Management
2024, № 2 (40)
ISSN 1648-7974

FACTORS OF THE ADAPTATION AND CHANGE SKILLS OF HUNGARIAN MICRO AND SMALL ENTERPRISES

János Bujáki[1], Szergej Vinogradov[2]
[1]Hungarian University of Agriculture and Life Sciences, [2]Budapest Metropolitan University

Abstract
Micro and small enterprises (MSEs) are essential contributors to the global economy, playing a key role in gross domestic product, private sector employment, and the external trade balance. Despite their significance, they have historically been under-researched, particularly in the context of innovation, where much of the focus tends to be on larger corporations. The innovation of MSEs is critical for their long-term competitiveness and sustainability, yet many studies fail to explore the specific factors that drive this innovativeness within these smaller firms. The objective of this research was to address this gap by conducting a comprehensive investigation into the factors that influence the adaptability and change capabilities of MSEs, both of which are crucial for fostering innovation. A bibliometric analysis, spanning nearly fifty years of academic literature, was undertaken to identify the key factors that impact the innovativeness of MSEs. This analysis led to the identification of ten significant factors, among which dynamic capabilities—defined as a firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments—stood out as the most prominent. Dynamic capabilities allow firms to not only respond to change but to anticipate and shape future trends, positioning them as key drivers of innovation within MSEs. In addition to the literature review, an empirical study was conducted using data from 207 Hungarian entrepreneurs. The statistical analysis of this data revealed a verifiable relationship between several of the identified factors and the innovativeness of these enterprises. Specifically, creativity, workplace autonomy, and dynamic capabilities were found to significantly influence both employee support for innovation and openness to innovative ideas. This suggests that fostering a work environment that encourages creativity and provides employees with a high degree of autonomy can enhance innovation within MSEs. In contrast, the factors of proactiveness and competitive aggressiveness did not demonstrate a conclusive relationship with either employee support for innovation or openness to innovation in the areas examined. The research also found that while some factors aligned with initial expectations, others only partially supported the original hypotheses. For instance, while dynamic capabilities, creativity, and autonomy were strongly linked to innovativeness, other factors such as organizational culture and leadership style had a more complex or indirect relationship with innovation outcomes. Overall, the results of this study are largely consistent with the international literature on the subject, particularly in emphasizing the pivotal role of dynamic capabilities in driving innovation within MSEs. These findings provide important insights for both researchers and practitioners, highlighting the importance of creating an organizational environment that nurtures creativity, grants employees autonomy, and strengthens dynamic capabilities. By focusing on these areas, MSEs can better position themselves to innovate and remain competitive in an increasingly dynamic and complex business landscape. This research contributes to the ongoing dialogue on innovation in small enterprises and underscores the importance of tailoring strategies to enhance the specific strengths of MSEs.
KEYWORDS: dynamic capabilities, innovativeness, small business, creativity, bibliometric analysis.
JEL classification: O10, O30, O31, O40, O47, O50

Introduction

In today's modern national economies, micro, small and medium-sized enterprises account for more than 99% of all profit-making economic actors (Edwards et al., 2005). Employers of 72% of non-public sector workers account for 55% of both gross value added and companies' sales revenue, making them a key driver of economies (Ajaz Khan et al., 2019; Michaelidou et al., 2011; Ortega-Argilés et al., 2014; Phuangrod et al., 2017; Skowron-Grabowska, 2023). According to Mamun et al. (2017), small businesses are now of crucial economic importance in all countries and their contribution to economic development through their employment base and the public revenues they generate is essential. This is no different in Hungary: based on the definition currently used in Hungary, micro, small and medium-sized enterprises together account for 99.9% of all Hungarian enterprises (NGM, 2023). The players in the three size categories are now very similar to the distribution of companies in the Member States that joined the European Union together with us in 2004 by size category (Hustiné, 2012; NGM, 2023). Following the political, social and economic changes that began in 1989, the number, national economic importance and employment base of small businesses in Hungary increased (Szerb & Ulbert, 2002), however, taking into account all domestic enterprises, each employer employs less than five people on average, and their innovation activity continues to lag behind that of large companies (NGM, 2023).

The contribution of small businesses to economic growth and development, public revenues, employment, reducing poverty and inequalities, and promoting trade and investment between countries is widely proven in the literature (Ayyaghari et al., 2011; Henderson & Weiler, 2010; Mamun et al., 2018; Skowron-Grabowska, 2023; Zacca et al., 2015).

In their research, Oliveira et al. (2017) come to a similar conclusion: the importance of the role of micro, small and medium-sized enterprises in economic growth is already well established in the literature, but he adds that many questions about their innovation are still unclear. This is due, among other things, to the fact that the European Union's investigations do not cover micro-enterprises, so our knowledge of the smallest economic operators is lacking in several respects (den Hertog et al., 2010; Matejun, 2016; Raghuvanshi et al., 2019). However, since the 1980s, the impact of micro-enterprises on the expansion of national economies has become crucial (Anlesinya et al., 2015; Boyer & Blazy, 2014), as they have become key players in economic growth due to their physical, human and knowledge

capital and related innovative capacity, therefore a better understanding of the factors behind their prosperity and innovation has broad economic and legislative relevance (Eggers et al., 2013).

Research gap

For a business to be innovative, it must recognize the factors that contribute to its innovativeness, so it is inevitable to comprehensively identify the factors influencing its level of innovativeness (Makri et al., 2017). The vast majority of innovation research focuses on its antecedents, the conditions and processes enabling innovation, and the impact of innovation on organisational performance, but the impact of several areas on innovation and their relationship often remain unclear (Fu et al., 2015). According to the research findings of den Hertog et al. (2010) innovation is not yet sufficiently understood in a less technologically advanced environment, i.e. in the micro and small-sized enterprise sector. Verhees & Meulenberg (2004) and Raghuvanshi et al. (2019) stress that the international literature on innovation and innovativeness research is predominantly based on large companies and high-tech companies, and that only a limited number of studies examine innovation and innovativeness among small companies (Drucker, 2002; Ettlie & Rosenthal, 2011; Hyvärinen, 1990; Jaworski et al., 2000; Slater & Narver, 1998). In her research, Csath (2022) found that the performance of Hungarian small enterprises in the innovation ranking exceeds that of large companies, the main reason for which lies in the ownership of a significant part of large companies of foreign origin, which, however, are less innovative in Hungary than the innovativeness demonstrated in their 'mother country'. However, the research (Csath, 2022) does not cover the innovativeness of micro-enterprises. Furthermore, the results of research on innovation and innovativeness in large companies are difficult to use and generalise in the case of small companies (Dooley et al., 2017; Taghizadeh et al., 2018; Verhees & Meulenberg, 2004; Zawislak et al., 2018), as innovation in small and large companies is fundamentally different (Acs & Audretsch, 1988; Audretsch, 2001; Tether, 1998). Most empirical research on innovation determinants has been conducted in industrialized countries, but many researchers agree that the results of innovation reports in these countries cannot explain the innovative behaviour of enterprises in countries with less developed technological bases (Souitaris, 2002).

Literature review

The starting point for our literature review was a search in the Web of Science (WoS) Core Collection database. Based on the different spelling of 'organisational' and 'organizational' in British and American English, we searched for two terms: 'organisational innov*' and 'organizational innov*' – using an asterisk (*) allows one to search for 'innovation' and 'innovativeness' at the same time. The WoS Core Collection contained a total of 3,016 scientific papers between 1975 and 2022, of which 983 were Open Access publications. The number of publications on organisational innovation and organisational innovation gradually increased over the period under review, peaking in 2017 (313 publications) (Fig. 1).

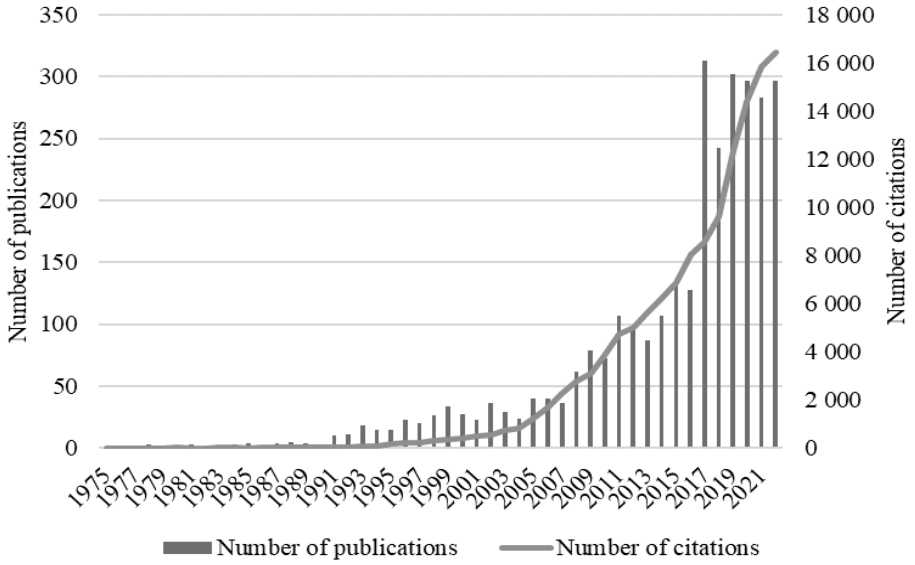

Fig. 1. Trends in the number of publications and citations on organizational innovation from 1975 to 2022

Source: Authors' analysis based on Web of Science Core Collection (n= 3 016)

The map visualizes journals in the field of organizational innovation, grouped by citation relationships. Each circle represents a journal, with its size indicating the number of citations, and the connecting lines show the strength of citation relationships between journals (thicker lines indicate stronger connections). The journals are clustered by common citations, with each cluster assigned a unique color by VOSviewer (Vnukova et al., 2024). These clusters highlight different thematic areas within organizational innovation, suggesting which journals are most interconnected and influential within the field based on citation patterns.

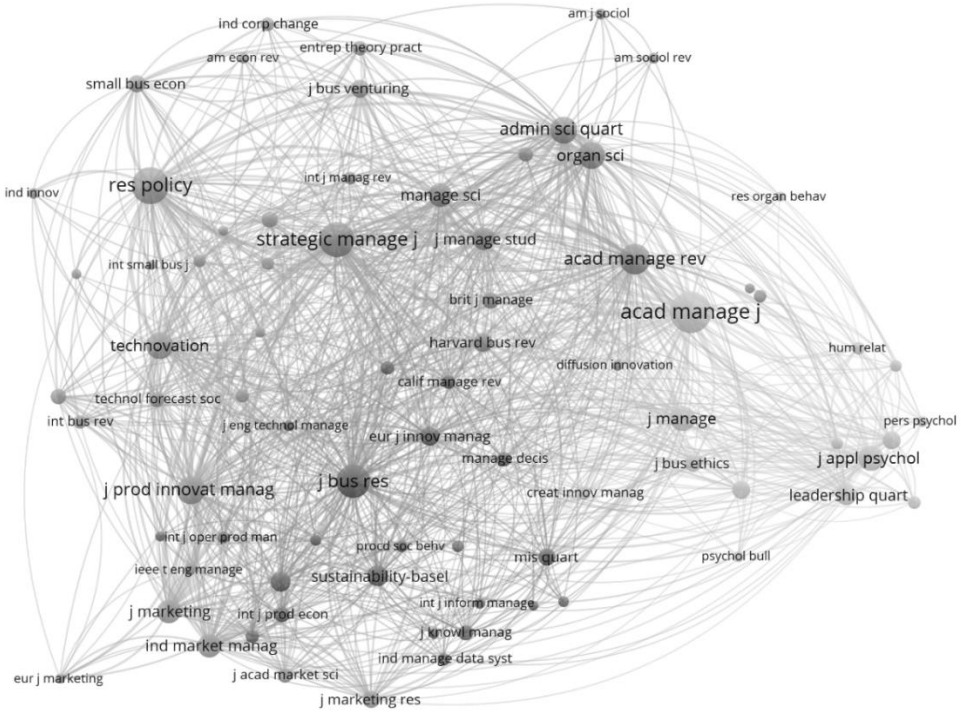

Fig. 2. Journal network of Open Access publications on organizational innovativeness
Source: Authors' analysis based on Web of Science Core Collection (n=983)

The network of keywords (Fig. 3) visualizes the keywords occurring in at least 30 publications on a common map. Thickness of the lines connecting the keywords indicates the frequency of co-occurrence. There are four clusters on the map, the keywords defining which clusters are as follows: (1) organizational innovation, red cluster, (2) performance and innovation, blue cluster, (3) knowledge, research & development, green cluster and (4) product innovation, yellow cluster.

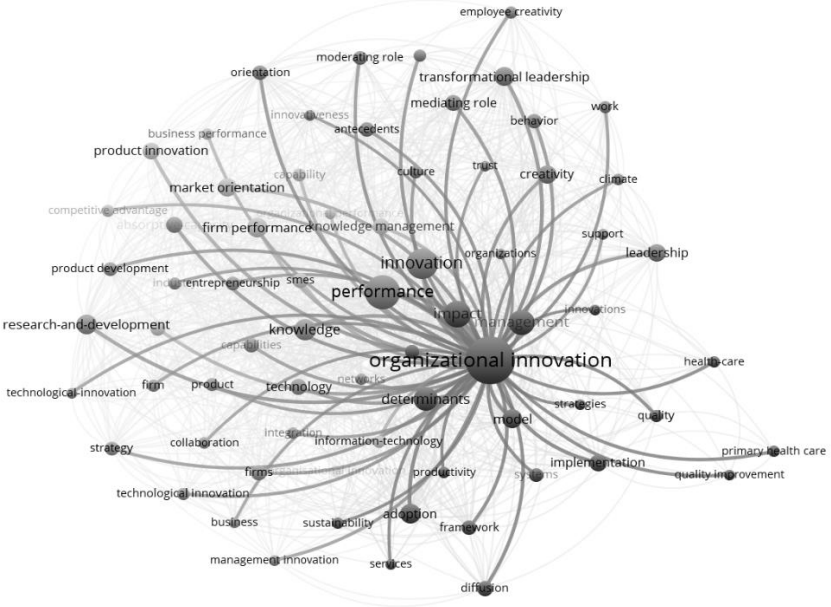

Fig. 3. Journal network of keywords of Open Access publications on organizational innovativeness
Source: Authors' analysis based on Web of Science Core Collection (n=983)

In our review of the WoS Open Access database, we examined 100 studies to see which factors researchers most often associate with innovation and innovativeness. During the study, other (or earlier) literature not included in the publications of WoS Open Access, but cited by literature with outstanding references, was also taken into account. The ten most common factors thus produced in proportion to their occurrence are shown in Fig. 4.

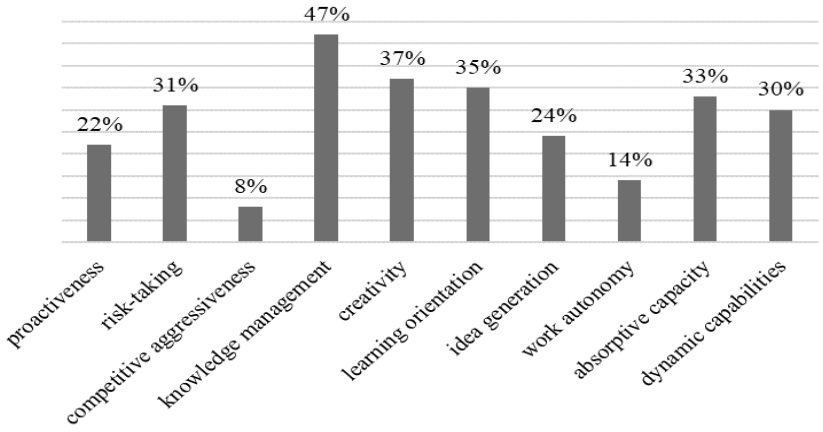

Fig. 4. Ten most common elements of adaptability and change capabilities of innovativeness based on literature research
Source: Authors' analysis based on Web of Science Core Collection (n=983)

Taking into account the factors identified during the literature search, the following hypotheses were formulated.

Proactiveness

Proactiveness and competitive aggressiveness embody qualities of entrepreneurship that drive entrepreneurs to act in favor of various innovations (Hult et al., 2004). Proactiveness helps you adapt to a changing environment by continuously monitoring it (C. L. Wang, 2008). According to the results of another research (Ejdys, 2016), proactiveness has a significantly positive effect on the development of innovativeness. Phuangrod et al. (2017) and Hamdan & Alheet (2020) found that proactiveness plays the most important role among the factors influencing the innovativeness of small businesses.

H1: Entrepreneurial proactiveness has a positive impact on employee innovation support (H1a) and openness to innovation (H1b).

Risk-taking

The most important elements of openness to innovation are risk appetite and creativity (Siguaw et al., 2006). Risk-taking is one of the most significant factors influencing the innovation of companies (Phuangrod et al., 2017; Smith et al., 2008). The innovativeness associated with entrepreneurship necessarily goes hand in hand with some degree of tolerance for risk (Covin & Slevin, 1991; Rhee et al., 2010; C. L. Wang, 2008). Risk-taking has been proven to be positively linked to (incremental) innovations implemented within the enterprise (Ejdys, 2016).

H2: The risk appetite of enterprises has a positive impact on employee innovation support (H2a) and openness to innovation (H2b).

Competitive aggressiveness

Proactiveness and competitive aggressiveness embody qualities of entrepreneurship that drive entrepreneurs to act in favor of various innovations (Hult et al., 2004). Stronger competitive aggressiveness is associated with a higher degree of innovation, which leads to higher company performance (Zacca et al., 2015). The ability of companies to create value is related to innovation and the competitive behavior of companies in an aggressive way (Hughes-Morgan et al., 2018). In their research, Panjaitan et al. (2021) demonstrated a significant relationship between innovativeness and competitive aggressiveness. Competitive aggressiveness is also a dominant factor within entrepreneurial attitudes and plays a significant role in bringing innovative products and services to the market by businesses (Paulus & Hermanto, 2022).

H3: Competitive aggressiveness positively influences employee innovation support (H3a) and openness to innovation (H3b).

Knowledge management

A common finding of several studies on identifying factors influencing the innovativeness of enterprises is that sharing knowledge has a positive effect on innovativeness (Al Mamun et al., 2016; Lin, 2007; Wang & Wang, 2012). Knowledge management is an important prerequisite for the ability to innovate (Ode & Ayavoo, 2020). Due to the impact of knowledge on competitive advantage, knowledge management is one of the most important areas of innovation (Rajapathirana & Hui, 2018). Knowledge management plays an essential role in sustainable innovations: if innovation is seen as a system or process, knowledge management acts as input (Abbas et al., 2020).

H4: Knowledge management has a positive impact on employee innovation support (H4a) and openness to innovation (H4b).

Creativity

Innovativeness very often means creativity, that is, the ability to create innovations (Hyvärinen, 1990). Innovation in the life of a company is nothing more than applied creativity (Khandwalla, 2006). The most important elements of openness to innovation are creativity and willingness to take risks (Siguaw et al., 2006). Creativity is linked to the first step in the innovation process, idea generation (Hülsheger et al., 2009; Zhou & Hoever, 2014). In an ever-changing environment, innovation and creativity play a particularly important role in businesses' business (Riivari & Lämsä, 2014). Innovation and organizational renewal very often arise from creative ideas (Ritala et al., 2020).

H5: Creativity has a positive impact on employee innovation support (H5a) and openness to innovation (H5b).

Learning attitude

Studies show that learning is an essential prerequisite for businesses' ability to innovate (Najafi-Tavani et al.,

2018). Innovation is closely linked to learning (Calantone et al., 2002; Smith et al., 2008), and learning attitudes have a significant influence on the innovation of an organization (García-Morales et al., 2012). Continuous learning supports the innovativeness of organizations (Riivari & Lämsä, 2014). An organization's ability to learn and its openness to learning is linked to the source of its innovation (Holtgrave et al., 2019). According to Abbas et al. (2020), there is evidence that organisations' capacity to learn and innovate are linked.

H6: Learning attitudes positively influence employee innovation support (H6a) and openness to innovation (H6b).

Idea generation

One of the factors influencing innovativeness is the ability to generate ideas (Smith et al., 2008). Innovation consists of two steps: generating new ideas and implementing them (Hülsheger et al., 2009). The competitive advantage of businesses requires innovation and new ideas (Holtgrave et al., 2019; Riivari & Lämsä, 2014).

H7: Idea generation has a positive impact on employee innovation (H7a) and openness to innovation (H7b).

Autonomy at work

Autonomy at work is necessary for the success of the company (Lumpkin & Dess, 1996). Studies show that job autonomy for workers has a positive impact on innovative behaviour in businesses (Ohly et al., 2006; Riivari & Lämsä, 2014). Autonomy at work is not only a prerequisite for a creative work environment (Nussbaum et al., 2021), but also makes workers more efficient and motivated to work and more willing to initiate innovative activities due to their own control over their work (Jankelová, 2022).

H8: Autonomy at work has a positive impact on supporting employee innovation (H8a) and openness to innovation (H8b).

Absorption capacity

The absorption capacity of enterprises is essential to support innovation (Müller et al., 2021). Absorption capacity is an essential element for the innovativeness of enterprises (Al Mamun et al., 2016). External information needed for innovation can be identified, absorbed and exploited by enterprises using their absorption capacity (Martínez-Román & Romero, 2017).

H9: Absorption capacity has a positive impact on employee innovation support (H9a) and openness to innovation (H9b).

Dynamic capabilities

To survive and prosper in changing circumstances, businesses need to develop dynamic capabilities that enable them to maintain competitive advantages (Mikalef & Pateli, 2017). Businesses with more efficient dynamic capabilities have a competitive advantage over their competitors with weaker dynamic capabilities (Eisenhardt & Martin, 2000). Dynamic capabilities are rooted in the process of product innovation (Benner & Tushman, 2003). Highly competitive businesses can use their dynamic capabilities to deliver product and process innovations (Wilden et al., 2013). Dynamic abilities play an important role in changing the competitive situation (Vu, 2020). Examining the correlation of dynamic capabilities with other dimensions may reveal why some companies are able to build competitive advantages for themselves in volatile market environments while others are unable to do so (Giniuniene & Jurksiene, 2015).

H10: Dynamic skills positively influence employee innovation support (H10a) and openness to innovation (H10b).

Supporting employee innovation

Employee innovation begins when employees formulate suggestions to improve the company's products, practices, and processes (Oldham & Da Silva, 2015). Workers who formulate suggestions and improvements in their workplace are among the most important resources of a business (Harrell-Cook et al., 2001). Employee innovation encompasses all behaviors aimed at creating, implementing and applying new ideas, processes, products and practices, whether for a single job, a group or an entire organization (De Spiegelaere et al., 2016). Employee innovativeness is therefore nothing more than the employee's behavior that directly or indirectly contributes to the creation and introduction of innovations (De Spiegelaere et al., 2014). Innovation in a business cannot happen without the active involvement and support of workers (Swaroop & Dixit, 2018).

H11: Fostering employee innovation positively influences openness to innovation.

Our research hypotheses were plotted on the theoretical model (Fig. 5).

Data and Method

Data

The constructions required for quantitative research were selected, translated and used from the international literature during the bibliometric analysis described in the chapter of the Literature Review with a planned sample size of at least 200 elements. In order to reach the target group as widely as possible, we chose the online questionnaire (Makri et al., 2017; Najafi-Tavani et al., 2018). The target population of the research was the owners and managers of Hungarian businesses. Data collection ran from June 12, 2023 to November 25, 2023. We did not want to delimit the circle of entrepreneurs surveyed either by geographical location, activity or any other criterion in order to obtain a heterogeneous sample covering the whole country, with the largest possible number of elements. To measure the adaptation and change capabilities of Hungarian enterprises, I used five-degree Likert scale statements (Seo et al., 2014; Soto-Acosta et al., 2015; Vanhala & Ritala, 2016). The lowest value on the scale, 1, corresponded to complete disagreement, and the highest, 5, corresponded to complete agreement with the statement. The questionnaire contained 67 mandatory statements (60) and questions (7). To measure all dimensions, we used the post-peer review Hungarian translation of the statement used for our own primary research of a study published in international journals. The questionnaire consisted of three main sets of questions: (1) input dimensions (statements 1 to 45), (2) output dimensions (statements 46 to 60) and (3) Sociodemographic section (questions 61 to 67).

Main characteristics of the sample

By the end of November 2023, the database contained a total of 523 questionnaires started, of which 207 responded fully to all 67 mandatory questions by the

head of a micro-enterprise or small enterprise, corresponding to an effective response rate of 40.35%. In the international literature, the ratio of 40.35% is considered good, so the research can be carried out on the obtained sample (Azar & Ciabuschi, 2017; Gölgeci & Ponomarov, 2015; Seo et al., 2014; Vanhala & Ritala, 2016).

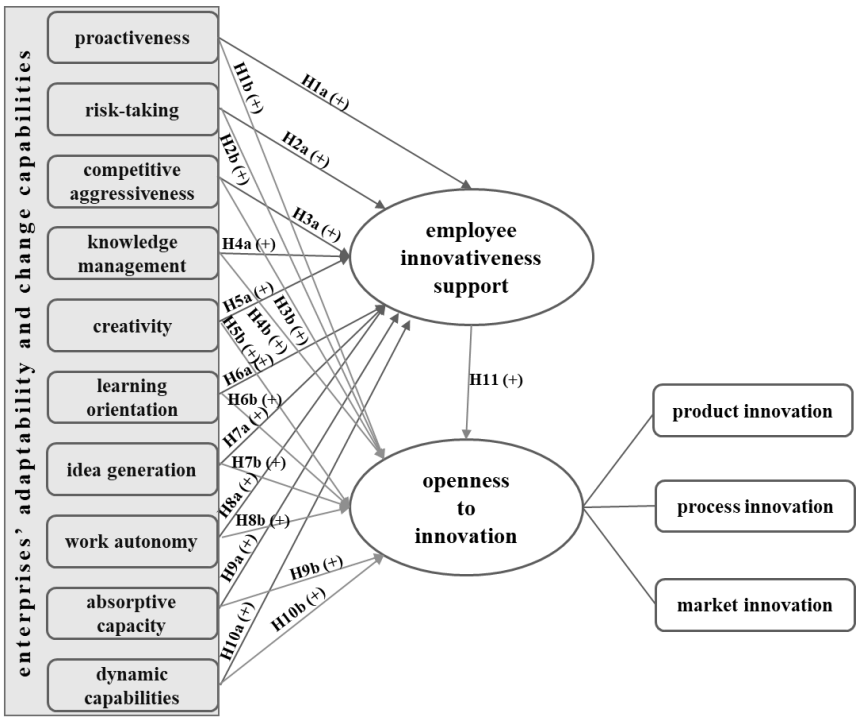

Fig. 5. Representation of research hypotheses
Source: Authors' research and edit

Method

At the next stage of research, the validity of the theoretical model of research was checked. The reliability of latent constructs measuring research dimensions was investigated by Confirmatory Factor Analysis (CFA) as part of Structural Equation Modeling (SEM) (Byrne, 2010). The reliability of latent structures was checked on the basis of the Cronbach's alpha indicator, a value above 0.7 indicated a satisfactory internal consistency of latent constructions (Cortina, 1993; Tavakol & Dennick, 2011).

Average variant extracted (AVE) and composite reliability (CR) were used to test the validity of latent constructs. The value of AVE indicates the average proportion of variances of statements that make up a given latent construct is concentrated in that artificial variable. A value of this indicator higher than 0.5 is considered acceptable(Baumgartner & Homburg, 1996; Hair et al., 2010). The CR indicator expresses the common variance ratio of the statements that make up each latent construct, and all latent variables in the model must reach 0.7 (Fornell & Larcker, 1981; Hair et al., 2010). If the AVE value does not reach the threshold value of 0.5, but the CR value exceeds 0.7, the reliability of latent structures is considered acceptable (Fornell & Larcker, 1981; Lam, 2012). For the fit indicators of the structural model, the following acceptance ranges were used. The absolute fit $\chi 2/df$ is usually below 3, although some experts believe that a value below 5 may be acceptable depending on the complexity of the model (Byrne, 2010). For the Root Mean Square Error of Approximation (RMSEA), acceptable value is usually below 0.08 (Hu & Bentler, 1999). Comparative Fit Index (CFI) and TLI (Tucker-Lewis Index) values of 0.9 were accepted (Hair et al., 2010). IBM SPSS Statistics 27.0 and AMOS 23.0 were used to run the scans.

Findings

The first step in processing the data was the validation of the statements (constructs) used in the questionnaire, which can be viewed in a summary table below (Table 1). Due to the low value of Cronbach's alpha (<0.70), the dimensions of knowledge management and idea generation were not included in the final model. Due to the low factor weight (<0.50), claims DYN-1, DYN-6, MRKT-2, MRKT-4 and PRDCT-3 were excluded.

The results of structural equation modeling

Basic fit indicators were used to assess the fit of the structural model (Table 3), including $\chi 2/df$, GFI, CFI, TLI and RMSEA. Based on the calculations, $\chi 2/df$ is 3.728, which is below the threshold of five (Hu & Bentler, 1999). The GFI, CFI and TLI values for the structural model were 0.904, 0.916 and 0.906, respectively, all within the acceptable range (Hair et al., 2014; Hu & Bentler, 1999). RMSEA's values were also found to be reliable as they were lower than the 0.08 threshold applied. All these fit indicators confirmed that the model fit is (Table 3).

Table 3. Structural model fit indicators

Fit indicators	X2/DF	p-value	GFI	CFI	TLI	RMSEA
Acceptance values for indicators	≤5	≤ 0.05	≥0,90	≥0,90	>0,90	≤ 0.08
Structural model	3,728	<0,001	0,904	0,916	0,906	0,079

Source: Authors' research and edit

Contrary to our preliminary assumption based on the theoretical model, the effect of proactiveness in supporting employee innovation (p=0.489) and openness to innovation (p=0.069) cannot be verified based on the results of the H1 hypothesis analysis, so hypothesis H1 has been rejected, which may have several reasons. Proactive businesses often seek to anticipate potential problems and, for example, business opportunities, that require quick solutions or reactions from the organization, but this does not necessarily involve an innovative approach, which requires a longer-term approach and a strategic way forward (Taylor et al., 2019).

The link between companies' willingness to take risks and their innovativeness cannot always be demonstrated, because although innovation often involves risks, not all risk-taking companies will also be innovative, just as risk-taking is not inherent in all innovative businesses. Risk taking is a characteristic and factor of an enterprise with a high risk appetite, which – especially in the case of a small company size primarily due to the personality of its owner or manager – can permeate the operation of the enterprise as a whole. Empirical research (Hyrsky & Tuunanen, 1999) on 456 U.S. and 434 Finnish businesses examined the relationship between risk-taking. As a result of their research, companies with detailed business plans have significantly higher risk appetite than companies without business plans, and the former are significantly more open to innovation (Hyrsky & Tuunanen, 1999). According to an empirical study of 532 businesses in Finland, risk-taking does not have a verifiable impact on innovation outcomes among family businesses, but innovation results were demonstrably higher for non-family businesses through risk-taking (Craig et al., 2014). However, other research has not shown a statistically verifiable relationship between one or more aspects of risk-taking and innovation (García-Granero et al., 2015; García-Piqueres et al., 2019). During our research, we confirmed mixed results: in the case of H2a, a weak medium positive effect can be verified, i.e. entrepreneurial risk-taking has a barely demonstrable effect on the support of employee innovation (Beta = 0.306, p<0.001), while in the case of openness to innovation (H2b) the same effect cannot be verified (p=0.283), so the H2 hypothesis was o

The link between competitive aggressiveness and innovation is not always evident either. Industry specificities, market environment, different types of innovations (radical – incremental), corporate strategy and cultural factors can all influence the relationship between competitive aggressiveness and innovation. The competitive aggressiveness of enterprises can be seen in fierce, fast, intensive actions, the main goal of which is to outperform competitors and push them out of the market, which is not necessarily accompanied by a long-term, strategic approach necessary for openness to innovations (Kollmann & Stöckmann, 2013). The 'pioneering' phenomenon associated with competitive aggressiveness is seen by some researchers primarily in terms of pricing, crowding competitors out of the market and gaining market penetration, rather than its relationship to innovation (Musawa & Ahmad, 2019). The lack of correlation between competitive aggressiveness and innovation can result from both low resource availability and fear of failure (Rahman et al., 2016). The results of the examination of the H3 hypothesis in our research are not consistent with the findings presented during the literature search (Panjaitan et al., 2021; Stambaugh et al., 2011; Sutejo & Silalahi, 2021; Zacca et al., 2015).

In our research, creativity has a weak, medium, positive effect on supporting employee innovation (Beta = 0.317, p<0.001) and a weak positive effect on openness to innovation (Beta = 0.248, p<0.001). The results of the study conducted on the sample on which our research is based are in line with both recent findings in the literature and findings from several decades ago (Amabile, 1988, 1997; Bassett-Jones, 2005; Borisov, 2022; Das, 2022; Sarooghi et al., 2015). If the surveyed companies are able to further develop their creativity, this will directly and positively influence the innovativeness of their organization – thus opening up new perspectives and directions for development and advancement that are currently unknown to companies (Hunter & Cushenbery, 2011).

The relationship between learning attitudes and innovation in enterprises is influenced by many factors. Learning can be primarily aimed at improving the effectiveness of established practices and processes, rather than introducing new ideas and learning new methods. Learning also makes less of a contribution to innovation even if it lacks development as a means of minimising risks and is limited to introducing incremental innovations. Corporate culture also plays an important role not only in learning, but also in openness to innovation. Accordingly, the results of international empirical research are also divided when examining the relationship between learning attitudes and innovation and innovation. In a primary research of 411 U.S. businesses, researchers (Baker & Sinkula, 1999) demonstrated a strong link between learning attitudes and innovation. In their empirical research of 82 small businesses in Tehran, Eshlaghy & Maatofi (2011) demonstrated the significant positive impact of learning attitudes on corporate innovation. However, in its empirical research of 150 businesses in Turkey, Calisir et al. (2013) were unable to prove the link between entrepreneurship's commitment to learning and

innovation. Thus, we can see that although there are different research results in the international literature for the dimension studied, the majority of researchers come to similar conclusions, but the results of our research are only partially consistent with them (Day, 1994; Rhee et al., 2010; Slater & Narver, 1995). In our research, learning attitudes do not influence employee innovation support (p=0.897), but have a demonstrably weak positive effect on openness to innovation (Beta = 0.090, p=0.039).

Workplace autonomy has a statistically verifiable, weak positive medium effect on supporting employee innovation (Beta = 0.333, p<0.001), which result is consistent with research result of Ohly et al. (2006). However, openness to innovation is demonstrably influenced negatively (Beta = -0.154, p=0.007), i.e. a higher level of autonomy in the workplace is associated with a lower openness to innovation in the sample examined. In other words, this result means that the higher the level of autonomy in the workplace in enterprises, the efforts to implement innovations are met with proportionately higher worker resistance, that is, autonomy in the workplace becomes partially counterproductive and hinders innovation (Burcharth et al., 2017; Yuorpor, 2013). Gebert et al. (2003) also confirmed this phenomenon in his empirical research involving 101 enterprises, drawing attention to the fact that autonomy in the workplace above a certain level implies a decline in innovation instead of a further increase. In our research, the H8 hypothesis shows a verifiable effect in both areas studied, however, due to its negative effect on openness to innovation, the H8 hypothesis was only partially accepted.

The absorption capacity of enterprises involves the recognition, reception, acquisition and exploitation of external knowledge, information and technologies. Innovation occurs in the life of a business when unmet consumer needs meet the knowledge required for a technological solution, and absorption capacity plays a role in this (Schweisfurth & Raasch, 2018). In their empirical research at employee level, Schweisfurth & Raasch (2018) processed data from more than 860 employees and demonstrated the positive effect of absorption capacity on employee innovation. In their empirical research involving 286 large companies in Spain, Cepeda-Carrion et al. (2012) demonstrated the extremely important determinant role of absorption capacity in developing the innovation of the companies studied. In our research, the examined sample is only in line with a part of the presented literature results: absorption capacity has no statistically verifiable relationship with employee innovation support (p=0.727), but has a weak medium positive effect on openness to innovation (Beta = 0.455, p<0.001).

The dynamic capabilities of businesses play a key role in changing their competitive position (Vu, 2020). In their primary research involving 235 small and medium-sized enterprises, Borch & Madsen (2007) have demonstrated that dynamic capabilities contribute demonstrably to innovation and growth-oriented strategies of enterprises. In their empirical research, Grünbaum & Stenger (2013) demonstrated a positive relationship between dynamic capabilities and innovation performance, but could not prove the relationship between dynamic capabilities and profitability. As a result of a secondary research, innovation is most closely related to dynamic capabilities after learning among the factors influencing corporate performance (Pezeshkan et al., 2016). In our research, we came to similar results. Dynamic skills have a statistically verifiable medium positive effect on supporting employee innovation (Beta = 0.588, p<0.001) and a moderately strong positive effect on openness to innovation (Beta = 0.677, p<0.001). The H10 hypothesis was accepted accordingly. Among the factors examined, the effect of dynamic abilities on employee innovation support and openness to innovation proved to be the strongest, which is in line with its significance revealed during literature research in both areas studied.

Table 4. Results of the SEM-analysis

Hypo-thesis	Factor	Target dimension	B	p-value	Verifiable effect
H1a	Proactiveness	Employee innovativeness support	-0.038	0.489	none
H2a	risk-taking		0.306	< 0.001	weak medium positive
H3a	competitor aggressiveness		-0.088	0.102	none
H5a	creativity		0.317	< 0.001	weak medium positive
H6a	learning attitude		-0.007	0.897	none
H8a	autonomy at work		0.333	< 0.001	weak medium positive
H9a	absorption capacity		-0.019	0.727	none
H10a	Dynamic capabilities		0.588	<0.001	medium positive
H1b	Proactiveness	Openness to innovation	0.082	0.069	none
H2b	risk-taking		0.063	0.283	none
H3b	competitor aggressiveness		0.033	0.451	none
H5b	creativity		0.248	< 0.001	weak positive
H6b	learning attitude		0.090	0.039	weak positive
H8b	autonomy at work		-0.154	0.007	weak negative
H9b	absorption capacity		0.455	< 0.001	weak medium positive
H10b	Dynamic capabilities		0.677	< 0.001	moderate strong positive
H11	Supporting employee innovation		0.057	0.548	none

Source: Authors' research and edit

The correlation between employee innovation support and openness to innovation can be influenced by a number of circumstances. Employee innovation can be supported formally or informally by an organization, but in the case of a conservative organizational culture or widespread resistance to change, employees are unlikely to be able to exploit and implement their innovative, creative ideas. The innovativeness of employees also depends on the resources provided by the organization and on their own personal motivations and attitudes. According to a study of 110 Indian businesses, organisational networking and organisational learning could only improve the competitiveness of businesses through the innovative capacity of employees (Husain et al., 2016). Research of 140 South Korean managers

confirmed the link between employee innovation support and organizational innovation performance (Dedahanov et al., 2017). Employee innovativeness manifests itself in idea generation, search for and communicate ideas, launching innovative activities and overcoming obstacles (Lukes & Stephan, 2017). In our research, supporting employee innovation has no statistically verifiable effect on openness to innovation (p=0.548). The results of modelling the structural equations are summarised in Table 4.

The result of the study of hypotheses is illustrated in Figure 6. Beta and p-values are shown in Figure 6, which is also present in the table above (Table 4), with the arrow not dashed when the statistical significance level ($p \leq 0.050$) is reached, and dashed when it is not reached ($p > 0.050$).

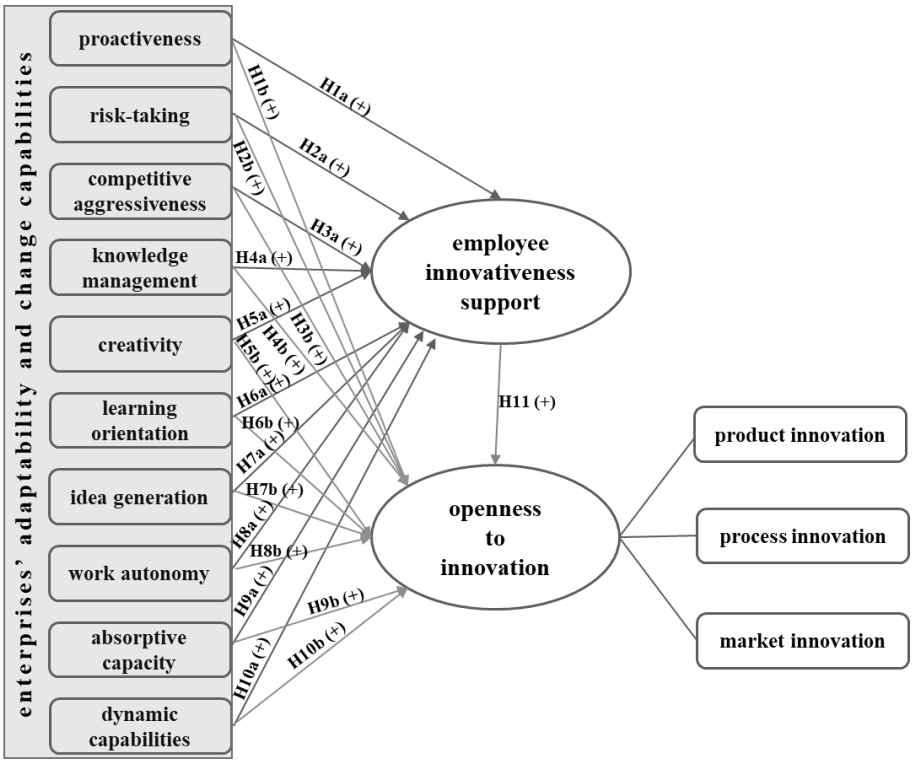

Fig. 6. The result of study hypotheses
Source: Authors' research and edit

Conclusions and recommendations

Conclusions

The examination of our research did not confirm the correlation between proactiveness and the support of employee innovation and openness to innovation (Ejdys, 2016; Nwugballa et al., 2016; Wach et al., 2023), which may be due to the lack of a long-term, strategic approach and cultural factors (Taylor et al., 2019).

The risk appetite study partially confirmed the findings of the literature (H2a) on its impact on supporting employee innovation (Craig et al., 2014; Giaccone & Magnusson, 2022; Hyrsky & Tuunanen, 1999), but the association with openness to innovation was not demonstrated in the sample (García-Granero et al., 2015; García-Piqueres et al., 2019). The reason for the mixed result may be that a company can behave innovatively without its owner or manager considering it to be particularly risk-taking, and it can take risks without implementing innovations, so it will not necessarily be innovative even if it takes real risks.

In the case of competitive aggressiveness, both hypotheses (H3a, H3b) were rejected, as we could not verify the claims (Hughes-Morgan et al., 2018; Zacca et al., 2015) and research results (Panjaitan et al., 2021) of the literature based on the sample. The lack of demonstrable link may result from the above-mentioned lack of strategic vision, divergent objectives for innovation (Kollmann & Stöckmann, 2013; Musawa & Ahmad, 2019) and aggressive market action, and limited financial opportunities specific to micro and small enterprises (Rahman et al., 2016).

In the case of creativity, however, both hypotheses showed some level of connection (Hülsheger et al., 2009; Riivari & Lämsä, 2014; Siguaw et al., 2006), a result that coincided with the results of research in similar directions even in the case of possible cultural differences (Amabile, 1997; Borisov, 2022; Das, 2022). We believe that this finding confirms the importance of creativity in innovation and widely recognized in the literature.

The study of learning orientation only partially confirmed the findings of the literature (García-Morales et al., 2012; Riivari & Lämsä, 2014): in the case of employee innovation support (H6a), the sample did not confirm a relationship (Calisir et al., 2013), while the dimension examined had a weak positive effect on openness to innovation (H6b) (Calantone et al., 2002; Holtgrave et al., 2019; Najafi-Tavani et al., 2018; Smith et al., 2008).

The examination of workplace autonomy confirmed a number of research findings (Huu, 2023; Jankelová,

2022; Ohly et al., 2006; Riivari & Lämsä, 2014, 2019), as the examined construction has a weak positive medium relationship with the support of employee innovation (H8a). It should be highlighted, however, that in the case of examining the relationship between workplace autonomy and openness to innovation, a weak negative effect was demonstrated (H8b), which is contrary to the frequent findings in the literature, as it means that a higher level of autonomy at work is combined with a lower level of openness to innovation among micro and small enterprises in Hungary. However, this result is not unique in the international literature, as previous and more recent empirical research has reached the same results as our research (Battistelli et al., 2013; Burcharth et al., 2017; Gebert et al., 2003).

Based on the sample, the absorption capacity of enterprises is only partially in line with the research results of the literature, as we could not demonstrate the support of employee innovation (H9a), while the study proved a weak medium positive effect (H9b) on openness to innovation (Akgün et al., 2019; Kanwal et al., 2022; Su et al., 2013). The relationship between employee innovation and absorption capacity was examined in several cases among large companies or at employee level (Cepeda-Carrion et al., 2012; Schweisfurth & Raasch, 2018). However, the applicability of research carried out in the field of innovation and innovation of large companies operating in Western states with advanced technologies and economies is hardly comparable to the results of innovation research carried out by micro and small enterprises in states with lower levels of development (Souitaris, 2002; Verhees & Meulenberg, 2004; Zawislak et al., 2018).

The dynamic ability of enterprises, calculated in the sample, had a medium positive impact on supporting employee innovation (H10a) and a moderately strong positive impact on their openness to innovation (H10b). The results of dynamic abilities are therefore in line with the research results of the literature (Benner & Tushman, 2003; Wilden et al., 2013), and among the dimensions examined, it proved to be the most significant dimension of the ability of enterprises to adapt and change (Ju et al., 2016; Pezeshkan et al., 2016; van de Wetering et al., 2021).

In the course of empirical research, we examined the impact of adaptation and change abilities on employee innovation support and openness to innovation. However, according to the sample study, the support of employee innovation does not have a statistically verifiable influence on openness to innovation (H11), so the research could not verify previous results of some literature (De Spiegelaere et al., 2016; Harrell-Cook et al., 2001; Oldham & Da Silva, 2015).

Recommendations

Based on the experiences and results of our research, we formulated the following recommendations:

Strengthening the innovation focus in micro and small enterprises: entrepreneurs should pay more attention to investment in innovation, as research shows that these companies can be more successful if they use proactive innovation strategies. It may be appropriate to monitor the emergence of new technologies and seek to make better use of existing technologies.

Managing autonomy at work: companies should use workplace autonomy with caution, as its excessive level can hinder openness to innovation, which may lead to resistance to innovation efforts.

Developing creativity: business leaders need to encourage employee creativity as it shows a positive impact both in supporting employee innovation and in openness to innovation. This can be improved by listening to employees' ideas, thinking about them in teamwork, developing them and rewarding proven, successful ideas.

Development of dynamic skills: companies need to develop their dynamic skills (environmental monitoring and analysis, learning and knowledge management skills, change management), which have proven to be the most important factors in the field of employee innovation and openness to innovation. Therefore, I recommend watching and learning about the best practice used in the industry, analyzing information about the operation of the business and learning from it. Dynamic capabilities are particularly important for companies not only to react to change, but also to proactively shape their environment and constantly innovate. Their development can contribute to the long-term success of companies in an increasingly changing and competitive market environment.

References

Abbas, J., Zhang, Q., Hussain, I., Akram, S., Afaq, A., & Shad, M. A. (2020). Sustainable Innovation in Small Medium Enterprises: The Impact of Knowledge Management on Organizational Innovation through a Mediation Analysis by Using SEM Approach. *Sustainability*, *12*(6), 2407. https://doi.org/10.3390/su12062407

Acs, Z. J., & Audretsch, D. B. (1988). Innovation in Large and Small Firms: An Empirical Analysis. *The American Economic Review*, *78*(4), 678–690. http://www.jstor.org/stable/1811167

Ajaz Khan, K., Çera, G., & Netek, V. (2019). Perception of the Selected Business Environment Aspects by Service Firms. *Journal of Tourism and Services*, *10*(19), 111–127. https://doi.org/10.29036/jots.v10i19.115

Akgün, A. E., Keskin, H., Kocoglu, I., & Zehir, C. (2019). The Relationship Among Organizational Symbols, Firm Absorptive Capacity, and Product Innovativeness. *Engineering Management Journal*, *31*(3), 158–176. https://doi.org/10.1080/10429247.2019.1624098

Al Mamun, A., Muniady, R., Yukthamarani, P. P., Noor Raihani Binti, Z., & Mohamad, M. R. (2016). Micro-enterprise development initiatives and entrepreneurial competencies, innovativeness, and social capital in Malaysia. *Development in Practice*, *26*(8), 1094–1110. https://doi.org/10.1080/09614524.2016.1228830

Amabile, T. M. (1988). A Model of Creativity And Innovation in Organizations. *Research in Organizational Behavior*, *10*(1), 123–167.

Amabile, T. M. (1997). Motivating Creativity in Organizations: On Doing What You Love and Loving What You Do. *California Management Review*, *40*(1), 39–58. https://doi.org/10.2307/41165921

Anlesinya, A., Eshun, P., & Boneudi, A. A. (2015). Entrepreneurial Orientation Dimensions and

Profitability Nexus: Evidence from Micro Enterprises in the Retail Sector in a Developing Country. *International Journal of Small Business and Entrepreneurship Research*, *3*(7), 79–87.

Audretsch, D. B. (2001). Research issues relating to structure, competition, and performance of small technology-based firms. *Small Business Economics*, *16*(1), 37–51. https://doi.org/10.1023/A:1011124607332

Ayyaghari, M., Demirgüç-Kunt, A., & Maksimovic, V. (2011). *Small vs. Young Firms Across the World: Contribution to Employment, Job Creation, and Growth* (5631).

Azar, G., & Ciabuschi, F. (2017). Organizational innovation, technological innovation, and export performance: The effects of innovation radicalness and extensiveness. *International Business Review*, *26*(2), 324–336. https://doi.org/10.1016/j.ibusrev.2016.09.002

Baker, W. E., & Sinkula, J. M. (1999). Learning Orientation, Market Orientation, and Innovation: Integrating and Extending Models of Organizational Performance. *Journal of Market-Focused Management*, *4*(4), 295–308. https://doi.org/10.1023/A:1009830402395

Bassett-Jones, N. (2005). The Paradox of Diversity Management, Creativity and Innovation. *Creativity and Innovation Management*, *14*(2), 169–175. https://doi.org/10.1111/j.1467-8691.00337.x

Battistelli, A., Montani, F., & Odoardi, C. (2013). The impact of feedback from job and task autonomy in the relationship between dispositional resistance to change and innovative work behaviour. *European Journal of Work and Organizational Psychology*, *22*(1), 26–41. https://doi.org/10.1080/1359432X.2011.616653

Baumgartner, H., & Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: A review. *International Journal of Research in Marketing*, *13*(2), 139–161. https://doi.org/10.1016/0167-8116(95)00038-0

Benner, M. J., & Tushman, M. L. (2003). Exploitation, Exploration, and Process Management: The Productivity Dilemma Revisited. *Academy of Management Review*, *28*(2), 238–256. https://doi.org/10.5465/amr.2003.9416096

Borch, O. J., & Madsen, E. L. (2007). Dynamic capabilities facilitating innovative strategies in SMEs. *International Journal of Technoentrepreneurship*, *1*(1), 109. https://doi.org/10.1504/IJTE.2007.014731

Borisov, I. (2022). *The Impact of Organizational Social Capital on Innovativeness, Creativity, Engagement, and Work Satisfaction*. Hungarian University of Agriculture and Life Sciences.

Boyer, T., & Blazy, R. (2014). Born to be alive? The survival of innovative and non-innovative French micro-start-ups. *Small Business Economics*, *42*(4), 669–683. https://doi.org/10.1007/s11187-013-9522-8

Burcharth, A., Præst Knudsen, M., & Søndergaard, H. A. (2017). The role of employee autonomy for open innovation performance. *Business Process Management Journal*, *23*(6), 1245–1269. https://doi.org/10.1108/BPMJ-10-2016-0209

Byrne, B. M. (2010). *Structural equation modelling with AMOS: basic concepts, applications, and programming (2nd ed.)*. NY: Routledge.

Calantone, R. J., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management*, *31*(6), 515–524. https://doi.org/10.1016/S0019-8501(01)00203-6

Calisir, F., Altin Gumussoy, C., & Guzelsoy, E. (2013). Impacts of learning orientation on product innovation performance. *The Learning Organization*, *20*(3), 176–194. https://doi.org/10.1108/09696471311328442

Cepeda-Carrion, G., Cegarra-Navarro, J. G., & Jimenez-Jimenez, D. (2012). The Effect of Absorptive Capacity on Innovativeness: Context and Information Systems Capability as Catalysts. *British Journal of Management*, *23*(1), 110–129. https://doi.org/10.1111/j.1467-8551.2010.00725.x

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, *78*(1), 98–104. https://doi.org/10.1037/0021-9010.78.1.98

Covin, J. G., & Slevin, D. P. (1991). A Conceptual Model of Entrepreneurship as Firm Behavior. *Entrepreneurship Theory and Practice*, *16*(1), 7–26. https://doi.org/10.1177/104225879101600102

Craig, J. B., Pohjola, M., Kraus, S., & Jensen, S. H. (2014). Exploring Relationships among Proactiveness, Risk-Taking and Innovation Output in Family and Non-Family Firms. *Creativity and Innovation Management*, *23*(2), 199–210. https://doi.org/10.1111/caim.12052

Csath, M. (2022). Magyarországot nem a közepes jövedelmi, hanem a közepes fejlettségi csapda fenyegeti = Hungary is threatened not by the middle-income trap but by the mediumdevelopment trap. *Köz-Gazdaság*, *17*(1), 127–159. https://doi.org/10.14267/RETP2022.01.09

Das, R. (2022). Cultural determinants of national innovativeness: a 56 country Bayesian analysis. *Technology Analysis & Strategic Management*, *34*(8), 933–945. https://doi.org/10.1080/09537325.2021.1934435

Day, G. S. (1994). The Capabilities of Market-Driven Organizations. *Journal of Marketing*, *58*(4), 37–52. https://doi.org/10.1177/002224299405800404

De Spiegelaere, S., Van Gyes, G., De Witte, H., Niesen, W., & Van Hootegem, G. (2014). On the Relation of Job Insecurity, Job Autonomy, Innovative Work Behaviour and the Mediating Effect of Work Engagement. *Creativity and Innovation Management*, *23*(3), 318–330. https://doi.org/10.1111/caim.12079

De Spiegelaere, S., Van Gyes, G., & Van Hootegem, G. (2016). Not All Autonomy is the Same. Different Dimensions of Job Autonomy and Their Relation to Work Engagement & Innovative Work Behavior. *Human Factors and Ergonomics in Manufacturing & Service Industries*, *26*(4), 515–527. https://doi.org/10.1002/hfm.20666

Dedahanov, A. T., Rhee, C., & Yoon, J. (2017). Organizational structure and innovation performance. *Career Development International*, *22*(4), 334–350. https://doi.org/10.1108/CDI-12-2016-0234

den Hertog, P., van der Aa, W., & de Jong, M. W. (2010). Capabilities for managing service innovation: towards a conceptual framework. *Journal of Service Management*, *21*(4), 490–514. https://doi.org/10.1108/09564231011066123

Dooley, L., Kenny, B., & O'Sullivan, D. (2017). Innovation capability development: case studies of small enterprises in the LMT manufacturing sector. *Small Enterprise Research*, *24*(3), 233–256. https://doi.org/10.1080/13215906.2017.1396242

Drucker, P. F. (2002). The discipline of innovation. *Harvard Business Review*, *80*(8), 95–102.

Edwards, T., Delbridge, R., & Munday, M. (2005). Understanding innovation in small and medium-sized enterprises: a process manifest. *Technovation*, *25*(10), 1119–1127. https://doi.org/10.1016/j.technovation.2004.04.005

Eggers, F., Kraus, S., Hughes, M., Laraway, S., & Snycerski, S. (2013). Implications of customer and entrepreneurial orientations for SME growth. *Management Decision*, *51*(3), 524–546. https://doi.org/10.1108/00251741311309643

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, *21*(10–11), 1105–1121. https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E

Ejdys, J. (2016). Entrepreneurial orientation vs. innovativeness of small and medium size enterprises. *Journal of Engineering, Project, and Production Management*, *6*(1), 13–24.

Eshlaghy, A. T., & Maatofi, A. (2011). Learning Orientation, Innovation and Performance: Evidence from Small-Sized Business Firms in Iran. *European Journal of Social Sciences*, *19*(1), 114–122.

Ettlie, J. E., & Rosenthal, S. R. (2011). Service versus Manufacturing Innovation*. *Journal of Product Innovation Management*, *28*(2), 285–299. https://doi.org/10.1111/j.1540-5885.2011.00797.x

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, *18*(1), 39. https://doi.org/10.2307/3151312

Fu, N., Flood, P. C., Bosak, J., Morris, T., & O'Regan, P. (2015). How do high performance work systems influence organizational innovation in professional service firms? *Employee Relations*, *37*(2), 209–231. https://doi.org/10.1108/ER-10-2013-0155

García-Granero, A., Llopis, Ó., Fernández-Mesa, A., & Alegre, J. (2015). Unraveling the link between managerial risk-taking and innovation: The mediating role of a risk-taking climate. *Journal of Business Research*, *68*(5), 1094–1104. https://doi.org/10.1016/j.jbusres.2014.10.012

García-Morales, V. J., Jiménez-Barrionuevo, M. M., & Gutiérrez-Gutiérrez, L. (2012). Transformational leadership influence on organizational performance through organizational learning and innovation. *Journal of Business Research*, *65*(7), 1040–1050. https://doi.org/10.1016/j.jbusres.2011.03.005

García-Piqueres, G., Serrano-Bedia, A.-M., & Pérez-Pérez, M. (2019). Knowledge Management Practices and Innovation Outcomes: The Moderating Role of Risk-Taking and Proactiveness. *Administrative Sciences*, *9*(4), 75. https://doi.org/10.3390/admsci9040075

Gebert, D., Boerner, S., & Lanwehr, R. (2003). The Risks of Autonomy: Empirical Evidence for the Necessity of a Balance Management in Promoting Organizational Innovativeness. *Creativity and Innovation Management*, *12*(1), 41–49. https://doi.org/10.1111/1467-8691.00267

Giaccone, S. C., & Magnusson, M. (2022). Unveiling the role of risk-taking in innovation: antecedents and effects. *R&D Management*, *52*(1), 93–107. https://doi.org/10.1111/radm.12477

Giniuniene, J., & Jurksiene, L. (2015). Dynamic Capabilities, Innovation and Organizational Learning: Interrelations and Impact on Firm Performance. *Procedia - Social and Behavioral Sciences*, *213*, 985–991. https://doi.org/10.1016/j.sbspro.2015.11.515

Gölgeci, I., & Ponomarov, S. Y. (2015). How does firm innovativeness enable supply chain resilience? The moderating role of supply uncertainty and interdependence. *Technology Analysis & Strategic Management*, *27*(3), 267–282. https://doi.org/10.1080/09537325.2014.971003

Grünbaum, N. N., & Stenger, M. (2013). Dynamic Capabilities: Do They Lead to Innovation Performance and Profitability? *Journal of Business Strategy*, *10*(4), 68–85.

Hair, J., Black, W., Babin, B., & Anderson, R. (2010). *Multivariate Data Analysis: A Global Perspective*.

Hair, J. F. Jr., Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM). *European Business Review*, *26*(2), 106–121. https://doi.org/10.1108/EBR-10-2013-0128

Hamdan, Y., & Alheet, A. F. (2020). Influence of organisational culture on pro-activeness, innovativeness and risk taking behaviour of SMEs. *Entrepreneurship and Sustainability Issues*, *8*(1), 203–217.

Harrell-Cook, G., Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. L. (2001). Manufacturing Advantage: Why High-Performance Work Systems Pay off. *The Academy of Management Review*, *26*(3), 459. https://doi.org/10.2307/259189

Henderson, J., & Weiler, S. (2010). Entrepreneurs and Job Growth: Probing the Boundaries of Time and Space. *Economic Development Quarterly*, *24*(1), 23–32. https://doi.org/10.1177/0891242409350917

Holtgrave, M., Nayir, D. Z., Nienaber, A. M., & Schewe, G. (2019). Knowledge comes but wisdom lingers! Learning orientation as the decisive factor for translating social capital into organisational innovativeness and performance in Turkey. *European J. of International Management*, *13*(2), 127. https://doi.org/10.1504/EJIM.2019.098142

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Hughes-Morgan, M., Kolev, K., & Mcnamara, G. (2018). A meta-analytic review of competitive aggressiveness research. *Journal of Business Research*, *85*, 73–82. https://doi.org/https://doi.org/10.1016/j.jbusres.2017.10.053

Hülsheger, U. R., Anderson, N., & Salgado, J. F. (2009). Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research. *Journal of Applied Psychology*, *94*(5), 1128–1145. https://doi.org/10.1037/a0015978

Hult, G. T. M., Hurley, R. F., & Knight, G. A. (2004). Innovativeness: Its antecedents and impact on business performance. *Industrial Marketing Management*, *33*(5), 429–438. https://doi.org/10.1016/j.indmarman.2003.08.015

Hunter, S. T., & Cushenbery, L. (2011). Leading for Innovation. *Advances in Developing Human Resources*, *13*(3), 248–265. https://doi.org/10.1177/1523422311424263

Husain, Z., Dayan, M., & Di Benedetto, C. A. (2016). The impact of networking on competitiveness via organizational learning, employee innovativeness, and innovation process: A mediation model. *Journal of Engineering and Technology Management*, *40*, 15–28. https://doi.org/10.1016/j.jengtecman.2016.03.001

Hustiné, B. K. (2012). *A hazai kis- és középvállalkozások innovációs tevékenységét befolyásoló makrogazdasági szabályozórendszer, kiemelten az adóztatás főbb összefüggései* [Doktori (PhD) Értekezés Tézisei]. Szent István Egyetem.

Huu, P. T. (2023). Impact of employee digital competence on the relationship between digital autonomy and innovative work behavior: a systematic review. *Artificial Intelligence Review*, *56*(12), 14193–14222. https://doi.org/10.1007/s10462-023-10492-6

Hyrsky, K., & Tuunanen, M. (1999). Innovativeness and Risk-taking Propensity: A Cross-Cultural Study of Finnish and US Entrepreneurs and Small Business Owners. *Liiketaloudellinen Aikakauskirja*, 238–256.

Hyvärinen, L. (1990). Innovativeness and its Indicators in Small- and Medium-sized Industrial Enterprises. *International Small Business Journal: Researching Entrepreneurship*, *9*(1), 64–79. https://doi.org/10.1177/026624269000900106

Jankelová, N. (2022). Entrepreneurial Orientation, Trust, Job Autonomy and Team Connectivity: Implications for Organizational Innovativeness. *Engineering Economics*, *33*(3), 264–274. https://doi.org/10.5755/j01.ee.33.3.28269

Jaworski, B., Kohli, A. K., & Sahay, A. (2000). Market-Driven Versus Driving Markets. *Journal of the Academy of Marketing Science*, *28*(1), 45–54. https://doi.org/10.1177/0092070300281005

Ju, K.-J., Park, B., & Kim, T. (2016). Causal Relationship between Supply Chain Dynamic Capabilities, Technological Innovation, and Operational Performance. *Management and Production Engineering Review*, *7*(4), 6–15. https://doi.org/10.1515/mper-2016-0031

Kanwal, F., Tang, C., Ur Rehman, A., Kanwal, T., & Fawad Sharif, S. M. (2022). Knowledge absorptive capacity and project innovativeness: the moderating role of internal and external social capital. *Knowledge Management Research & Practice*, *20*(5), 686–703. https://doi.org/10.1080/14778238.2020.1785960

Khandwalla, P. N. (2006). Tools for enhancing innovativeness in enterprises. *Vikalpa*, *31*(1), 1–16.

Kollmann, T., & Stöckmann, C. (2013). Antecedents of strategic ambidexterity: effects entrepreneurial orientation on exploratory and exploitative innovations in adolescent organizations. *International Journal of Technology Management*, *52*(1/2), 153–174.

Lam, L. W. (2012). Impact of competitiveness on salespeople's commitment and performance. *Journal of Business Research*, *65*(9), 1328–1334. https://doi.org/10.1016/j.jbusres.2011.10.026

Lin, H. (2007). Knowledge sharing and firm innovation capability: an empirical study. *International Journal of Manpower*, *28*(3/4), 315–332. https://doi.org/10.1108/01437720710755272

Lukes, M., & Stephan, U. (2017). Measuring employee innovation. *International Journal of Entrepreneurial Behavior & Research*, *23*(1), 136–158. https://doi.org/10.1108/IJEBR-11-2015-0262

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the Entrepreneurial Orientation Construct and Linking It To Performance. *Academy of Management Review*, *21*(1), 135–172. https://doi.org/10.5465/amr.1996.9602161568

Makri, K., Theodosiou, M., & Katsikea, E. (2017). An empirical investigation of the antecedents and performance outcomes of export innovativeness. *International Business Review*, *26*(4), 628–639. https://doi.org/10.1016/j.ibusrev.2016.12.004

Mamun, A. Al, Muhammad, N. M. N., & Ismail, M. Bin. (2017). Absorptive Capacity, Innovativeness and the Performance of Micro-enterprises in Malaysia. *Vision: The Journal of Business Perspective*, *21*(3), 243–249. https://doi.org/10.1177/0972262917716729

Mamun, A. Al, Nawi, N. B. C., Permarupan, P. Y., & Muniady, R. (2018). Sources of competitive advantage for Malaysian micro-enterprises. *Journal of Entrepreneurship in Emerging Economies*, *10*(2), 191–216. https://doi.org/10.1108/JEEE-05-2017-0037

Martínez-Román, J. A., & Romero, I. (2017). Determinants of innovativeness in SMEs: disentangling core innovation and technology adoption capabilities. *Review of Managerial Science*, *11*(3), 543–569. https://doi.org/10.1007/s11846-016-0196-x

Matejun, M. (2016). Role of technology entrepreneurship in the development of innovativeness of small and medium-sized enterprises. *Management*, *20*(1), 167–183. https://doi.org/10.1515/manment-2015-0032

Michaelidou, N., Siamagka, N. T., & Christodoulides, G. (2011). Usage, barriers and measurement of social media marketing: An exploratory investigation of small and medium B2B brands. *Industrial Marketing Management*, *40*(7), 1153–1159. https://doi.org/10.1016/j.indmarman.2011.09.009

Mikalef, P., & Pateli, A. (2017). Information technology-enabled dynamic capabilities and their indirect effect on competitive performance: Findings from PLS-SEM and fsQCA. *Journal of Business Research*, *70*, 1–16. https://doi.org/10.1016/j.jbusres.2016.09.004

Müller, J. M., Buliga, O., & Voigt, K.-I. (2021). The role of absorptive capacity and innovation strategy in the design of industry 4.0 business Models - A comparison between SMEs and large enterprises. *European Management Journal*, *39*(3), 333–343. https://doi.org/10.1016/j.emj.2020.01.002

Musawa, M. S., & Ahmad, K. (2019). Entrepreneurial Orientation and Innovation Performance: The

Moderating Role of Competitive Environment. *Journal of Global Economics*, *7*(1), 2–7.

Najafi-Tavani, S., Najafi-Tavani, Z., Naudé, P., Oghazi, P., & Zeynaloo, E. (2018). How collaborative innovation networks affect new product performance: Product innovation capability, process innovation capability, and absorptive capacity. *Industrial Marketing Management*, *73*, 193–205. https://doi.org/10.1016/j.indmarman.2018.02.009

NGM. (2023). *A magyar mikro-, kis- és középvállalkozások megerősítésének stratégiája 2019-2030 – Első felülvizsgálat*. https://kormany.hu/dokumentumtar/felulvizsgalt-kkv-strategia-2019-2030

Nussbaum, J., Kaudela-Baum, S., & Zimmermann, Y. S. (2021). The relationship between work autonomy, emphasis on creative skills, organisational creativity, and innovativeness: Moderating effects of leadership. *The International Society for Professional Innovation Management (ISPIM)*, 1–18.

Nwugballa, E., Elom, M., & Onyeizugbe, C. (2016). Evaluating the relevance of Entrepreneurial Orientation to the Performance of Micro, Small and Medium Enterprises in Ebonyi State, Nigeria. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *6*. https://doi.org/10.6007/IJARAFMS/v6-i3/2257

Ode, E., & Ayavoo, R. (2020). The mediating role of knowledge application in the relationship between knowledge management practices and firm innovation. *Journal of Innovation & Knowledge*, *5*(3), 210–218. https://doi.org/10.1016/j.jik.2019.08.002

Ohly, S., Sonnentag, S., & Pluntke, F. (2006). Routinization, work characteristics and their relationships with creative and proactive behaviors. *Journal of Organizational Behavior*, *27*(3), 257–279. https://doi.org/10.1002/job.376

Oldham, G. R., & Da Silva, N. (2015). The impact of digital technology on the generation and implementation of creative ideas in the workplace. *Computers in Human Behavior*, *42*, 5–11. https://doi.org/10.1016/j.chb.2013.10.041

Oliveira, M. D. N. T., Ferreira, F. A. F., Pérez-Bustamante Ilander, G. O., & Jalali, M. S. (2017). Integrating cognitive mapping and MCDA for bankruptcy prediction in small- and medium-sized enterprises. *Journal of the Operational Research Society*, *68*(9), 985–997. https://doi.org/10.1057/s41274-016-0166-3

Ortega-Argilés, R., Acs, Z., Szerb, L., & Komlosi, E. (2014). A vállalkozási tevékenység regionális különbségei Magyarországon a regionális vállalkozási és fejlődési index alapján. *Közgazdasági Szemle*, *61*, 233–261.

Panjaitan, H., Cempena, I. B., Trihastuti, A., & Panjaitan, F. (2021). The Effect of Competitive Aggressiveness on Business Performance: A Case Study of Private Universities in Indonesia. *Journal of Asian Finance Economics and Business*, *8*, 875–884. https://doi.org/10.13106/jafeb.2021.vol8.no4.0875

Paulus, A. L., & Hermanto, Y. B. (2022). The Competitive Advantage of Furniture SMEs in East Java: The Role of Aggressiveness in Entrepreneurship Orientation. *Economies*, *10*(6), 139. https://doi.org/10.3390/economies10060139

Pezeshkan, A., Fainshmidt, S., Nair, A., Lance Frazier, M., & Markowski, E. (2016). An empirical assessment of the dynamic capabilities–performance relationship. *Journal of Business Research*, *69*(8), 2950–2956. https://doi.org/10.1016/j.jbusres.2015.10.152

Phuangrod, K., Lerkiatbundit, S., & Aujiraponpan, S. (2017). Factor affecting innovativeness of small and medium enterprises in the five southern border provinces. *Kasetsart Journal of Social Sciences*, *38*(3), 204–211. https://doi.org/10.1016/j.kjss.2016.07.008

Raghuvanshi, J., Agrawal, R., & Ghosh, P. K. (2019). Measuring the innovation capability of micro enterprises in India. *Benchmarking: An International Journal*, *26*(5), 1405–1430. https://doi.org/10.1108/BIJ-08-2018-0229

Rahman, A., Civelek, M., & Kozubíková, L. (2016). Proactiveness, Competitive Aggressiveness and Autonomy: A Comparative Study from the Czech Republic. *Quarterly Journal of Economics and Economic Policy*, *11*(3), 631–650.

Rajapathirana, R. P. J., & Hui, Y. (2018). Relationship between innovation capability, innovation type, and firm performance. *Journal of Innovation & Knowledge*, *3*(1), 44–55. https://doi.org/10.1016/j.jik.2017.06.002

Rhee, J., Park, T., & Lee, D. H. (2010). Drivers of innovativeness and performance for innovative SMEs in South Korea: Mediation of learning orientation. *Technovation*, *30*(1), 65–75. https://doi.org/10.1016/j.technovation.2009.04.008

Riivari, E., & Lämsä, A.-M. (2014). Does it Pay to Be Ethical? Examining the Relationship Between Organisations' Ethical Culture and Innovativeness. *Journal of Business Ethics*, *124*(1), 1–17. https://doi.org/10.1007/s10551-013-1859-z

Riivari, E., & Lämsä, A.-M. (2019). Organizational Ethical Virtues of Innovativeness. *Journal of Business Ethics*, *155*(1), 223–240. https://doi.org/10.1007/s10551-017-3486-6

Ritala, P., Vanhala, M., & Jarvelainen, K. (2020). The Role of Employee Incentives and Motivation on Organisational Innovativeness in Different Organisational Cultures. *International Journal of Innovation Management*, *24*(04), 2050075. https://doi.org/10.1142/S1363919620500759

Sarooghi, H., Libaers, D., & Burkemper, A. (2015). Examining the relationship between creativity and innovation: A meta-analysis of organizational, cultural, and environmental factors. *Journal of Business Venturing*, *30*(5), 714–731. https://doi.org/10.1016/j.jbusvent.2014.12.003

Schweisfurth, T. G., & Raasch, C. (2018). Absorptive capacity for need knowledge: Antecedents and effects for employee innovativeness. *Research Policy*, *47*(4), 687–699. https://doi.org/10.1016/j.respol.2018.01.017

Seo, Y.-J., Dinwoodie, J., & Kwak, D.-W. (2014). The impact of innovativeness on supply chain performance: is supply chain integration a missing link? *Supply Chain Management: An International Journal*, *19*(5/6), 733–746. https://doi.org/10.1108/SCM-02-2014-0058

Siguaw, J. A., Simpson, P. M., & Enz, C. A. (2006). Conceptualizing Innovation Orientation: A Framework for Study and Integration of Innovation

Research. *Journal of Product Innovation Management*, *23*(6), 556–574. https://doi.org/10.1111/j.1540-5885.2006.00224.x

Skowron-Grabowska, B. (2023). Innovativeness in Enterprise Strategies Value Creation and Innovation Multidimensionality. *Management and Production Engineering Review*. https://doi.org/10.24425/mper.2023.147188

Slater, S. F., & Narver, J. C. (1995). Market Orientation and the Learning Organization. *Journal of Marketing*, *59*(3), 63–74. https://doi.org/10.1177/002224299505900306

Slater, S. F., & Narver, J. C. (1998). Customer-led and market-oriented: let's not confuse the two. *Strategic Management Journal*, *19*(10), 1001–1006. https://doi.org/10.1002/(SICI)1097-0266(199810)19:10<1001::AID-SMJ996>3.0.CO;2-4

Smith, M., Busi, M., Ball, P., & Van der Meer, R. (2008). Factors Influencing an Organisation's Ability to Manage Innovation: A Structured Literature Review and Conceptual Model. *International Journal of Innovation Management*, *12*(04), 655–676. https://doi.org/10.1142/S1363919608002138

Soto-Acosta, P., Popa, S., & Palacios-Marques, D. (2015). E-Business, Organizational Innovation and Firm Performance in Manufacturing SMEs: An Empirical Study in Spain. *Technological and Economic Development of Economy*, *22*(6), 885–904. https://doi.org/10.3846/20294913.2015.1074126

Souitaris, V. (2002). Firm-specific competencies determining technological innovation: A survey in Greece. *R and D Management*, *32*(1), 61–77. https://doi.org/10.1111/1467-9310.00239

Stambaugh, J. E., Yu, A., & Dubinsky, A. J. (2011). Before the Attack: A Typology of Strategies for Competitive Aggressiveness. *Journal of Management Policy and Practice*, *12*(1), 49–63.

Su, Z., Ahlstrom, D., Li, J., & Cheng, D. (2013). Knowledge creation capability, absorptive capacity, and product innovativeness. *R&D Management*, *43*(5), 473–485. https://doi.org/10.1111/radm.12033

Sutejo, B. S., & Silalahi, M. A. R. (2021). *Correlation Analysis Among Innovation, Risk-taking, Competitive Aggressiveness, and Proactiveness on Company Performance in the Covid-19 Situation*. https://doi.org/10.2991/aebmr.k.210628.004

Swaroop, P., & Dixit, V. (2018). Employee Engagement, Work Autonomy and Innovative Work Behaviour: An empirical study. *International Journal of Innovation, Creativity and Change*, *4*(2), 158–176.

Szerb, L., & Ulbert, J. (2002). A kis- és közepes vállalkozások növekedési potenciáljának átalakulásáról. *Budapest Management Review*, *33*(7–8), 36–46.

Taghizadeh, S. K., Rahman, S. A., & Hossain, Md. M. (2018). Knowledge from customer, for customer or about customer: which triggers innovation capability the most? *Journal of Knowledge Management*, *22*(1), 162–182. https://doi.org/10.1108/JKM-12-2016-0548

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, *2*, 53–55. https://doi.org/10.5116/ijme.4dfb.8dfd

Taylor, A., Santiago, F., & Hynes, R. (2019). Relationships Among Leadership, Organizational Culture, and Support for Innovation. In B. K. Mickahail & C. T. E. de Aquino (Eds.), *Effective and Creative Leadership in Diverse Workforces: Improving Organizational Performance and Culture in the Workplace* (pp. 11–42). Springer International Publishing. https://doi.org/10.1007/978-3-030-02348-5_2

Tether, B. S. (1998). Small and large firms: sources of unequal innovations? *Research Policy*, *27*(7), 725–745. https://doi.org/10.1016/S0048-7333(98)00079-1

van de Wetering, R., Hendrickx, T., Brinkkemper, S., & Kurnia, S. (2021). The Impact of EA-Driven Dynamic Capabilities, Innovativeness, and Structure on Organizational Benefits: A Variance and fsQCA Perspective. *Sustainability*, *13*(10), 5414. https://doi.org/10.3390/su13105414

Vanhala, M., & Ritala, P. (2016). HRM practices, impersonal trust and organizational innovativeness. *Journal of Managerial Psychology*, *31*(1), 95–109. https://doi.org/10.1108/JMP-03-2013-0084

Verhees, F. J. H. M., & Meulenberg, M. T. G. (2004). Market Orientation, Innovativeness, Product Innovation, and Performance in Small Firms. *Journal of Small Business Management*, *42*(2), 134–154. https://doi.org/10.1111/j.1540-627X.2004.00102.x

Vnukova, N., Tyshchenko, V., & Ostapenko, V. (2024). The innovativeness of technologies of Industry 4.0 in the modern mining environment. *IOP Conference Series: Earth and Environmental Science*, *1348*(1), 012015. https://doi.org/10.1088/1755-1315/1348/1/012015

Vu, H. M. (2020). A Review of Dynamic Capabilities, Innovation Capabilities, Entrepreneurial Capabilities and Their Consequences. *The Journal of Asian Finance, Economics and Business*, *7*(8), 485–494. https://doi.org/10.13106/jafeb.2020.vol7.no8.485

Wach, K., Maciejewski, M., & Głodowska, A. (2023). Inside entrepreneurial orientation: Do risk-taking and innovativeness influence proactiveness? *Economics & Sociology*, *16*(1), 174–190. https://doi.org/10.14254/2071-789X.2023/16-1/11

Wang, C. L. (2008). Entrepreneurial Orientation, Learning Orientation, and Firm Performance. *Entrepreneurship Theory and Practice*, *32*(4), 635–657. https://doi.org/10.1111/j.1540-6520.2008.00246.x

Wang, Z., & Wang, N. (2012). Knowledge sharing, innovation and firm performance. *Expert Systems with Applications*, *39*(10), 8899–8908. https://doi.org/10.1016/j.eswa.2012.02.017

Wilden, R., Gudergan, S. P., Nielsen, B. B., & Lings, I. (2013). Dynamic Capabilities and Performance: Strategy, Structure and Environment. *Long Range Planning*, *46*(1–2), 72–96. https://doi.org/10.1016/j.lrp.2012.12.001

Yuorpor, J. M. (2013). *Organizational Culture, Workers Autonomy And Employee Innovativeness*. University of Ghana.

Zacca, R., Dayan, M., & Ahrens, T. (2015). Impact of network capability on small business performance. *Management Decision*, *53*(1), 2–23. https://doi.org/10.1108/MD-11-2013-0587

Zawislak, P. A., Fracasso, E. M., & Tello-Gamarra, J. (2018). Technological intensity and innovation capability in industrial firms. *Innovation &*

Management Review, *15*(2), 189–207. https://doi.org/10.1108/INMR-04-2018-012

Zhou, J., & Hoever, I. J. (2014). Research on Workplace Creativity: A Review and Redirection. *Annual Review of Organizational Psychology and Organizational Behavior*, 1(1), 333–359. https://doi.org/10.1146/annurev-orgpsych-031413-091226

Table 1. Validation of constructs

Code	Constructs	Mean (standard deviation)	Loadings	Cronbach's α	AVE	CR
Proactiveness		**3.97 (0.82)**		**0.809**	**0.625**	**0.896**
PROA-1	We are constantly monitoring the emergence of new technologies.	4.11 (0.87)	0.890			
PROA-2	We are constantly thinking about how we can make better use of existing technologies.	4.23 (0.89)	0.804			
PROA-3	Compared to our competitors, we are often the first to introduce a new method.	3.31 (1.18)	0.660			
Risk-taking		**3.31 (0.87)**		**0.738**	**0.497**	**0.833**
RISK-1	We encourage our employees to take risks with their new ideas.	3.41 (1.10)	0.760			
RISK-2	We evaluate new strategies and plans, even if we're not sure they'll work.	3.66 (0.97)	0.715			
RISK-3	In order to improve our offer, we are willing to accept a moderate risk even if it may result in a significant loss.	2.72 (1.14)	0.635			
Competitive aggressiveness		**3.09 (1.10)**		**0.855**	**0.608**	**0.909**
AGGR-1	We are willing to sacrifice profitability to gain market share.	3.03 (1.14)	0.533			
AGGR-2	We are willing to lower prices if we can gain market share.	3.29 (1.24)	0.884			
AGGR-3	Sometimes we lower the price of our products below the price level of the competition.	3.19 (1.40)	0.886			
AGGR-4	Sometimes we acquire new markets at the expense of cash flow and profitability.	2.72 (1.16)	0.762			
Creativity		**3,22 (0,94)**		**0.880**	**0.616**	**0.89**
CREA-1	The management encourages employees to think outside the box.	3.69 (1.02)	0.625			
CREA-2	Our employees strive to be the first to suggest new ideas for our products or services.	3.22 (1.09)	0.786			
CREA-3	Our employees think in new ways.	3.11 (1.05)	0.917			
CREA-4	Our employees are driven by creativity and innovation.	3.13 (1.10)	0.898			
Learning attitude		**3.90 (0.88)**		**0.883**	**0.659**	**0.93**
LEARN-1	The learning ability of our business is the key to our competitive advantage.	3.76 (1.04)	0.863			
LEARN-2	Learning is one of the core values of our business as the key to development.	3.83 (0.99)	0.927			
LEARN-3	We see employee learning as an investment, not an expense.	4.22 (0.89)	0.644			
LEARN-4	In our business, we see learning as a key commodity that guarantees the survival of the company.	3.98 (1.06)	0.785			
Autonomy at work		**3.16 (1.02)**		**0.856**	**0.610**	**0.912**
WRKAUT-1	Our employees schedule their work themselves.	3.16 (1.22)	0.922			
WRKAUT-2	Our employees shape their own priorities.	2.86 (1.15)	0.866			
WRKAUT-3	Our employees choose their own method of work.	3.13 (1.27)	0.701			
WRKAUT-4	We give our employees the opportunity to try out new ideas.	3.86 (0.99)	0.592			
Absorption capacity		**3.45 (0.98)**		**0.840**	**0.655**	**0.911**
ABSCAP-1	We regularly use new technologies for our new products.	3.61 (1.11)	0.820			

Code	Constructs	Mean (standard deviation)	Loadings	Cronbach's α	AVE	CR
ABSCAP-2	We can easily start applying technology to our new products/services.	3.60 (1.07)	0.812			
ABSCAP-3	We often bring new products or services to market.	3.13 (1.18)	0.795			
Dynamic capabilities		**3.62 (0.92)**		**0.911**	**0.566**	**0.944**
DYN-2	We monitor best practices in our industry.	4.32 (0.80)	0.520			
DYN-3	We collect economic information about our operations and the environment in which we operate.	4.11 (0.95)	0.580			
DYN-4	We invest in finding solutions that affect our consumers.	3.59 (1.04)	0.673			
DYN-5	We are beginning to apply existing best practices in our industry.	4.05 (0.92)	0.654			
DYN-7	We have developed new management methods over the past 5 years.	3.43 (1.20)	0.867			
DYN-8	We have developed new or substantially changed marketing methods and strategies over the past 5 years.	3.27 (1.29)	0.834			
DYN-9	We have significantly renewed our business processes in the past 5 years.	3.54 (1.14)	0.892			
DYN-10	In order to achieve our goals, we have introduced new or substantially changed methods in the last 5 years.	3.51 (1.16)	0.895			
Supporting employee innovation		**3.69 (0.87)**		**0.896**	**0.567**	**0.901**
BHVR-1	We support our employees when they want to try new methods.	3.90 (0.93)	0.795			
BHVR-2	Our company tolerates employees who do things differently.	3.44 (1.00)	0.770			
BHVR-3	We are willing to try new methods and look for unusual solutions.	3.99 (0.92)	0.663			
BHVR-4	We encourage our employees to think and behave in original and new ways.	3.48 (1.10)	0.776			
Openness to innovation		**3.25 (0.94)**		**0.924**	**0.460**	**0.917**
PRCSS-1	We are constantly improving our business processes.	3.76 (1.04)	0.670			
PRCSS-2	Our company has developed many new management approaches over the past five years.	2.98 (1.16)	0.667			
PRCSS-3	If we cannot solve a problem with conventional methods, we use new methods.	4.13 (0.97)	0.503			
PRCSS-4	We change our production or service methods significantly faster than our competitors.	3.15 (1.08)	0.619			
PRDCT-1	Compared to our competitors, we have introduced more innovative products and services in the last five years.	3.41 (1.13)	0.761			
PRDCT-2	Our new products and services are often seen by consumers as something new.	3.32 (1.13)	0.753			
MRKT-1	Compared to our competitors, the latest marketing program of our products is revolutionary in the market.	2.38 (1.20)	0.650			
MRKT-3	When it comes to introducing new products and services, our company is often at the forefront of technology.	3.14 (1.28)	0.763			

Source: Authors' research and edit

Table 2. Verification of discrimination validity by Fornell-Larcker criteria

Appellation	Proactiveness	Competitive aggressiveness	Creativity	Learning attitude	Work autonomy	Absorptive capacity	Dynamic capabilities	Risk-taking	Employee innovativeness support	Openness to innovation
Proactiveness	0.791									
Competitive aggressiveness	0.277	0.780								
Creativity	0.531	0.333	0.785							
Learning attitude	0.665	0.310	0.697	0.812						
Work autonomy	0.305	0.257	0.576	0.498	0.781					
Absorptive capacity	0.657	0.464	0.538	0.665	0.442	0.809				
Dynamic capabilities	0.592	0.391	0.543	0.578	0.386	0.564	0.752			
Risk-taking	0.615	0.328	0.668	0.671	0.459	0.595	0.627	0.705		
Employee innovativeness support	0.501	0.274	0.692	0.613	0.606	0.518	0.711	0.674	0.753	
Openness to innovation	0.691	0.435	0.655	0.693	0.396	0.731	0.723	0.685	0.687	0.678

Source: Authors' research and edit

RECEIVED: 10 April 2024 ACCEPTED: 15 July 2024 PUBLISHED: 29 October 2024

János Bujáki is pursuing his PhD in Economic and Regional Sciences at the Hungarian University of Agricultural and Life Sciences. He holds a master's degree in Leadership and Management and brings over ten years of relevant professional experience. His research focuses on organization and management, research methodology, and innovation. E-mail: bujakijani@yahoo.de, ORCID ID: 0009-0004-8426-646X

Szergej Vinogradov is an associate professor at the Institute of Methodology and Foreign Languages at Budapest Metropolitan University, where he teaches statistical methodology to bachelor's, master's, and doctoral students. He has authored or co-authored over 60 scientific journal articles, with 21 of them cited in Scopus. His current research interests include work environments that foster innovation and the examination of soft factors influencing national competitiveness in the era of digitalization and Industry 4.0. E-mail: szvinogradov@metropolitan.hu, ORCID ID: 0000-0002-6242-3063

https://doi.org/10.38104/vadyba.2024.2.07

Vadyba
Journal of Management
2024, № 2 (40)
ISSN 1648-7974

EDUCATIONAL MANAGEMENT ASPECTS OF THE SOMATIC INTELLIGENCE

Jelena Dementjeva
Lithuania Business College

Abstract
Somatic intelligence is a type of human intelligence that includes self-regulation, emotional awareness, and listening to the body. Analyzing the scientific literature, it becomes clear that there are few theoretical works and empirical studies of somatic intelligence in Lithuania, but this does not mean the absence of discourse. Recently, the concept of somatic intelligence has been actively explored in the foreign scientific field using concepts such as somatic awareness, body awareness or interoceptive awareness; creating different models that enable detailing and structuring the concept of somatic intelligence; when constructing assessment systems (questionnaires). The concept of somatic intelligence, from a theoretical point of view, is a new and rarely studied phenomenon that requires in-depth research on a global and (especially) Lithuanian scale. Analyzing the research field of somatic intelligence, it was found that somatic intelligence is of interest to many researchers in various aspects related to the topic of kinesthetics: concept development and modelling, evaluation, education and management processes.
The aim of the research – to reveal the features of kinestethic and sensory cognitive processes as the somatic intelligence parts in the educational management. The method of empirical research of the work is qualitative, which is based on phenomenological methodology. The qualitative research method (instrument) is a semi-structured individual interview. For the qualitative research, questions were prepared based on the model of somatic intelligence.
The research results showed that, the somatic intelligence of primary school students in Klaipėda city formal education institutions is developed in a rather complex way. Methods and means of developing sensory intelligence include: creating a positive atmosphere, creating a sense of trust and security; the use of educational senses to create knowledge, cultural and environmental knowledge, training of critical thinking; involvement of students' and teacher's feelings, use of feelings for the development of critical thinking. Kinesthetic intelligence training methods include: training of fine and gross motor skills; methods and tools promoting discipline, methods and tools for overcoming stress and solving problems; physical involvement through role playing and other games. Research results related to other aspects of somatic intelligence (emotional and spiritual intelligence) will be presented in next article.
KEY WORDS: educational management, somatic intelligence, kinestetic, emotional, spiritual, cognitive processes, inclusive education
JEL classification: D83, D91, I21, I31, M12

Introduction

In today's fast-changing world, humanity experiences a lot of stress, which negatively affects the quality of life. Therefore, there is an increasing number of interdisciplinary scientific research aimed at solving this problem. The awareness of the importance of developing somatic intelligence is focused on new competences, actions and ways of responding to the threats and opportunities of the external environment. Using body-centered psychology and kinesthetic learning, somatic intelligence training creates rapid, effective, and lasting change.

By developing somatic intelligence, it is possible to switch to a new way of education, which enables more effective implementation of the set goals (Blake, 2009), provides opportunities for new participation in the educational process. It is a practice to awaken to who we really are through the gift of self-embodiment – not what we mistake for our "body" as an "object," but as the embodiment of our space here and now (Kaparo, 2012).

Non-verbal communication plays a crucial role in the communication and education processes. According to P. Kováčová, O. Drahotský (2022), non-verbal communication refers to the ways of communication without using words such as facial expressions, gestures, body language, proxemics (distance between communication partners) and others. It gives valuable information to communication partners about what is going on under the surface, how the person is feeling, how the person agrees or disagrees with what was said. Greater engagement with experiential somatics could be a way for educators to develop new ways of pedagogy (and andragogy) that enable learners to achieve "special knowledge" (Bannon, 2010, p. 50).

The complexity of the phenomenon of somatic education describes the interrelationships of movement, emotions and sensations, which cause a sense of interaction that touches the spiritual sphere. In this way, the somatic experience is enriched. By combining cognition with many areas of somatic education, education itself becomes holistic, and the body becomes a multifaceted force that gives meaning to human experience.

The development and empowerment of somatic intelligence in the educational process contributes to the improvement of the students life quality, a deeper understanding of themselves and the surrounding environment, and an increase in awareness, mindfulness.

In addition, the greater use of somatic intelligence in the educational process will encourage students' motivation, which can be motivated by multiple experiences of certain cognitive phenomena through sensorics, the body, emotions, and the spiritual field.

Analyzing the research field of somatic intelligence, it was found that somatic intelligence is of interest to many

researchers in various aspects related to the topic of kinesthetics: concept development and modeling (Anderson, 2006; Hill, 2016; Barratt, 2013; de Silva, 2017; Rimmer-Piekarczyk, 2018; Rufo, 2023; El Wardi, 2023; Magalhães, 2023), evaluation (Anderson, 2006; Mehling et al., 2012; Freedman et al., 2022), education and management processes (Green, 1998; Crowdes, 2000; Clark, 2001; Amann, 2003; Blake, 2009; Batson, 2009; Eddy, 2009; Bannon, 2010; Kaparo, 2012; Hill, 2016; Tantia, 2019; Wait, 2019; Vancea, 2020; Williamson, 2021; Ramadanova, Kulbekova, 2023; Fraleigh, 2023; Zulfahmi, Roza, 2024; Skelton, 2024; Craycroft, 2024; Olech et al., 2024; Berkley, 2024; Karakus et al., 2024).

However, there is a lack of somatic intelligence research in Lithuania. This shows the relevance of the topic under consideration and the need for deeper research.

The research raises a problematic question: How to empowering of the kinestethic and sensory cognitive processes as the somatic intelligence parts in the educational management?

The object of the research is the kinestethic and sensory cognitive processes as the somatic intelligence parts in the educational management.

The aim of the research – to reveal the features of kinestethic and sensory cognitive processes as the somatic intelligence parts in the educational management.

The tasks of the research:

1. To perform a theoretical analysis of the somatic intelligence phenomenon.
2. To identified the importance of kinesthetic and sensory intelligence like cognitive processes on the basis of the somatic intelligence model.
3. To reveal the ways of developing students' kinesthetic and sensory cognitive processes on the basis of the somatic intelligence.

The method of empirical research of the work is qualitative, which is based on phenomenological methodology, when it concentrates on the perception of the researched subjects, their social context, individuals are accepted as active creators of meaning, when it is revealed how people understand and interpret the facts and events of their lives or ongoing phenomena.

The qualitative research method (instrument) is a semi-structured individual interview. For the qualitative research, questions were prepared based on the model of somatic intelligence (Table 1).

Theoretical Background

Phenomena of the Somatic Intelligence (SI). In general, different aspects of intelligence or components of expression are presented in the widespread theory of multiple intelligences by H. Gardner (1983). Humans are said to have all intelligences, but each person has a unique combination or profile. Everyone has the opportunity to improve their intelligence, but some people have natural inclinations in certain areas. H. Gardner (1983) recognizes seven areas of intelligence, including visual-spatial, verbal-linguistic, musical-rhythmic, logical-mathematical, interpersonal, intrapersonal, naturalistic and bodily-kinesthetic.

The historical basis of the concept of somatic intelligence is the emergence of somatic psychology and some early body-centered therapies (de Silva, 2017). According to B. B. Barratt (2013), somatic psychology is the psychology of the body, a discipline that focuses on our embodied experiences as human beings and recognizes these experiences as the foundation and origin of all our experiential potential. I. Ginot (2010) mentions a theoretical delay related to somatics, research on somatic intelligence, as well as other issues of body practice. This delay does not mean the absence of discourse, but shows how difficult it is to verbalize something related to experience and subjectivity. In fact, the actualization of SI became evident after the book „Somatic Intelligence: The Conversation Every Body Wants to Have with You“ published by American holistic disciplines doctor S. Hill (2016). According to S. Hill (2016), the better a person feels, perceives and controls his body, its condition and mobility, the higher his level of SI. Although the SI is described as a lived experience that passes through us, its materiality is the categories of poetics, corporeality, and expressiveness, which do not translate into metrics that can be measured or quantified. In this way, SI are difficult to explain and understand, but easy to feel and realize.

It is worth mentioning a very popular assessment model – an instrument that enables one to assess the level of somatic intelligence. A highly detailed, somatically oriented instrument is the Multidimensional Assessment of Interoceptive Awareness (MAIA) (Mehling et al., 2012). This instrument helps assess self-regulation, emotional awareness and listening to the body. The instrument has been thoroughly psychometrically validated and has been translated into more than 20 languages (Freedman et al., 2022). Below is a model of the MAIA instrument framework covering the main dimensions of somatic intelligence (Fig. 1).

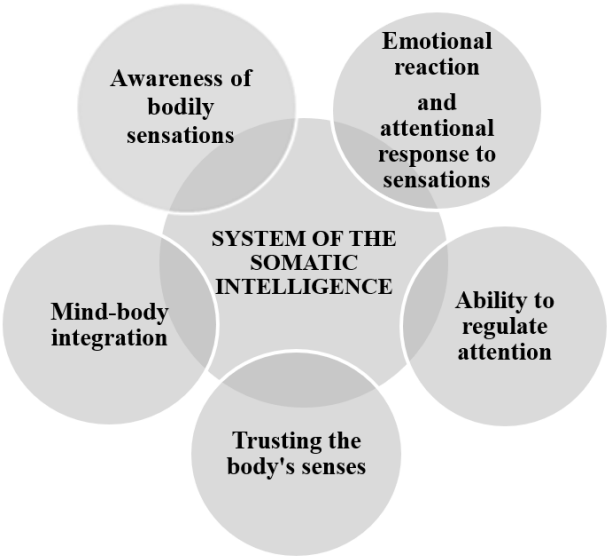

Fig. 1. MAIA System of Somatic Intelligence
Compiled by author based on W. E. Mehling et al. (2012), Freedman et al. (2022)

According to W. E. Mehling et al. (2012), Freedman et al. (2022) MAIA's conceptual framework can be understood as follows:

1. Perception of body sensations includes perception of negative, positive, and neutral sensations, without subdimensions or distinctions as to whether they are perceived actively or passively. The sensations of breathing are understood as neutral sensations.

2. Emotional reaction and attentional response to sensations include four subdimensions: a) affective response to a sensation, expressed in its annoyance or pleasure; (b) suppressing, ignoring, or avoiding sensory perception, such as through distraction; (c) narrative, judgmental awareness, which „analyzes“ sensations, including anxiety that something is wrong; (d) awareness of the present moment with negligible sensory awareness, i.e. attentive presence.

3. The ability to regulate attention is related to various ways of managing attention as an active regulatory process. This includes the ability to: a) maintain awareness; b) actively direct attention to different parts of the body; c) narrow or widen the focus; d) allow the sensations to be without trying to change them. This dimension is based on the division of „quality of attention“.

4. Trust in body sensations, beliefs about the importance of sensations show how much awareness of body sensations is useful for decision-making or beneficial for health.

5. Mind-body integration is considered the ultimate goal of mind-body therapy and includes three subdimensions: a) emotional awareness, the awareness that certain physical sensations are the sensory aspect of emotions; b) self-regulation of emotions, sensations and behavior; c) the ability to feel an embodied sense of self, reflecting the interconnectedness of mental, emotional, and physical processes, rather than a sense of disembodied alienation and disconnection from one's body.

R. F. Kaparo (2012) states that somatic education provides discipline for new participation in life. It is a practice to awaken to who we really are, receiving the gift of our embodiment – not what we mistake for our „body“ as an „object“, but as the embodiment of our space in the bloom of life, here and now.

It is clear that the aim of somatic pedagogy is to work from the inside, not to objectify the body (Rimmer-Piekarczyk, 2018). Bannon (2010) suggests that greater engagement with experiential somatics could be a way for educators to develop new ways of learning that allow learners to “access knowledge that is special” (ibid., p. 50).

Somatic Intelligence Development. Like other types of human intelligence, somatic intelligence can also be developed. According to T. Amann (2003), the development of somatic intelligence involves the body in the educational experience so that the learner is always actively involved in the educational process. Somatic education is felt by the body, and the definition of such knowledge rationally limited not only the understanding of somatic education, but also its development. Embodied learning literally means giving the body to education.

Somatic education often takes place in experiential learning where the learner becomes an active participant in the knowledge acquisition process through activities such as role playing and discussion. C. Clark (2001) further generalized somatic education, describing it as „how we learn from our bodily experiences” (p. 3). M. S. Crowdes (2000) also used experiential somatic and emotional education methodologies with sociology students exploring power relations. She interprets somatic education as conscious embodiment, which is not limited to simply connecting the emotional and cognitive spheres in experiential education. Furthermore, „it implies the integrity of mind, body and action, accompanied by a certain awareness of the wider social context“ (ibid., p. 27). Conscious illustration includes, but is not limited to, body posture, style, emotions, and simple body actions (Crowdes, 2000). According to M. C. Magalhães (2023), in the context of somatic experience, it is not about erasing past experiences or old patterns of the body, but about creating new possibilities and alternatives, expanding the body's possibilities to move, feel and express itself.

Since somatic simply means relating to or affecting the body, the development of somatic intelligence can be divided into four main domains, each of which is somatic in nature: kinesthetic, sensory, emotional, and spiritual (Amann, 2003). This systems model of somatic intelligence offers a visual explanation of how somatic education often functions as an umbrella for many types of body learning and education, and that each of the four domains also often intersects with each other (Fig. 2).

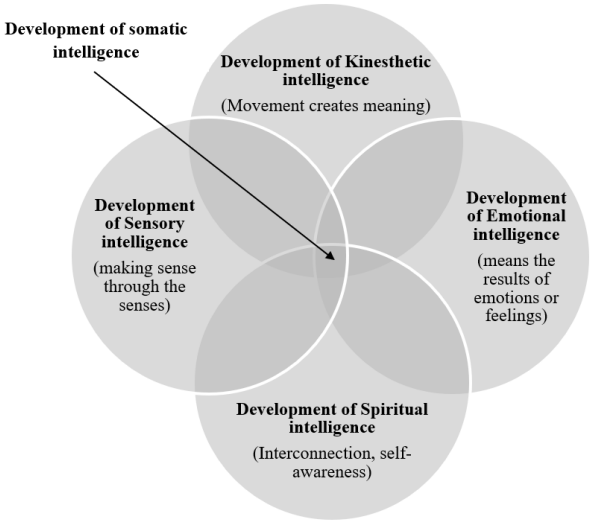

Fig. 2. Systematic development of Somatic Intelligence
Source: T. Amann (2003)

The areas of somatic intelligence development according to T. Amann (2003) are detailed below:

1. Development of kinesthetic intelligence involves movement. Using fine and/or gross motor skills, the body begins to function. It creates movements and actions that often provide lessons/tasks about discipline, diligence, coping with stress or problem solving. Kinesthetic learners need to actively engage in learning through

hands-on manipulation, physical engagement and role-play.

2. Development of sensory intelligence. Using the five senses to create knowledge or make sense of education is considered sensory education. The senses of sight, hearing, taste, touch and smell require a separate function of the body, and since information is accumulated through each sense, a person relates that information to his experience and extrapolates meaningful meanings to life. In this way, the educational program could include feelings, awareness of perception and thinking, arising through the senses of the learners. Since eyes, ears, mouth, nose, and the ability to touch are parts of the body, sensory education is somatic in nature.

3. Development of emotional intelligence. It is the acquisition of knowledge by paying attention to and honoring one's feelings and emotions. Many times in life we find ourselves at a decision point and even though our mind explores the rational choices we can make, our gut or feelings tell us otherwise. Knowing our emotions and being able to recognize them allows us to reflect on the impulses caused by certain emotions. We then choose how to respond – we can choose our first impulse or we can decide on a mutually beneficial response for all parties involved. The development of emotional intelligence requires the same interactive, experiential methods as kinesthetic and sensory education. Cooperative learning that includes discussion and role play can be useful for understanding different perspectives, resolving conflicts, and improving communication. Again, the use of the body is an integral part of such activities. According to V. Kontautienė (2019), students are united by stimulating interaction and cooperation (the ability to express and receive physical emotional support), which facilitated the formation of a positive psychological climate. This allowed the creativity of the students to be revealed and developed the ability to be confident and self-reliant.

4. The inclusion of the development of spiritual intelligence in this model makes sense, primarily because spirituality is basically giving meaning to the meaning of human life. One definition by E. J. Tisdell (2003) states that spirituality is how people create knowledge, and this process is often carried out in symbolic and unconscious ways, such as creating art through music, dance, images, symbols and rituals. Symbols can then be a concept, a person, a physical object that has a particular meaning, or a movement or gesture (Tisdell, 2003). Much of the spirituality literature makes direct connections between spiritual development(s) and development(s) through our feelings, sensations, and movements. According to S. Fraleigh (2023), spiritual qualities are embodied. We dance and sing them into being.

Based on T. Amann (2003) systematic model, it is important to emphasize the phenomena of kinesthetic and sensory intelligences in the context of empirical research‘s first part. Therefore, it is appropriate to further distinguish and discuss each of both concepts in the somatic field.

Kinesthetic Intelligence (KI) concept in the somatic field. Gardner (1999), who proposed dividing intelligence into several types, states that kinesthetic intelligence involves controlling all or part of one’s body to solve problems, communicate, or fashion products. It is used, for example, in athletics, surgery, dance, and dramatic performances.

KI is the intelligence that is predominant in people who can control their bodily movements and accomplish their goals successfully. This intelligence includes skills such as coordination, dexterity, balance, flexibility, strength, speed. The ability to use his/her body or hands for explains one’s feelings or ideas reflect this intelligence (Armstrong T., 2003; Moran S. Et al., 2006). KI uses the body to solve a problem, understand, or learn (Zobisch P. et al., 2015). Gunawan, S., et al., (2023) points out that KI refers to the capacity to utilize various body parts to address challenges or create objects.

A. El Wardi (2023) uses phenomenological research to analyze how the common characteristics of physiology, psychology and the environment create a unique ecosystem of the body's cellular consciousness, in which a person perceives the totality of being. Through the intersections of soma, perception, and vibration, the body's connections to the mind, the field around the body, and the matrix that connects all dimensions are explored. „Corporeality means something real, something solid, something imbued with animation, something that can resonate and interact with the environment... even in silence“ (Mejia, 2019, p. 2). T. Amann (2003) supports these views by stating that our body and the way it experiences emotions, feelings or movements simultaneously engages and makes sense of information. Cognitive and kinesthetic functions work together with our cultural environment to derive meaning from our experiences.

The inclusion of kinesthetic-based learning activities into educational management is an essential necessity in developing students' creativity (Kusuma, 2014; Taher et al., 2023). Kinesthetic-based learning allows for a more active engagement of students in the learning process, as it involves the incorporation of physical abilities in the comprehension of the material (Gunawan et al., 2023).

Therefore, somatic intelligence is the development of human relationships, because it begins with the body, which stops to listen to itself. And if the body stops listening to itself, it will listen more to time, space, others and what is happening (Magalhães, 2023). The SI field can be thought of as a set of approaches that examines the body in perceptual, motoric, cognitive, creative, and expressive aspects. Body in situation, body in context (ibid.). Although based on the inside, SI is not closed in on itself, but expands into contact with the outside world: somatics enables inner knowledge within us.

In recent years, a more complex, multidimensional view of body awareness has emerged, distinguishing modes of attention such as thinking about the body and being in the body. A person's ability to move from thinking about physical symptoms (explaining, evaluating and ultimately worrying) to a state of awareness in the body, often referred to as mindfulness, is both an object of philosophical discourse and an awareness of a certain quality of the body. W. E. Mehling et al. (2012) define body awareness as the sensory perception arising from the body's physiological states, processes (including pain and emotions) and actions (including movement) and

acting as an interactive process that involves personal evaluation and shapes attitudes, beliefs and experiences in their social and cultural context.

Sensory Intelligence (SnI) concept in the somatic and emotional field. Analyzing scientific research in the context of sensory intelligence, it was found that the concept of emo-sensory intelligence is used more frequently in the scientific field. This is explained by the fact that sensory intelligence is closely related to emotional intelligence, although sensorics has direct connections with the human body and kinesthetic intelligence.

At the beginning of the 21st century, the importance of the body and senses in individuals' cognition was once again recognized (Pishghadam et al., 2022). A. Lombard (2007) extended the concept of intelligence to cover the additional ability of spotting, decoding, and monitoring sensory codes as sensory intelligence (SI). He presented sensory intelligence as a complementary aspect of intelligence, defining it as how sensory adjustments occur to fit with the surrounding environment. R. Pishghadam et al. (2022), sensory intelligence describes individuals' ability to connect with their senses and understand them, ignoring the mediation between senses and cognition.

Scientists analyze that different senses influence the acquisition of knowledge and skills. T. Amann (2003) points out that the use of five senses help create knowledges. Since eyes, ears, mouth, nose, and the ability to touch are parts of the body, sensory education is somatic in nature. According to X. T. Guo (2018) the 3 types of senses helps to acquire different skills: 1) information senses – primary for learning (see, hear); 2) social senses – primary for relationships and social skills (touch, smell, taste); 3) regulation senses – primary for attention and concentration (movement: vestibular and proprioception).

R. Pishghadam, S. Shayesteh (2017), in a study on colors in a culture, developed the concept of emo-sensory (emotional sensory) intelligence by addressing emotional intelligence and sensory intelligence to show the interplay between emotions and senses. Pouryazdanpanah Kermani (Jahani, Aminzadeh, 2024) examined the relationship between emo-sensory intelligence, cognitive learning strategies and students' academic achievement. It was found that emo-sensory intelligence played an important role in enhancing learning strategies, leading to improved academic performance.

Analyzing the field of scientific research in the context of sensory intelligence, it was found that the use of sensory intelligence in educational processes is extremely relevant in the *inclusive education* (for example, Mantey, 2021; Zhao, 2023).

In summary, the historical basis of the concept of somatic intelligence is the emergence of somatic psychology and body-centered therapies. There is a theoretical delay in research on somatic intelligence, but this does not mean the absence of discourse, but shows the complexity of describing this phenomenon related to experience and subjectivity. Recently, in the foreign scientific field, the concept of somatic intelligence is actively researched and developed, modeled (component models are created) and applied in the construction of evaluation systems (questionnaires).

After examining the complexity of the phenomenon of the development of somatic intelligence, it can be emphasized that the interrelationship of movement, emotions and sensations often causes a sense of connection that touches the spiritual sphere. The result of all this is a rich somatic experience. It can be argued that by combining cognition with many areas of somatic education, education itself becomes holistic, and the body constantly emerges as a multifaceted force that gives meaning to human experience.

Methodology

The method of empirical research of the work is qualitative, which is based on phenomenological methodology, when it concentrates on the perception of the researched subjects, their social context, individuals are accepted as active creators of meaning, when it is revealed how people understand and interpret the facts and events of their lives or ongoing phenomena.

The aim of the empirical research is to reveal the ways of developing students' kinesthetic and sensory cognitive processes on the basic of somatic intelligence in the dance class.

This research is part of a larger study on somatic intelligence, i.e. the article presents research results related to only two parts of somatic intelligence – kinesthetic and sensory. The next article will present results related to emotional and spiritual cognitive processes on the basic of somatic intelligence model.

Generalization and sampling. The generalization of qualitative research is of the analytical (Bitinas et al., 2008) or theoretical (Seale, 1999; Smaling, 2003) type, since such a selection of the general population is more related not to the research population, but to the theory being developed.

Qualitative research sample: five dance educators (class/group managers) of formal education institutions in Klaipėda city (Lithuania). Primary school dance pedagogues were chosen for the empirical study for several reasons: first, the discipline of dance is directly and closely related to the body, emotions, sensory, creativity. It is a unique discipline that requires the empowerment of many intelligence‘s aspects; second, especially in dance classes, teachers use a variety of methods that connect different aspects and types of intelligence; thirdly, such a research will help clarify what educational methods and tools can be useful in the lessons of other disciplines, which would lead to greater involvement and motivation of students.

The qualitative research method (instrument) is a semi-structured individual interview. For the qualitative study, questions were prepared based on the model of somatic intelligence (Fig. 1, Table 1).

Formulated questions (Table 2) helped to reveal the peculiarities of the education of somatic intelligence components (kinesthetic, sensory) in the context of a dance lesson. The questions were formulated in an open-ended manner to elicit deep and broad responses. During

the interviews, if there was a need to clarify the obtained data, they were supplemented.

At the beginning of each interview, the research participants were presented with a conceptual working model. When applying the interview instrument, a nominal scale was used to assess the age, work experience and position of the interviewees (demographic data). The answer category is multidimensional.

The process of qualitative research. The qualitative study was conducted in March of 2024 in direct communication with the intervenors; the conversation was recorded with a mobile phone recorder. The research data were also collected in writing.

The logical sequence of the semi-structured interview:

• a meeting between the researcher and the intervenor and the presentation of the theoretical model according to which the empirical study is conducted; explanation of specific concepts;

• collection of demographic data (i.e. questions about age, position and length of service);

• presenting predetermined interview questions, detailing these questions and supplementing them with indirect questions. The interviews took place in the form of a strictly non-formalized interview, creating a more relaxed atmosphere and trust. The semi-structured interview was given unlimited time.

Validity parameters of qualitative research. The chosen strategy for collecting the validity parameters of the qualitative study and their confirmation facts is based on documentation. As little interpretation as possible, the pursuit of objectivity and the use of technology in recording the respondents' answers, allowed us to confirm the internal validity of the qualitative study with the parameters highlighted in Table 3.

Table 1. Research topics on the development of students' kinesthetic and sensory cognitive processes on basic of the somatic intelligence in the dance class

No.	Themes
1.	*Developing Kinesthetic Intelligence:* Movement Creates Meaning
	Explores how learners engage in learning through hands-on manipulatives, physical engagement and role-playing.
2.	*Developing Sensory Intelligence:* Making sense through the senses
	It investigates how feelings, perception and thinking consciousness, emerging through the senses of learners, are included in the educational program.

Table 2. Content of interviews with dance educators (class/group managers)

Question number	The subject area and the content of the question
	Stage 0. Demographic data
1, 2, 3	Age, work experience, duties
	Stage 1. Developing Kinesthetic Intelligence: Movement creates meaning
1.1.	How are fine motor skills used in dance lessons? What methods, techniques and tools are used for this?
1.2.	How are gross motor skills used in dance lessons? What methods, techniques and tools are used for this?
1.3.	What are the applicable tasks related to the development of discipline, diligence, coping with stress, problem solving skills?
1.4.	How are hands-on body manipulation, physical engagement and role-play used in dance lessons?
	Stage 2. Developing Sensory Intelligence: Making sense through the senses
2.1.	How are the different senses (sight, hearing, taste, touch and smell) used in dance lessons to create knowledge?
2.2.	How are the different senses (sight, hearing, taste, touch and smell) used in dance lessons to make the education meaningful?
2.3.	How are students' feelings, perceptions and conscious thinking engaged through the senses of the learners?

Table 3. Parameters of internal validity of qualitative research

Validity parameter	Purpose	Method (resolution)
Reliability/objectivity	Write down and describe the information provided by the respondents as accurately as possible, to avoid subjectivity and interpretation of information	Fixed information in text documents and audio recordings
Adaptability	Summarize the results of qualitative research as accurately as possible	The clearer and more accurate the description of the current situation
Addiction	Assess the situation and circumstances as accurately as possible so that the results of the qualitative research can be used in other studies	Description of the current situation and assessment of limitations
Verifiability	The results obtained during the qualitative research can be used in other works of researchers	Fixed information in text documents and audio recordings

Since analogical, theoretical generalization is important in qualitative research, external validity is assessed here according to the transferability principle, when the aim is to present conclusions that would allow the readers of the research report to understand where they can apply the research results: whether they can transfer them to their own or other situations, contexts, theories being developed.

Results

To conduct an empirical research, questions were formulated that reveal the peculiarities of the development of students' kinesthetic and sensory components of somatic intelligence in dance lessons. Five dance class learners (class managers with codes: In1 – In5), whose age range is from 24 to 52 years old, work

experience in the field of dance pedagogy – from 2 to 18 years, working with 1st to 4th grade students in formal education institutions participated in the research. One man and four women participated in the research.

The following matrices (Tables 4 and 5) present 2 themes of empirical research, 8 categories and their corresponding codes, revealing the peculiarities of the development components (parts) of somatic intelligence. During the research, new code (n) was revealed – this is the "creation of a positive atmosphere".

Table 4. Findings from the qualitative study: 1 theme matrix

1 theme. Developing Kinesthetic Intelligence: Movement creates meaning	
Categories	**Codes**
Fine motor skills training	Methods of training fine motor skills: • 1-2 classes: dance fairy tale with drawing (In2) • 3-4 classes: dance fairy tale with drawing emphasizing details, colors (In2) Tools for training fine motor skills: • a sticks, sheets of paper, paper plates, writing instruments, magnets (In1) • during improvisation lessons - cloths, scarves (In3)
Gross motor skills training	Methods and tools for training gross motor skills: • teamwork (In1) • flashmob (In1) • dance compositions (In1) • warm-up, exercise (In1; In3) • learning new dance steps and combinations (In3) • 1-2 classes: jumps, steps, double step, hand bridges, clapping together with jumps (for rhythm and coordination) (In2) • 3-4 classes: somersaults, somersaults, running while depicting animals (In2) • role-playing games (In1; In2; In3; In4; In5) • performing a movement to the four sides of the hall (In4) • rotation in a circle while showing and performing movements (In5) • rotation in rows (In4; In5) • use of attributes for rhythmic training (In5) • changes in the rhythm of movements during the warm-up (In5)
Discipline, coping with stress, problem solving methods	Methods and tools of ensuring discipline: • rules and agreements (In3) • creating common rules and their criteria with the whole class (In2) • talking (In3) • raised hand and saying "Stop! You must now calm down, take a breath, count to ten"; "Stop! It's unpleasant for me" (In2; In3) • additional time for dance lessons in case of indiscipline (In1) • triad of rules "Silence-Attention-Effort" (In5) Methods and tools of coping with stress: • reflection (In2; In4) • "Faces" (In2), "Masks" (In5) to identify feelings Methods and tools for solving problems: • talking with the teacher (In2) • cooperation with other school specialists (In2)
Physical engagement and role play	• game with story creation (In3) • game with creation of choreography (In3) • game with contact improvisation (In3) • the game „Icebreaker" (In1) • observation lesson (videos) with physical involvement (In2) • creative task-game „Drawings", i.e. performance of movement by changing choreographic figures, drawings (In4) • the game „Space" (In5) • game „Dancefloor" (In5) • role play - animal, bird movement representation (1-2 classes) (In2) • role-playing game „Choreographer-dancers-spectators" (3-4 classes) (In2) • role-playing game „Dance teacher – assessor" (In3) • role play „Day and Night" for relaxation (In2) • role-playing game „Dance Levels" (In4) • role-playing game „Animals of Africa" (In4)

Evaluating the peculiarities of the development of kinesthetic intelligence, it is stated that both fine and gross motor skills are used in the dance lesson. A lot of tools are used in the dance class to develop fine motor skills - pebbles, sheets of paper, paper plates, writing instruments, magnets, cloths, scarves.

However, almost all participants noted that they mostly use gross motor training methods: *Anyway, we mostly work with gross motor skills in dance lessons, it's quite natural and understandable* (In1); *Considering that fine motor skills are fingers, fine scratching, some kind of digging, I don't know, sorting, well, that's really not much. Just drawing. What I use* (In2); *Fine motor skills are rarely used in dance classes. If used, usually during improvisation lessons* (In3). The research participants named many methods and tools for training gross motor skills, including elements of the structure of a dance lesson (for example, exercise), specific movements, orientation in space while moving, composition and improvisation in groups, use of counterpoint for rhythmic training, division of movement material into different time intervals, etc.

The peculiarities of the development of kinesthetic intelligence can also be attributed to methods and tools that promote discipline and help manage stress and conflicts. *Third- and fourth-graders - there are usually different conflict situations with them. There are various external circumstances, something happens even outside the boundaries of the school* (In2). A large number of role-playing games with physical involvement are also used (15 different games). *Role-playing games save by improvising, as well as by choosing class leaders, or vice versa - by moving inactive students* (In1); *In a class with a child with special needs... I let him get involved - for example, he as a teacher can evaluate who danced best* (In4).

Applied role-playing games develop not only body motility, but also imagination, cooperation skills, help to get more involved in the educational process.

Table 5. Qualitative research findings: 2 theme matrix

Topic 2. Developing Sensory Intelligence: Making sense through the senses	
Categories	**Codes**
Creating a positive atmosphere (n)	Creating an atmosphere: • intense lighting (In1) • pleasant aroma (In1) • own class outfit colour (In4) Building trust and a sense of security: • handshake (In1; In2; In5)
Using the senses to create knowledge	Knowledge creation: • demonstration of the teacher's own moving material (In2) • improvisational dancing according to the relevant dance genre (In5) Cultural awareness: • testing footwear for different dance styles (inspection, putting on, jumping) (In1; In2) • national dance costume testing (inspection, touch, try-on) (In1) • visual material monitoring (In1; In3) • Lithuanian region Aukštaitija on contractual issues (In2) • Discussion of the classification of dishes specific to the regions of Lithuania (In2) Environmental awareness: • outdoor dance lesson exploring the sights and sounds of the environment (In3) • game through taste associations (orange: sweet-sour) (In2) • dances of world regions (In4)
Using the senses to make sense of education	Using the senses to develop critical thinking: • role-playing game „Dance teacher – evaluator“ (In3; In5), which is also applicable to special needs of children for their inclusion • observation of elements of the contemporary dance genre in videos (In2)
Involvement of feelings, perception and thinking consciousness through the developing senses	Involvement of the senses: • writing self-evaluation letters at the end of the semester (In3) • sharing personal experience (teacher, student) (In1) • the game „Color Dance“ with the sequence of associations: color-music-feelings (In4) • self-assessment on five levels „Dance level in me“ (In4) Using the senses to develop critical thinking: • role-playing game „Dance teacher-evaluator“ (In3) • self-reflection (determination of internal energy level) (In4) • self-evaluation on three levels „Like“ (In5)

(n) – the new category

Analyzing the features of the development of sensory intelligence, it was noticed that during the dance class, efforts are made to create a positive, favorable atmosphere using light and smell, and a sense of trust and security is created (a new research category). Even three interviewees emphasized that holding children's hands creates a sense of security and trust, and this is an important psychological aspect in a dance lesson. *By using different senses in dance lessons, children get more involved in the activities* (In1). With the help of senses (sight, hearing, smell, touch), new knowledge is created, cultural knowledge of the environment surrounding the child is implemented, and critical thinking is developed.

In the context of cultural knowledge, students are introduced to the cuisine characteristic of the regions of Lithuania, the (contractual) features of singing, the specifics of the national costume and footwear, for example: *Touching - also the same regions, Lithuanian folk dance and what kind of footwear was, so let's say, <...> what I I can give the children, touch them, that is, for example, clogs. Let's pass it through our hands, let's see what it's made of. You can try to put it on and jump to feel more like it was there before* (In2).

To learn about the surrounding environment, dance lessons are held outdoors, when children are given creative tasks related to natural phenomena, animals, birds. Such a presence in a natural space, connecting different senses, gives a deeper understanding of knowledge and experiences in the educational process. It is noted that the use of senses is more appropriate in modern dance lessons: *Still, for children, I see those senses more in modern dance than in Lithuanian folk dance* (In2). *Contemporary dance, as we know, is more erratic, let's call it that. And it is sometimes difficult for them to understand, because in schools we do not cover modernity as it really is. And when you show the video, they get really weird. They hear very strange music, they see very strange movements, but then they understand more why it is modern* (In2). The category of using the senses to create knowledge is the largest in the topic of sensory intelligence, i.e. dance pedagogues actively apply this methodology in their professional activities. *Why, I think that those sensations are needed, so that you can*

empathize and better understand what it is about (In2). Ways and means of involving feelings are also used - it is a form of various (self)reflection practices of self-evaluation, experience sharing and games. During the research, it became clear that in the classes of one teacher, many educational tools and methods are related to the therapeutic aspect of colors: *Each class has its own color, for example, purple class, green class (In4); I use reflection - who liked what dance, what color it was (In4).*

It can be said that the development of sensory intelligence is significant in the context of education, as it helps to create new knowledge, give meaning to education, and increase the inclusion of students' feelings, perception and thinking consciousness.

In order to systematize and summarize the abundance of categories and codes of the study, a scheme was drawn up showing certain regularities (Fig. 3).

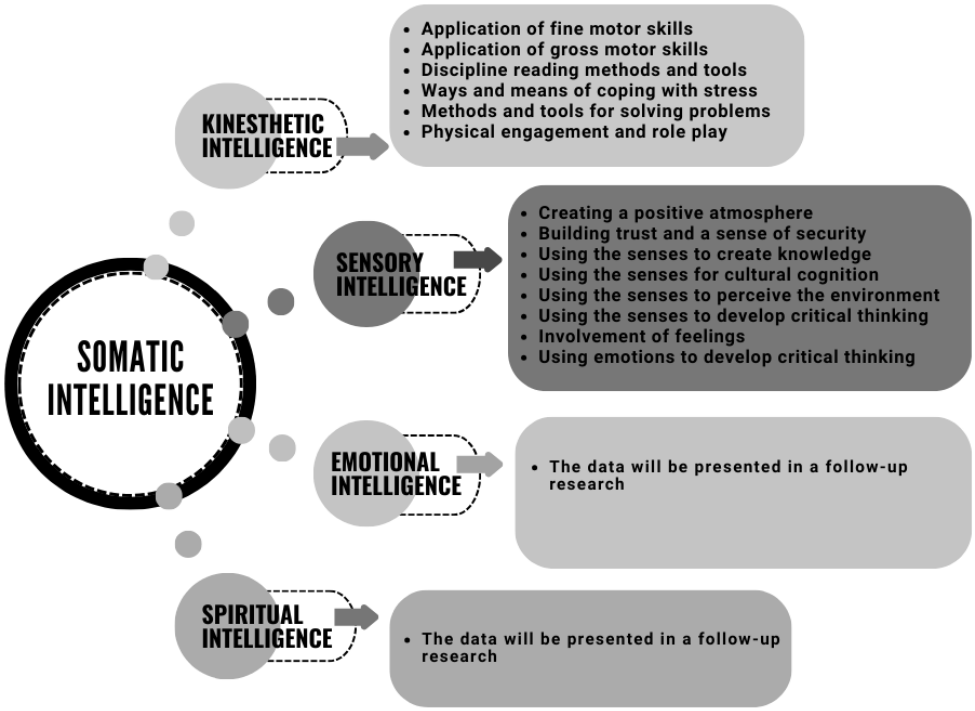

Fig. 3. The features of developing students' kinesthetic and sensory cognitive processes on the basic of somatic intelligence in the dance class

The results of the qualitative research allow us to assert that the kinesthetic and sensory parts of the somatic intelligence of the 1st-4th grades students in Klaipėda city formal education institutions are developed in a complex way – a variety of methodological methods and tools are used. Figure 3 shows that a lot of attention is paid to the development of sensory intelligence (8 codes) and kinesthetic intelligence (6 codes). The methods and tool of somatic intelligence education applied in schools have the potential to be used in the context of the education for children with special educational needs (inclusional education), since there are quite a few methods of sensory intelligence education.

During the research, it was found that the methods and tools used for the development of sensory intelligence include the following aspects: creating a positive atmosphere, creating a sense of trust and security; the use of educational senses to create knowledge, cultural and environmental knowledge, training of critical thinking; involving the feelings of students and the teacher (group leader), using feelings for the development of critical thinking. Methods of developing kinesthetic intelligence include: development of fine and gross motor skills; discipline-reading methods and tools, methods and tools for overcoming stress and solving problems; physical involvement through role playing and other games.

Conclusions

Somatic intelligence is a type of human intelligence that includes self-regulation, emotional awareness, and listening to the body. Analyzing the scientific literature, it becomes clear that there are few theoretical works and empirical studies of somatic intelligence in Lithuania, but this does not mean the absence of discourse. Recently, the concept of somatic intelligence has been actively explored in the foreign scientific field using concepts such as somatic awareness, body awareness or interoceptive awareness; creating different models that enable detailing and structuring the concept of somatic intelligence; when constructing assessment systems (questionnaires). The concept of somatic intelligence, from a theoretical point of view, is a new and rarely studied phenomenon that requires in-depth research on a global and (especially) Lithuanian scale.

Developing somatic intelligence creates a new teaching method that enables more effective

implementation of educational goals. Everyone can increase their level of somatic intelligence by learning to control their body. The goal of somatic pedagogy is to link emotional, kinesthetic, sensory and spiritual education. Greater involvement in experiential somatics could be a way for pedagogues (group managers) to create new methods education, allowing learners to achieve special knowledge. The complexity of the phenomenon of somatic education describes the interrelationships of movement, emotions and sensations, which cause a sense of interaction that touches the spiritual sphere. In this way, the somatic experience is enriched. By combining cognition with many areas of somatic education, education itself becomes holistic, and the body becomes a multifaceted force that gives meaning to human experience.

The somatic intelligence of primary school students in Klaipėda city formal education institutions is developed in a rather complex way. Methods and means of developing sensory intelligence include: creating a positive atmosphere, creating a sense of trust and security; the use of educational senses to create knowledge, cultural and environmental knowledge, training of critical thinking; involvement of students' and teacher's feelings, use of feelings for the development of critical thinking. Kinesthetic intelligence training methods include: training of fine and gross motor skills; methods and tools promoting discipline, methods and tools for overcoming stress and solving problems; physical involvement through role playing and other games.

The following methods and tools can be briefly distinguished, which allow developing the kinesthetic and sensory aspects of somatic intelligence:

- use of colour (drawing) methods to identify and explain a phenomenon, process, problem, feelings, emotions;
- use of rhythmic games (for relaxation, motor skills, coordination, to create a sense of togetherness);
- inclusion of classroom management (co-creation of common rules);
- the use of role-playing games (for the perception and cognition of the examined process and situation through sensory and kinesthetic aspects, to create a sense of community);
- the use of various object attributes in the educational process, which will overcome sensory aspects in cognition;
- use of reflexive methods/talking (for stronger and deeper reflection, to create communication and cooperation relationships, to increase awareness of oneself and others, to cope and manage stress).

These methods identified during the research can be used not only by primary school dance teachers. The methods can be used in the lessons of other age groups students and other disciplines (both arts and humanities, social and technical sciences). Another important aspect is that sensory intelligence development methods can be widely applied during inclusive education, when students with special needs cannot be educated in standard ways.

The use of all the listed methods and tools can increase the level of students' involvement in the educational process, creation and assimilation of familiar and specific knowledge, the level of well-being and motivation.

Research results related to other aspects of somatic intelligence (emotional and spiritual intelligence) will be presented in next article.

References

Amann, T. (2003). Creating space for somatic ways of knowing within transformative learning theory. *Proceedings of the fifth international conference on transformative learning*, 26–32. [revised 2023 11 15], https://www.yogafit.com/research/transformative.doc

Anderson, R. (2006). Body intelligence scale: defining and measuring the intelligence of the body. *The Humanistic Psychologist*, 34(4), 357–367.

Armstrong, T. (2003). The multiple intelligences of reading and writing: Making the words come alive. Ascd. E-book.

Bannon, F. (2010). Dance: The possibilities of a discipline. *Research in Dance Education*, 11(1), 49–59.

Barratt, B. B. (2013). *The emergence of somatic psychology and bodymind therapy*. London: Palgrave Macmillan.

Batson, G. (2009). The somatic practice of intentional rest in dance education preliminary steps towards a method of study. *Journal of Dance & Somatic Practices*, 1(2), 177–197.

Berkley, L. A. (2024). INNER ECONOMY. *Leadership at the Spiritual Edge: Emerging and Non-Western Concepts of Leadership and Spirituality*.

Bitinas, B., Rupšienė, L., Žydžiūnaitė, V. (2008). *Kokybinių tyrimų metodologija*. Klaipėda: Klaipėdos universiteto leidykla.

Blake, A. (2009). Developing somatic intelligence: Leadership and the neurobiology of embo-died learning. *Amanda Blake*. [revised 2023 12 21], file:///C:/Users/Admin/Desktop/Somatic%20Int/Developing-Somatic-Intelligence-NLJ10x.pdf

Clark, C. (2001). Off the beaten path: Some creative approaches to adult learning. *New Directions for Adult and Continuing Education*, 89, 83–91.

Craycroft, K. (2024). Exploring somatic awareness in decision making: how intuition and somatic awareness together play a role in decision making among somatic practitioners. [revised 2024 08 15], https://jyx.jyu.fi/handle/123456789/94958

Crowdes, M. S. (2000). Embodying sociological imagination: Pedagogical support for linking bodies to minds. *Teaching Sociology*, 28(1), 24–40.

De Silva, P. (2017). *Emotions and the body in Buddhist contemplative practice and mindfulness-based therapy: pathways of somatic intelligence*. Berlin: Springer.

Eddy, M. (2009). A brief history of somatic practices and dance: Historical development of the field of somatic education and its relationship to dance. *Journal of Dance and Somatic Practices*, 1(1), 5–27.

El Wardi, A. (2023). *Sound Bodies, Light Bodies: Phenomenological Research on the Intelligence of Soma Through Relational, Vibrational Atonement of Self, Others, and Environment*. Doctoral dissertation, Saint Mary's College of California.

Fraleigh, S. (2023). *Somatics in Dance, Ecology, and Ethics: The Flowing Live Present*. Bristol: Intellect Books.

Freedman, A., Silow, T., Gold, S., Pope, T., Arnault, D. S. (2022). The Somatic Post-Encounter Clinical Summary (SPECS): A New Instrument for Practitioners and Researchers to Measure the Wisdom of Somatic Intelligence. *International Body Psychotherapy Journal*, 21(1), 66–75.

Gardner, H. (1993). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.

Gardner, H. (1999). *Gardner Intelligence Reframed*. New York: Basic Books.

Ginot, I. (2010). From Shusterman's somaesthetics to a radical epistemology of somatics. *Dance Research Journal*, 42(1), 12–29.

Green, J. (1998). Engendering bodies: Somatic stories in dance education. *The Annual Meeting of the American Educational Research Association* (pp. 1–33), San Diego, CA, 13–17 April.

Gunawan, S., Syifa, M., Irianto, D. M., Sukardi, R. R. (2023). Investigates The Implementation of Kinesthetic Intelligence-based Thematic Learning: A Case Study in Elementary School's Second-Grade. *Equator Science Journal*, *1*(1), 1-8.

Guo, X. T., Wang, X. D., Liang, X. Y., Wang, M., Chen, L. (2018). Sensory intelligence for extraction of an abstract auditory rule: a cross-linguistic study. *Neuroscience*, *372*, 246-254.

Hill, S. (2016). *Somatic Intelligence: The Conversation Every Body Wants to Have with You*. San Rafael: One Sky Productions.

Kaparo, R. F. (2012). *Awakening somatic intelligence: The art and practice of embodied mindfulness*. Berkeley, CA: North Atlantic Books.

Karakus, M., Toprak, M., Caliskan, O., Crawford, M. (2024). Teachers' affective and physical well-being: emotional intelligence, emotional labour and implications for leadership. *International Journal of Educational Management*, *38*(2), 469-485.

Kontautienė, V. (2019). Development and evaluation of the students' collaboration skills working in international teams. *Vadyba*, *35*(2), 97-104.

Kováčová, P., Drahotský, O. (2022). Interpersonal communication in retail. *Management/Vadyba (16487974), 38(1).*

Lombard, A. (2007). *Sensory Intelligence*. Cape Town: Metz Press.

Magalhães, M. C. (2023). Somatic Approaches in the Educational Formation in Dance: from the dryness of the background to curriculum as cartography. *Revista Brasileira de Estudos da Presença*, 13(3), e129382.

Mantey, E. K. L. (2021). *Impact of Inclusive Education Experiences on Satisfaction, Persistence and Academic Performance of Teacher-trainees With Sensory Impairment: the Moderating Role of Self-efficacy* (Doctoral dissertation, University of Cape Coast).

Mehling, W. E., Price, C., Daubenmier, J. J., Acree, M., Bartmess, E., Stewart, A. (2012). The multidimensional assessment of interoceptive awareness (MAIA). *Plos One*, 7(11), e48230.

Mejia, D. (2019). PAR and Embodiment: Dance, Corporeality, and the Body in Research. *PARtake: The* Journal *of Performance as Research*, 2(2), 1–3.

Moran, S., Kornhaber, M., Gardner, H. (2006). Orchestrating multiple intelligences. *Kaleidoscope: Contemporary and classic readings in education*. 188-192.

Olech, M., Jurek, P., Radtke, B. M., Sajewicz-Radtke, U., Łada-Maśko, A. (2024). Intelligence assessment of Children & Youth Benefiting from Psychological-Educational Support System in Poland. *Scientific Data*, *11*(1), 826.

Pishghadam, R., Faribi, M., Shayesteh, S. (2022). Intelligence, emotional intelligence, and emo-sensory intelligence: Which one is a better predictor of university students' academic success?. *Frontiers in Psychology*, *13*, 995988.

Pishghadam, R., Shayesteh, S. (2017). Emo-sensory expression at the crossroads of emotion, sense, and language: A case of color-emotion associations. International Journal of Society, Culture & Language, 5(2), 15-25.

Ramadanova, Z., Kulbekova, A. (2023). Epistemological and cognitive aspects of the phenomenon of dance and corporeality. *Journal of the Philosophy of Sport*, 50(2), 175-189.

Rimmer-Piekarczyk, R. (2023). Destabilizing the habitus in contemporary dance technique training: The 'reflexive-dialogical'as a mode of 'practising'. *Journal of Dance & Somatic Practices*, 15(1), 119–131.

Rufo, R. (2023). Humans, Trees, and the Intimacy of Movement: An Encounter with Ecosomatic Practice. *European Journal of Ecopsychology*, 8, 88–113.

Seale, C. (1999). Quality in qualitative research. *Qualitative inquiry*, 5(4), 465–478.

Smaling, A. (2003). Inductive, analogical, and communicative generalization. International *Journal of Qualitative Methods*, 2(1), 1–31.

Skelton, K. (2024). Integrating Disciplines-Disciplining Integration: Opera Curriculum through a Transdisciplinary Counter-Critical Pedagogy. In *Futures of Performance* (pp. 160-176). Routledge.

Tantia, J. (2019). Distinguishing somatic psychotherapy[1] from dance/movement therapy[2]. *The Routledge International Handbook of Embodied Perspectives in Psychotherapy: Approaches from Dance Movement and Body Psychotherapies*. London, New York: Routledge.

Tisdell, E. J. (2003). *Exploring spirituality and culture in adult and higher education*. New Jersey: John Wiley & Sons.

Vancea, F. (2020). Unifying Personal Development Through Dance and Movement and Increasing the Level of Bodily Intelligence. *Journal of Education in Black Sea Region*, 6(1), 52–61.

Wait, N. (2019). *Western Improvised Dance: Practices, Pedagogies, and Language*. Doctoral dissertation, UNSW Sydney.

Williamson, A. (2021). Self-regulation, co-regulation and cardio-ception: Parasympathetic ease-and-release in Somatic Movement Dance Therapy. *Dance, Movement & Spiritualities*, 8(1), 109–161.

Zhao, Z. (2023). Effects of Visual Impairment on Sensory Integration and New Opportunities for Inclusive E-Learning Managing. *International Journal of Disability, Development and Education*, *70*(7), 1355-1369.

Zobisch, P., Platine, D., Swanson, A. (2015). The theory of multiple intelligences and critical thinking. GLOKALde, 1: 2-10.

Zulfahmi, M. R. Y., Roza, V. (2024). The Effect Of Using The Savi (Somatic, Auditory, Visualizing, And Intellectual) Method Toward Writing Skills Across Gender. *Morfologi: Jurnal Ilmu Pendidikan, Bahasa, Sastra dan Budaya, 2*(2), 273-281.

RECEIVED: 10 April 2024 ACCEPTED: 30 June 2024 PUBLISHED: 29 October 2024

Jelena Dementjeva, assoc. prof. dr., Lithuania Business College, Head of Economics department. Field of scientific research: intellectual capital in business management, intelligence management, digital marketing management. Taikos pr. 32A-42, Klaipėda. +37061258415. E-mail: jelena.dementjeva@ltvk.lt; jelena.dem25@gmail.com. Education: Doctoral degree in Management (social sciences). Dissertation topic: „Organization creativity management based on the intellectual capital“ (2011-2018). Klaipėda University, Faculty of Social Sciences, Master's degree in Management and Business administration (2007-2009). Klaipėda University, Faculty of Social Sciences, Bachelor's degree in Economics (2003-2007). Lithuanian Theatre and Music academy, Bachelor's degree in Arts and Pedagogy (2020-2024). ORCID ID: https://orcid.org/0009-0009-5920-9558

https://doi.org/10.38104/vadyba.2024.2.08

Vadyba
Journal of Management
2024, № 2 (40)
ISSN 1648-7974

A HOLISTIC APPROACH TO THE BANKING SECTOR: PERFORMANCE AND EFFICIENCY ANALYSIS OF TURKISH BANKS USING CoCoSo AND DEA METHODS

Ümit Hasan Gözkonan[1], İpek Yeniay Hatipoğlu[1], Samanta Straupaite-Simonavice[2]
[1]Manisa Celal Bayar University, [2]Klaipeda University

Abstract
The banking sector is a vital component of global economies, playing a critical role in ensuring financial stability by gathering savings, providing credit, and facilitating various financial transactions. Banks not only support economic growth but also act as intermediaries between surplus and deficit units within the economy. Therefore, evaluating their financial performance and efficiency is crucial for understanding the overall health of the financial system. This study analyzes the financial performance and efficiency of the top 10 banks in Turkey, which are ranked by asset size, over a 10-year period from 2013 to 2022. Using the Combined Compromise Solution (CoCoSo) method, the study ranks these banks based on various financial criteria, such as capital adequacy, asset quality, liquidity, and profitability. CoCoSo is a multi-criteria decision-making method that allows for comprehensive performance analysis by considering multiple factors simultaneously. In addition to CoCoSo, Data Envelopment Analysis (DEA) is used to evaluate the efficiency of these banks in utilizing their resources to generate financial outputs. The study's findings reveal that privately-owned banks, particularly Akbank T.A.Ş., consistently rank at the top in terms of both financial performance and efficiency. Akbank's strong performance is attributed to its effective resource utilization and strategic management decisions. State-owned banks, on the other hand, generally show lower financial performance, even though they exhibit high efficiency levels. This discrepancy suggests that public banks may be focusing on non-profit-driven projects that contribute to public welfare, which in turn affects their overall financial performance. Foreign-owned banks, such as Garanti Bankası and Denizbank, also demonstrate strong financial performance but show varying degrees of efficiency, with Denizbank being relatively less efficient in resource utilization. By employing both the CoCoSo and DEA methods, this study offers a unique dual-method approach that provides a comprehensive evaluation of the Turkish banking sector. The combination of these two methods allows for a more nuanced understanding of both financial performance and efficiency, offering valuable insights for policymakers, bank management, and researchers. The study not only highlights the strengths and weaknesses of individual banks but also underscores the importance of efficient resource management for sustaining competitive advantage in a highly dynamic banking environment. The results of this study can serve as a robust framework for future research on bank performance evaluation, especially in emerging markets. Moreover, the study's methodology can be applied to other sectors or countries to provide cross-sectional and time-series analysis, contributing to the broader literature on financial performance and efficiency.
KEYWORDS: Banking, Financial Performance, Financial Efficiency, Multi-Criteria Decision-Making, Combined Compromise Solution, Data Envelopment Analysis
JEL classification: D53, G21, P17

Introduction

The internationalization of trade and the emergence of money-related institutions led to the emergence of the banco as a pioneer. The word "banco" refers to the table where the money changers conducted their transactions. In case of bankruptcy, the public would express this by breaking their "banco". This gave the term "bancrupt" to bankrupt people in Western languages. The expansion of the fields of activity of the money changers, accepting deposits and making transfers, transformed them into "deposit and transfer banks". Money trade emerged with the trade in goods and capital. The development of trade capital made banks an important part of economic life. (Aydın, 2010; 21).

Today, the banking sector plays a crucial role in the global economy. By fulfilling various tasks in financial markets, this sector contributes to the healthy functioning of the economy. The role of banking in financial markets includes enhancing capital mobility, providing liquidity, managing risks, and building resilience against economic fluctuations. Moreover, the credit facilities offered by banks support economic growth by providing financing opportunities to investors and entrepreneurs, infusing vitality into the business world.

The financial performance and efficiency of banks in financial markets can be regarded as an indicator of a country's economic health. Strong financial performance by banks can enhance economic stability and foster confidence in financial markets. Conversely, poorly performing banks may become vulnerable to economic crises, potentially causing issues in the overall financial system. Therefore, effective evaluation and monitoring of banks can help identify potential issues in financial markets before they occur.

In Turkey, the first banking activities in the modern sense started towards the end of the 19th century, during the Ottoman Empire. The first bank was established in 1847 by Galata Bankers under the name of Istanbul Bank. In the following years, the banking sector started to expand with the establishment of private banks. After the proclamation of the Republic, especially in the first half of the 20th century, various regulations and reforms were introduced to the banking sector in Turkey. In 1924, Türkiye İş Bankası, the first private sector bank, started operations, and in 1925, Türkiye Sanayi ve Maadin Bankası, the first development bank, was established (Parasız, 2014; 20). With the regulations made in the 1930s, steps were taken towards the establishment of the Central Bank and the auditing of the banking sector.

Developments in financial markets in the 1960s led Turkey to further modernize its banking sector. With the transition to a free market economy in the 1980s, the banking sector became more competitive. Privatizations and the inflow of foreign capital into the sector have contributed to the Turkish banking system becoming more in line with international standards. Moreover, in recent years, there have also been major developments in the field of digital banking due to technological advances. Banks operating in Turkey have rapidly adapted to digitalization and financial technologies and started to offer more effective and diverse services to customers. This evolution is considered to have made Turkey's banking sector stronger and more competitive.

As of 2023, according to the Banks Association of Turkey, the number of banks in Turkey reached 58. Of these, 32 were deposit banks, 3 were banks transferred to the Savings Deposit Insurance Fund (TMSF), 17 were development and investment banks, and 6 were participation banks. However, in parallel with digitalization and changes in customer preferences, the downward trend in the number of branches continued until December 2022. According to data from the Banks Association of Turkey, the number of branches decreased by 131 units from 9,792 in 2021 to 9,661 in 2022. As of March 2023, the number of branches is 9,667. Despite the decrease in the number of branches due to digitalization and the positive contribution provided by technology, the decrease in the number of personnel, which started in 2018, continued until 2021, and showed an increase again in 2022. In 2021, the number of employees increased by 3,439 from 185,248 to 188,687. This increase continued in 2023. According to March 2023 figures, the total number of employees in the sector is 191,209. With the impact of technological transformation and digitalization, the trends in the number of branches and personnel of banks are expected to continue in 2023 and beyond. On the other hand, digital banking is developing rapidly in Turkey as in the rest of the world. According to data published by the Banks Association of Turkey (TBB), the number of active digital banking customers in 2022 increased by 16 million 549 thousand people compared to the previous year and reached 94 million 390 thousand people (Vardar, 2023; 9).

This study examines the comparative analysis of the performance of banks in Turkey using the Combined Compromise Solution (CoCoSo) method, which was introduced to the literature in 2019. CoCoSo is a new method among multi-criteria decision-making techniques and is an effective tool providing a combined solution for financial performance analysis. In the second phase of the study, the efficiency of the banks was measured using Data Envelopment Analysis (DEA). DEA is a frequently used method in financial efficiency measurement.

This study aims to fill this gap by applying the CoCoSo and DEA methods to the top 10 banks in Turkey, ranked by asset size. The novelty of this research lies in its dual-method approach, which combines CoCoSo's comprehensive performance ranking with DEA's efficiency measurement. This methodology offers a more nuanced understanding of the banking sector's dynamics and provides robust insights for policymakers and stakeholders in the financial industry.

Literature Review

In the literature, several studies have analyzed bank performance and efficiency using various data sets and methods. In this regard, some of these studies have been mentioned in this section.

Önder, Taş, and Hepşen (2013) converted subjective and objective assessments of financial stakeholders into a quantitative format to rank the financial performance of Turkish banks. Their study found that Akbank had the best financial performance among the banks analyzed.

Sáez-Fernández, Picazo-Tadeo, and Beltrán-Esteve (2015) assessed the technical efficiency of domestic and foreign banks in Latin America and the Caribbean. The findings indicated that foreign banks were more efficient due to their advanced technology.

Chu (2016) explored the relationship between financial openness and the performance of Chinese banks. The study concluded that financial openness positively affected bank performance.

Mousa, Judit and Zeman (2018) examined the impact of credit and capital risk on the performance of Syrian private banks from 2009 to 2016. It emphasized the crucial role of risk in banking success and stability, highlighting the need for effective risk management mechanisms. The study focused on six selected Syrian private banks and analyzed their financial data to examine the relationship between credit risk, capital risk, and banking performance, measured by return on equity (ROE). The research methodology involved regression analysis and descriptive statistics using SPSS software. The findings contributed to the understanding of how risk factors influence the profitability and sustainability of banks in the Syrian financial market.

Yazdi, Hanne, and Osorio Gómez (2020) evaluated the performance of Colombian banks using a hybrid approach that combined the Balanced Scorecard (BSC) and Multicriteria Decision Making (MCDM) methods. The results indicated that the International Bank of Colombia exhibited superior performance.

Wasiaturrahma et al. (2020) assessed the efficiency performance of conventional and Islamic rural banks in Indonesia. The findings revealed that while the banks were efficient in production, they were inefficient in their intermediation role.

Saez-Fernandez, Picazo-Tadeo, and Beltran-Esteve (2021) evaluated the technical efficiency of Brazilian banks. Their study highlighted that investment banks outperformed commercial banks due to superior management efficiency.

Lileikienė, Obi and Valackienė (2021) evaluated the safety and profitability of EU and US banks post-Basel III regulations. It emphasized the significance of the Capital Adequacy Ratio (CAR) in measuring bank safety and absorbing losses. While both regions have improved safety standards with higher CAR and liquidity ratios, profitability has been a concern, particularly in the EU. Basel III has led to increased regulatory requirements and mixed impacts on bank performance, prompting ongoing research on its effectiveness in ensuring financial stability.

AÇiftaslan and Rençber (2022) analyzed the performance of systemically important banks in Turkey

using IDOCRIW and CoCoSo methods. The study noted increasing performance trends for Ziraat Bank, İş Bankası, and Garanti Bank.

Sharma and Kumar (2023) prioritized sustainability performance indicators for Indian banks, with environmental dimensions ranking highest in importance.

Data and Methodology

This study was conducted on the 10 banks with the largest asset value operating in Turkey according to the 2023 data of the Banks Association of Turkey. The banks and their ownership status are shown in Table 2. The study covers the period between 2013 and 2022. Since the year-end financial ratios for 2023 have not yet been published, the year 2023 is not included in the study. The financial ratios of banks are taken from the database of the Banks Association of Turkey. The financial performance of the banks included in the study was analyzed using the CoCoSo method. The method, which was introduced to the literature by Yazdani et al. in 2019, was preferred because it offers a combined solution and there is not enough application in the financial literature. In the second stage, Data Envelopment Analysis (DEA) was used to measure the efficiency of banks. In this way, both the financial performance and efficiency of banks are analyzed in order to provide a holistic approach to the overall outlook of banks.

Table 2. Bank Ownership Status

Name of the Banks	Ownership
Türkiye Cumhuriyeti Ziraat Bankası A.Ş.	Public Capital (State-Owned)
Türkiye Halk Bankası A.Ş.	Public Capital (State-Owned)
Türkiye Vakıflar Bankası T.A.O.	Public Capital (State-Owned)
Akbank T.A.Ş.	Private Capital (Privately Owned)
Türk Ekonomi Bankası A.Ş.	Private Capital (Privately Owned)
Türkiye İş Bankası A.Ş.	Private Capital (Privately Owned)
Yapı ve Kredi Bankası A.Ş.	Private Capital (Privately Owned)
Denizbank A.Ş.	Foreign Capital (Foreign Owned)
QNB Finansbank A.Ş.	Foreign Capital (Foreign Owned)
Türkiye Garanti Bankası A.Ş.	Foreign Capital (Foreign Owned)

The financial ratios used in the study to rank banks in terms of financial performance are given below (The preferred status for the financial ratio is indicated in parentheses).

- Capital Adequacy Ratio (MAX)
- Equity / Total Assets (MAX)
- Nonperforming Loans / Total Loans (MIN)
- Long Term Assets / Total Assets (MIN)
- Liquid Assets / Total Assets (MAX)
- Liquid Assets / Short-Term Liabilities (MAX)
- Return on Average Assets (MAX)
- Return on Average Equity (MAX)
- Net Interest Income After Special Provisions / Total Assets (MAX)
- Interest Expenses / Total Expenses (MIN)

Within the scope of the study, the CoCoSo method was used to rank banks in terms of financial performance. The steps of the CoCoSo method are as follows (Ecer, 2020; 301).

Step 1: In the first step, an initial decision-making matrix consisting of m alternatives and n criteria is created.

$$X=\begin{bmatrix} a_{11} & a_{12} \dots\dots\dots & a_{1p} \\ a_{21} & a_{22} \dots\dots\dots & a_{2p} \\ \vdots & \vdots \quad \dots\dots\dots & \vdots \\ a_{m1} & a_{m2} \dots\dots\dots & a_{mp} \end{bmatrix}$$

Step 2: Normalize the benefit and cost criteria. Thus, a normalized matrix is obtained. Equation 1 is used for the normalization of the benefit criteria (max) and Equation 2 is used for the normalization of the cost criteria (min).

Equation 1:

$$n_{ij} = \frac{x_{ij} - minx_{ij}}{maxx_{ij} - minx_{ij}} \quad (i = 1,\dots,m \text{ ve } j = 1,\dots,p)$$

Equation 2:

$$n_{ij} = \frac{maxx_{ij} - x_{ij}}{maxx_{ij} - minx_{ij}} \quad (i = 1,\dots,m \text{ ve } j = 1,\dots,p)$$

Step 3: S_i and P_i values are calculated. Si is calculated as in equation 3 and P_i is calculated as in equation 4. To obtain S_i and Pi values, the weights of the criteria must be found. In the literature, there are objective and subjective methods used as criteria weighting methods. However, these methods may give high weights to some criteria. Therefore, in this study, S_i and P_i values were calculated by giving equal weight to all criteria.

Equation 3:

$$S_i = \sum_{j}^{n} (w_j n_{ij})$$

Equation 4:

$$P_i = \sum_{j}^{n} (n_{ij})^{w_j}$$

Step 4: Three evaluation strategies ($\xi_{ia}, \xi_{ib}, \xi_{ic}$) are calculated using equations 5, 6, and 7 below. These values are also the relative performance scores of the alternatives. In Equation 7, the value of a is usually chosen as 0.5. However, the choice of λ value depends on the decision maker. In this study, 0.5 is used as λ value.

Equation 5:

$$\xi_{ia} = \frac{P_i + S_i}{\sum_{i=1}^{m}(P_i + S_i)}$$

Equation 6:

$$\xi_{ib} = \frac{S_i}{min_i S_i} + \frac{P_i}{min_i P_i}$$

Equation 7:

$$\xi_{ib} = \frac{\lambda(S_i) + (1-\lambda)(P_i)}{(\lambda max_i S_i + (1-\lambda)(max_i P_i)}; 0 \leq \lambda \leq 1$$

Step 5: Using equation 8, the final rankings of the alternatives are determined. The alternatives are ranked in descending order according to their ξ_i scores. The alternative with the highest ξ_i is also the alternative with the best performance.

Equation 8:

$$\xi_i = (\xi_{ia} \cdot \xi_{ib} \cdot \xi_{ic})^{\frac{1}{3}} + \frac{1}{3}(\xi_{ia} \cdot \xi_{ib} \cdot \xi_{ic})$$

In the second stage of the research, the efficiency levels of banks were analyzed. The DEA methodology is divided into two main models: the Charnes-Cooper-Rhodes (CCR) model for input and output under the assumption of constant returns to scale and the Banker-Charnes-Cooper (BCC) model that accepts the assumption of variable returns to scale.

In determining the DEA model, it was examined which of the input and output variables could be controlled more by the bank. Considering that banks have more control over input variables, the input-oriented CCR model was used under the assumption of constant returns to scale. The following input variables and output variables of the banks were used for efficiency analysis.

Input Variables

- Number of Branches
- Number of Staff

Output Variables

- Total Deposits
- Total Loan
- Net Profit (Loss)

The steps of the DEA method are as follows (Yıldırım & Önder, 2018; 209).

$$maxh_0 = \frac{\sum_{r=1}^{s} u_r y_{ro}}{\sum_{i=1}^{m} v_i x_{io}}$$

Constraints:

$$\frac{\sum_{r=1}^{s} u_r y_{ro}}{\sum_{i=1}^{m} v_i x_{io}} \leq 1 \; ; \; j = 1, \ldots, n$$

$$u_r v_i \geq 0 \quad i = 1,2,\ldots,m \quad r = 1,2,\ldots,s$$

x_{io}: the quantity of i. input of the o. decision-making unit whose efficiency is measured.

y_{ro}: the quantity of r. the output of the o. decision-making unit whose efficiency is measured.

x_{ij}: i. input quantity of the j. decision unit

y_{rj}: i. output quantity of the j. decision unit

u_r: the weight is given to output r by decision unit o.

v_i: the weight given to input i by decision unit o.

m : number of inputs

s : number of outputs

n : number of decision-making units

Findings

As a result of the analysis, financial performance rankings and efficiency ratios of banks are shown in Table 3 on a yearly basis. Banks with an efficiency value of 1,00 were accepted as efficient. In the table, the financial performance rankings, and efficiency ratios of banks on a yearly basis are shown separately in detail. In general, we focus on the average performance of banks over a 10-year period.

When the table is analyzed, it is seen that Akbank T.A.Ş, a privately owned bank, has the best performance in terms of both financial performance and efficiency ratios according to the 10-year average. At the beginning of the review period, the bank's performance was in the middle ranks, but it has improved its performance over the years. As of 2019, it ranks first in terms of financial performance. Operating since 1948, the bank's strong corporate governance approach, having qualified bank staff as intellectual capital, and having a value maximization-oriented approach can be counted as effective factors in the bank's performance. In addition, when the bank is evaluated in terms of stock returns in the long term, it can be seen that it provides a stable return to its investors. On the other hand, in terms of efficiency, it is seen that it has the efficiency criterion of 1.00 in all periods. This can be interpreted as the bank uses its resources efficiently.

Türkiye İş Bankası A.Ş. ranks second in terms of financial performance. Although its performance in 2022 is below average, it is the second bank with the highest performance over the 10-year period. In terms of efficiency, the bank has an efficiency score below 1.00. This can be interpreted as the bank does not use its resources efficiently. In other words, it can be said that the bank is not at the desired level in terms of total deposits, total loans and net profit (loss) values compared to the number of personnel and the number of branches.

In terms of financial performance, Türkiye Garanti Bankası A.Ş. ranks third along with Denizbank A.Ş. Both of these banks are foreign capitalized banks. While ranking third among the banks analyzed in terms of financial performance, the efficiency score of Türkiye Garanti Bankası A.Ş. was determined as 0.98. This is quite close to the efficiency value of 1.00. In this respect, it can be said that Türkiye Garanti Bankası A.Ş. carries out its activities at a level close to the efficiency ratio. However, when the efficiency ratio of Denizbank A.Ş. is analyzed, it is seen that the 10-year average efficiency level of the bank is 0.49. This is the lowest level of efficiency among the banks analyzed. In this sense, it can be said that while the bank has solid financial ratios in terms of financial performance, it is quite far from the efficiency ratio in terms of efficiency. This situation can be interpreted as the bank's inefficient use of resources that are considered as inputs.

Privately owned Yapı Kredi Bankası A.Ş. ranks fourth in terms of financial performance with an efficiency ratio of 0.94. The efficiency level is close to the efficiency score of 1.00.

Foreign-owned QNB Finansbank A.Ş. and state-owned Ziraat Bankası A.Ş. share the fifth place. However, while Ziraat Bankası A.Ş. has an efficiency score of 0.94, QNB Finansbank has a low efficiency ratio of 0.68. It may be possible for the bank to improve its financial performance by utilizing its operational resources efficiently.

Türkiye Ekonomi Bankası A.Ş. is the lowest performing private bank among the banks analyzed. In terms of efficiency ratio, with a score of 0.53, it is far from the efficiency ratio of 1.00. It is thought that taking measures to increase the efficiency ratio of the bank will also affect the financial performance of the bank.

State-owned Türkiye Vakıflar Bankası T.A.O. and Türkiye Halk Bankası A.Ş. are at the bottom in terms of financial performance. Although their efficiency ratios are close to the efficiency ratio of 1.00, their financial performance is lower than other banks.

Table 3. Financial Performance Ranking and Efficiency Ratios of Banks

Part of the article	Performance / Efficiency	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average
Akbank T.A.Ş.	Perf. Ranking	8	5	5	5	1	2	1	1	1	1	3
	Eff. Score	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Türkiye İş Bankası A.Ş.	Perf. Ranking	5	4	2	2	4	6	2	2	3	6	3,6
	Eff. Score	0,88	0,88	0,81	0,77	0,74	0,79	0,82	0,75	0,84	0,81	0,81
Türkiye Garanti Bankası A.Ş.	Perf. Ranking	2	2	4	4	3	5	5	7	6	2	4
	Eff. Score	1,00	1,00	1,00	0,99	0,93	1,00	1,00	0,91	1,00	0,96	0,98
Denizbank A.Ş.	Perf. Ranking	10	10	1	1	2	1	6	4	2	3	4
	Eff. Score	0,48	0,51	0,46	0,48	0,47	0,53	0,51	0,45	0,49	0,49	0,49
Yapı ve Kredi Bankası A.Ş.	Perf. Ranking	3	6	9	9	8	3	3	3	4	4	5,2
	Eff. Score	1,00	0,93	0,92	0,95	0,94	1,00	0,96	0,86	0,95	0,91	0,94
QNB Finansbank A.Ş.	Perf. Ranking	6	3	10	6	6	4	4	5	5	7	5,6
	Eff. Score	0,53	0,57	0,54	0,51	0,59	0,72	0,81	0,76	0,85	0,89	0,68
Türkiye Cumhuriyeti Ziraat Bankası A.Ş.	Perf. Ranking	1	1	3	3	5	9	9	9	8	8	5,6
	Eff. Score	0,84	0,93	0,94	0,80	0,89	1,00	1,00	1,00	1,00	1,00	0,94
Türk Ekonomi Bankası A.Ş.	Perf. Ranking	7	8	7	7	10	8	7	6	7	5	7,2
	Eff. Score	0,59	0,62	0,62	0,56	0,52	0,52	0,52	0,47	0,47	0,42	0,53
Türkiye Vakıflar Bankası T.A.O.	Perf. Ranking	4	7	6	8	7	7	8	8	9	9	7,3
	Eff. Score	0,89	0,92	0,85	0,83	0,83	0,96	1,00	1,00	1,00	1,00	0,93
Türkiye Halk Bankası A.Ş.	Perf. Ranking	9	9	8	10	9	10	10	10	10	10	9,5
	Eff. Score	1,00	0,96	0,84	0,85	0,88	1,00	1,00	1,00	0,97	0,86	0,94

Overall, on the basis of average values over a 10-year period, the findings of the analysis show that privately owned banks have high performance in terms of financial performance and efficiency. However, the Türk Ekonomi Bankası A.Ş. is an exception. It is thought that the internal factors of the bank are effective in this situation. On the other hand, while the average efficiency values of state owned banks are close to the efficiency value of 1,00, they have low performance in terms of financial performance. This may be due to the fact that state-owned banks sometimes invest in some low-efficiency projects for the public interest instead of investing in profitable and efficient projects without considering profitability.

Conclusions

The financial performance of banks is critical in terms of its ability to provide information about the overall state of the economy and the impact of bank performance on stakeholder and investor decisions. The healthy financial performance of banks is considered an important indicator of the overall state of the economy. For example, bank indicators such as loan growth, the amount of deposits and profitability ratios provide information on the vitality and stability of the economy. Moreover, increased risks in a bank's loan portfolio or significant declines in profitability may indicate that the economy has entered a challenging period. Therefore, monitoring the financial performance of banks can provide clues about the future direction of the economy.

Bank performance is also an important determinant for stakeholders and investors. Investors shape their investment decisions by assessing banks' profitability, capital structure and risk management. Moreover, since the financial health of banks is a reflection of overall economic conditions, this information is also an important reference point for companies and industries operating in other sectors.

This study is important in terms of revealing the overall financial performance of the 10 banks with the largest asset size operating in Turkey. The findings show that the financial performance of private and foreign owned banks, as calculated based on their financial ratios, is relatively better than that of state-owned banks. In this respect, the findings obtained are similar to the results

obtained by Yıldız (2010), Ünal and Yüksel (2017), Aydın Ünal (2019), Demir (2021) and Akgül (2021).

The comprehensive analysis of the financial performance and efficiency of banks in Turkey has provided valuable insights into the dynamics of the banking sector. The findings underscore the prominent position of private banks, particularly Akbank T.A.Ş, in terms of both financial performance and efficiency over the 10-year period. This not only highlights the competitive edge of private banks but also underscores their pivotal role in shaping the financial landscape. Also, it will contribute to the financial performance of banks with low financial performance to determine policies that can improve their performance by comparing their operations with banks with high performance in the sector, such as Akbank T.A.Ş.

On the other hand, except Akbank T.A.Ş., all other banks have an efficiency value below 1.00. This situation shows that banks do not carry out their operations efficiently. It is thought that taking measures and adopting policies to increase the efficiency of the banks in this situation will increase both the efficiency and financial performance levels of the banks.

The multi-criteria decision-making approach employed in this study has enriched the understanding of the factors influencing the performance and efficiency of banks, offering a nuanced perspective that can inform strategic decision-making and policy formulation. Moreover, multi-criteria decision-making methods allow analysis based on many factors affecting the performance of banks and companies, making it an effective method of analysis. The introduction of new methods to the literature in the following years and the analyzes made with these methods are very important in terms of contributing to the literature. Similarly, analyses to be conducted in different countries and with different data sets in the following years are very important in terms of contribution to the literature.

As the banking sector continues to evolve in response to dynamic economic forces, the insights gleaned from this study can serve as a valuable resource for stakeholders, policymakers, and researchers. By shedding light on the intricate interplay of financial performance and efficiency, this research contributes to the ongoing discourse on banking sector analysis, paving the way for informed strategies aimed at enhancing the overall health and resilience of the financial system.

References

Akgül, Y. (2021). Borsa İstanbul'da İşlem Gören Ticari Bankaların Finansal Performansının Bütünleşik CRITIC CoCoSo Modeliyle Analizi. *Ekonomi ve Finansal Araştırmalar Dergisi,* 3(2), 71-90.

Aydın, N. (Ed.). (2010). *Bankacılık Uygulamaları* (1. Baskı). Eskişehir: Anadolu Üniversitesi Açıköğretim Fakültesi.

Aydın Ünal, E. (2019). Özel Sermayeli Ticari Bankalarının Finansal Performansının SD ve WASPAS Yöntemleri İle Ölçülmesi. *Ekonomi Politika ve Finans Araştırmaları Dergisi*, 4(3), 384-400.

Bektaş, S. (2023). Özel Sermayeli Bir Mevduat Bankasının Sürdürülebilirlik Performansının Hibrit ÇKKV Modeliyle Değerlendirilmesi: 2009-2021 Dönemi Akbank Örneği. *İzmir İktisat Dergisi,* 38(4), 884-907.

Chu, Y. (2016). Financial openness and bank performance: The case of China. *International Conference on Industrial Economics System and Industrial Security Engineering (IEIS)*, 1-5.

Çiftaslan, M. E., & Rençber, Ö. F. (2022). Idocriw ve CoCoSo Yöntemleri ile Sistemik Önemli Bankaların Performans Analizi: Türkiye Örneği. *Kahramanmaraş Sütçü İmam Üniversitesi Sosyal Bilimler Dergisi*, 19 ("21. Uluslararası İşletmecilik Kongresi" Özel Sayısı), 54-72.

Demir, G. (2021). Özel Sermayeli Mevduat Bankalarında Performans Analizi: SWARA-RAFSI Bütünleşik Model Uygulaması. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 35(4), 1359-1382.

Ecer, F. (2020). *Çok Kriterli Karar Verme—Geçmişten Günümüze Kapsamlı Bir Yaklaşım* (1. Baskı). Ankara: Seçkin Yayıncılık.

Lileikienė, A., Obi, P., & Valackienė, A. (2021). An examination of the safety and profitability of EU and US banks since Basel III. *Vadyba/Journal of Management*, 37(2), 35–44.

Mousa, M., Judit, S., & Zeman, Z. (2018). The impact of the credit and capital risk on the banking performance: Evidence from Syria. *Vadyba/Journal of Management*, 32(1), 107–112.

Onder, E., Tas, N., & Hepsen, A. (2013). Performance evaluation of Turkish banks using analytical hierarchy process and TOPSIS methods. *Journal of International Scientific Publications: Economy & Business*, 7(1), 470-503.

Parasız, İ. (2014). *Modern Bankacılık Teori ve Uygulama*. Bursa: Ezgi Kitabevi.

Saez-Fernandez, F. J., Picazo-Tadeo, A. J., Beltran-Esteve, M., & Elliott, C. (2015). Assessing the performance of the Latin American and Caribbean banking industry: Are domestic and foreign banks so different? *Cogent Economics & Finance*, 3(1), 1-16.

Sáez-Fernández, F J., Picazo-Tadeo, A J., & Jiménez-Hernández, I. (2021). Performance and risk in the Brazilian banking industry. *Heliyon*, 7(3), 1-11.

Sharma, D., & Kumar, P. (2023). Prioritizing the attributes of sustainable banking performance. *International Journal of Productivity and Performance Management.* Vol. ahead-of-print No. ahead-of-print, 1-29.

Ünal, S. and Yüksel, R. (2017). Finansal Performans ve Hisse Senedi Getirisi İlişkisi: BİST Sürdürülebilirlik Endeksinde Bankalar Üzerine Bir İnceleme. *International Journal of Management Economics & Business*, 17, 264-270.

Vardar, K. (2023). *Bankacılık Sektörel Bakış.* KPMG Türkiye Raporu. 1-32.

Wasiaturrahma, Sukmana R, Ajija SR, Salama SCU, Hudaifah A. (2020). Financial performance of rural banks in Indonesia: A two-stage DEA approach. *Heliyon*, 6(7), 1-9.

Yazdani, M., Zaraté, P., Zavadskas, E K., & Turskis, Z. (2019). A combined compromise solution (CoCoSo) method for multi-criteria decision-making problems. *Management Decision*, 57(9), 2501-2519.

Yazdi, A. K., Hanne, T., & Osorio Gómez, J. C. (2020). Evaluating the performance of Colombian banks by hybrid multicriteria decision making methods. *Journal of Business Economics and Management*, 21(6), 1707-1730.

Yıldırım, B. F., & Önder, E. (Ed.). (2018). *Çok Kriterli Karar Verme Yöntemleri* (3. Baskı). Bursa: Dora Basım-Yayın Dağıtım.

Yıldız, S. (2010). İşletme Performansının Ölçümü Üzerine Bankacılık Sektöründe Bir Araştırma. *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi,* 36, 179-193.

RECEIVED:05 October 2023 ACCEPTED: 20 April 2024 PUBLISHED: 29 October 2024

Ümit Hasan Gözkonan, Lecturer, PhD in Accounting and Finance, Manisa Celal Bayar University, International Relations Office. Field of scientific research: Financial Markets and Institutions, Banking, Financial Investments, Portfolio Selection, Portfolio Optimization, Multi-Criteria Decision Making, Machine Learning and Deep Learning Algorithms in Finance. The author has published 3 articles on banking performance and 6 book chapters on different finance-related topics. Address: Manisa Celal Bayar University, Şehit Prof. Dr. İlhan Varank Campus, International Relations Office, 45140, Yunusemre, Manisa, TÜRKİYE. Phone: +90 236 201 11 18. E-mail: umit.gozkonan@cbu.edu.tr; ORCID ID: 0000-0002-7187-6304.

İpek Yeniay Hatipoğlu, Lecturer, PhD candidate in Economy and Finance, Manisa Celal Bayar University, International Relations Office. Field of scientific research: Economics, Economic Development, Green Economy, Circular Economy, Sustainable Development, Green Finance, Financial Developments. Address: Manisa Celal Bayar University, Şehit Prof. Dr. İlhan Varank Campus, International Relations Office, 45140, Yunusemre, Manisa, TÜRKİYE. Phone: +90 236 201 11 24. E-mail: ipek.yeniay@cbu.edu.tr; ORCID ID: 0000-0001-8222-8735.

Samanta Sraupaite-Simonavice, PhD candidate in Educology, Klaipeda University. Research area - digitalization and sustainability in ecological citizenship. The author has already published 5 articles about ecological awareness, ecological citizenship and Erasmus+ students. Address: H. Manto str. 84, Klaipeda, Lithuania, E-mail: straupaite.s@gmail.com, ORCID ID:0009-0008-9317-1322.

https://doi.org/10.38104/vadyba.2024.2.09

Vadyba
Journal of Management
2024, № 2 (40)
ISSN 1648-7974

DISTANCE LEARNING EXIT ECONOMIC MODEL

Vaidas Gaidelys[1], Evelina Gaideliene[2]
[1] School of Economics and Business, Kaunas University of Technology, [2]Utena Higher Education Institution

Abstract
At the beginning of 2020, with the onset of the pandemic, the traditional learning environment for learners drastically changed globally. Since then, most students/teachers have started and practiced distance and virtual learning/teaching. Thus, a technological breakthrough in virtual learning has followed. In connection with this, many countries worldwide have commenced allocating additional financing and funds for educational institutions' technological improvement and development. The long-term stay in distance learning has revealed and highlighted new problems students face: their knowledge level has decreased, they lack socialization skills, and they face psychological and physical health problems. Due to this negative impact on students, a need to research and evaluate how much the EU countries allocated to solve the distance learning-caused problems and what programs or models they prepared has emerged and encouraged further studies. The research has found that many countries increased their allocations very minimally, e.g., 0.0.1%, but some increased their available budgets to 32%. Notably, most countries did not separate distance learning exit funding from distance learning preparation funding. Based on the problems the countries saw, only a few states identified withdrawal from distance learning as a problem. Considering this, we set ourselves the goal to evaluate exit models from distance learning and allocated funding amounts.
To stabilize the impact of unforeseen events, such as epidemics, pandemics, military conflicts, etc., on learning processes, it is necessary to have sustainable solutions for managing learning processes in such situations. As revealed by the COVID-19 situation, the stability and continuity of the learning process remains very important even in emergencies. Stable and continuous learning can be ensured by practising sustainable distance learning, which must be based on sustainable tools. The results of this research are significant in terms of improving distance learning and providing qualitative and sustainable education.
The current situation stimulates hybrid learning, which is increasingly becoming the foundation of sustainability in the education sector. Thus, to reverse the damage caused by distance learning and create a sustainable environment for blended learning, it is necessary to eliminate the negative effects of distance learning. This challenge will lead to the need for new sustainable blended learning programs.
The following objectives were planned to achieve the goal:
- to evaluate the global practice of exit from distance learning in the context of sustainability;
- to determine the scope of funding for pandemic management;
- to evaluate the amounts of funding allocated to manage pandemic-caused consequences and the GDP ratio.

Research methods: mathematical-statistical analysis, empirical analysis, and analysis of scientific literature.
KEY WORDS: distance learning; distance learning exit model; distance learning financing; COVID-19 pandemic, sustainability, sustainable education.
JEL classification: A29, I23
.

Introduction

When evaluating the economic consequences of distance learning, the international organization OECD distinguishes two streams of impact on the economy. Firstly, discontinuing contact learning has resulted in lost income in the long term, and secondly, in a decline in workforce skills, which has led to lower economic growth and affected overall societal well-being [35, 37].

It has to be noted that education and training ensure the development of people's cognitive skills, which make people more productive in performing various assigned tasks at work, primarily related to the knowledge economy. In addition, education equips people with the knowledge and skills to generate and apply new ideas and innovations that enable technological progress and overall economic growth. The authors we studied for this research claim that the existing research base allowed them to evaluate the financial losses caused by distance learning. Although it is challenging to evaluate learning losses, it is possible to assess the economic impact. Students' cognitive skills and the associated costs experienced the most significant impact. The authors highlight the consequences of school closures on social-emotional relationships and motivation of children affected by distance learning, with a particularly immense effect on teenagers. This was also caused by the lack of communication with classmates and psychological stress in families during long periods of activities in small, closed areas, i.e., small apartments and shared rooms [36, 37].

Back in 2006, Heckman noticed that a particularly important stage of education is childhood, which greatly influences the child's further development [38, 46].

During the conducted research, it has been found that every additional year of education increases the student's income by 7.5 -10%. In other words, distance learning reduces the income of future students by about 3%. In addition to drastically fallen learning achievements, the loss of cognitive skills due to school closures and the probable issue of recidivism in the future is not researched yet [37, 27]. Based on the information provided, it can be assumed that students who spend more time in distance learning will earn lower wages in the future.

The studies have found that the negative impact of distance learning will reduce national GDP by 1.5% over the rest of the century, especially if reopened schools do not meet the same standards that were observed before they were closed [37, 23]. Research has been conducted

to assess the impact of distance learning on students aged 6-19.

According to some other authors, the UNESCO highlights the relevance of sustainability in the education sector over the period of no less than ten years, and the United Nations Millenium Development Goals (MDGs), focused on the development of education in all age groups, provide an even longer period of sustainability [51, 52]. The United Nations has the ten-year vision of the sustainable development of education, based on the transformations in values, attitudes and lifestyles to ensure a sustainable future and evolution of societies. The authors argue that this vision has been useful in promoting curriculum sustainability reforms. The integration of social, economic and environmental issues into curricula is also noted, but sustainable knowledge in specific areas should become the core of this integration [53].

It should be noted that previous studies revealed the significance of distance learning as a sustainable tool for general education in emergency situations. This means that the relevant measures must be selected to manage the process of education in emergencies, such as the COVID-19 pandemic. The use of innovative means to transfer knowledge is not sufficient if the issues of sustainable socialisation are not considered and the measures for ensuring students' psychological comfort and physical education are neglected. This was emphasised by the experts in the focus groups who treat the educational process as a complex and do not prioritise any of the areas

Materials and Methods

During the study, the impact of distance learning on students, teachers, and parents was evaluated using a questionnaire survey in various aspects such as students' knowledge level, intelligence, socialization skills, mental and physical health, and intelligence. In order to more accurately evaluate the impact on students' knowledge, the student learning achievements, the dynamics of referrals to psychologists, and the dynamics of reported health problems were also assessed. We used the Wechsler short-scale personalized data of 2017, 2018, 2019, 2021, and 2022 obtained from the conducted research to evaluate the impact on student intelligence.

The literature analysis and multi-level/stage focus groups with experts and representatives of government authorities and management institutions were used for creating the model.

We used reliable statistical data to evaluate the financing volume and performed calculations comparing the financing volume with the GDP of the countries.

Focus groups were organized with the aim of identifying the most effective tools of the model.

Sustainability in distance learning

Other authors claim that in considering the sustainability of distance education provision against this background, it may serve us well to recap the original inspiration and rationale for distance education. Dhanarajan [54], for example, mentions the following factors that supported the evolution of distance education, such as: "The political desire to increase the provision of learning, the economic desire to cut the cost of education while increasing participation levels, the social desire towards egalitarianism to ensure equity and equality of opportunity and at least in some locations, and educational desire to improve the relevance and quality of the curriculum" [55]. Other authors claim that there is no study taking into account the view of all internal stakeholders (i.e. students, academic staff, IT specialists, teachers, business representative and managerial staff) together, and this can be taken as a research gap. Also, the limited number of studies focusing on sustainability in the distance education literature is another research gap [56].

Some researchers define distance education with regard to e-teaching and online teaching as a form of teaching when teachers and students are physically separated, and various technologies are used to facilitate communication between the teachers and students [57]. In this case, teachers and students do not meet face-to-face, and teaching is provided through the Internet [58].

Researchers highlight the characteristics of distance teaching which depends on the level of the use of the Internet. When the level of the use of the Internet is medium, distance teaching can take place outside of classrooms. Distance correspondence teaching via e-mail, as well as remote examinations are also possible [59].

Other researchers note that students avoid asking questions in front of cameras because they feel uncomfortable. The quality of the technical equipment also significantly affects the sustainability of distance teaching/learning [60, 61].

Many educational institutions express their concerns regarding the assessment of the quality of distance teaching/learning, which they consider to be a complex process and believe that the involvement of different stakeholders would be useful [62]. Multi-criteria group decision-making (MCGDM) is a methodology which involves multiple criteria and requires the consensus of multiple decision-makers with different interests [63]. This method could be useful for stakeholders when defining the criteria for assessing the quality of distance teaching. The prioritization of the criteria would allow stakeholders to decide on a policy for the effective management of the strategic resources and time in order to create and extend the service infrastructure and improve the processes of teaching and learning [64]. In this case, it is important that each element of distance teaching contributes to the general education policy and helps to keep up with the global tendencies of knowledge acquisition and management [65].

Many previous studies tended to focus on the interests of the internal stakeholder groups. Some of the studies considered the attitudes of a particular group, while others researched the views of more than one group. It should be noted that many previous studies analysed the critical factors of success, determined by student perceptions [66, 67], the perspectives of students and the academic staff [68, 69, 70], and the barriers to distance teaching/learning from the position of the academic staff [71]. Some other authors identify a few factors and compare them from the positions of the two stakeholder groups – ICT experts and lecturers [72]. To

fill the gaps identified in previous studies, the AHP method [73], the ANP and TOPSIS methods [74, 75], and the ARAS method for e-learning course selection [76] are recommended.

The literature analysis proposes that the current education policies have not been unified in terms of distance teaching, though this area is considered promising and individual authors offer various solutions.

Results

The experts and members of the European Commission's European Expert Network on Economics of Education (EENEE), K. De Witte and M. Smet, analysed the additional economic aspects that emerged and were caused by the pandemic. Also, they presented the amounts of allocated additional funding differentiated by student age respectively (see Table 1), where, e.g., in Belgium, the regions of Flander and Wallonia, in 2021-2022, the total additional costs amounted to 353 million euros [43]. The data are presented in order to assess the amount of funds allocated by the states for distance education:

Table 1. Costs by country [1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20,21, 22, 23,24, 25, 26, 27, 28, 29,30, 31, 32]

Country	Explanation of Additional Costs (allocated for)	Total Amount of Costs (in million/billion euros)	Amount per Student (in euros)
Belgium (Flander and Wallonia regions, in 2021-2022) [1, 3, 4, 5]	primary education up to 4th year	15 M	25
	primary education of 5th and 6th year	45 M	290
	secondary education	232 M	510
	dual learning methods and special needs	10 M	510
	recruitment of additional teachers	147 M	
	strengthening student counselling centres	36 M	
	summer schools	21.8 M	
	mitigating the impact of the pandemic on secondary education institutions	19 M	
Estonia (only private schools provided additional funding) [6]	private education institutions, based on their interest profile	15 M	
	youth education	1.5 M	
	private secondary education institutions	4.3 M	amount ranged from 10 to 50, depending on the severity of the COVID-19 pandemic restrictions
	minimizing the spread of coronavirus	6 M	40
	summer camps	6 M	
Finland [7, 8, 9]	preschool and secondary education	70 M	
	support of learning, development, and well-being	14 M	
	compensate for the impact of the coronavirus crisis	17 M	
	one-time funding for education equality to help municipalities reduce the education gap between richer and poorer social areas	67.8 M	
Greece [10, 11, 12]	supply of laptops and tablets to schools in 2020	12.1 M	
	supply of tablets to families with an income of up to € 6,000	112 M	200
Italy [13, 14]	adaptation of education institution premises while recruiting new/additional teaching staff	1 B	
	learning adaptation for disabled children	331 M	
	"Digital Innovation and Training Workshop Fund" (Italian Healing Decree)	85 M	
	implementation of the measures for the "COVID-19 Epidemiological Emergency Foundation"	400 M (in 2020) + 600 M (in 2021)	
	summer "bridge" programs	510 M	
Lithuania [15, 16, 17]	providing schools with laptops and tablets through the European Social Funds (ESF) in 2021	6 M	
	providing individual counselling to students who have learning difficulties due to distance learning	1.348 M	
	volunteers from non-governmental organizations to provide teaching/learning support or supervision in the education field	250 000	

	institutions		
	creation of thematic videos and provision of open consultations for the graduates, teachers of the graduate students, and/or teachers who prepared students for maturity examinations	160 000	
	supporting the learning-oriented children's summer camp programs through various non-formal education activities	300 000	
	counselling students with learning difficulties	650 000	
Malta [18]	mitigating the impact of the pandemic on children	30 M	
Netherlands [19, 20, 21]	primary, secondary, and special education	5.8 B	
	secondary vocational and higher education	2.7 B	
	additional/supplemental benefits for students	645 M	
Portugal [22, 23, 24, 25, 26, 27]	artistic education to mitigate the impact of the COVID-19 pandemic	10 M	
	acquisition of 250 000 laptops, 4G electronic devices, headphones and backpacks	62.5 M	
	procurement of 15 000 additional computers in 2021	4.5 M	
	digitalization of school - funded by the program "Economic and Social Stabilization"(PEES)	400 M	
	providing schools with digital learning materials - funded by the "Recovery and Resilience Plan" (RRP)	500 M	
Romania [28, 29, 30]	procurement of internet-connected tablets for students	30.5 M	
Slovakia [31, 32]	tutoring in the first project, "Together," to help students from families with social needs	500 000	
	the later phase of “Together Wiser” that covered all eligible schools	1 M	

Based on the statistical information given in Table 1, we can see that the Netherlands allocated the most significant funds to control the consequences of the Covid-19 pandemic, i.e., 9.145 billion euros. Lithuania was in second place, having allocated - 1,355.66 billion euros or 3,577.7 euros per student/teacher, which, applying a conversion into hours, equals 357.77 hours with an additional 8 hours per week for a student. It allows concluding that the entire program for eliminating the consequences of the COVID-19 pandemic would take more than 11 months.

Other authors classify cost information into the following categories [47, 48]:

- General financing (GEN);
- Financing for purchasing IT equipment (ICT);
- Investment in infrastructure (INF);
- Prevention and protective measures (PRE);
- Recruitment of additional teachers, bonus remuneration for teachers (TEA);
- Summer programs (SUM);

Student counselling and support (COU).

Table 2. Additional funding by cost category [1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20,21, 22, 23,24, 25, 26, 27, 28, 29,30, 31, 32]

Country	**Category of Costs**						
	GEN	**ICT**	**INF**	**PRE**	**TEA**	**SUM**	**COU**
Belgium (Flanders)			X		X	X	X
Belgium (Wallonia)	X	X		X	X		X
Estonia	X						
Finland	X	X					
Greece		X					
Italy		X	X	X	X	X	
Lithuania		X					X
Malta	X						
Netherlands	X				X	X	
Portugal	X	X			X		
Romania		X					
Slovakia	X						

Notably, the evaluation and measurements of students' knowledge levels done after the first wave of the Covid-19 pandemic did not show such a significant decline (The assessment was made after analysing the achievements of students in different countries, the sources are provided). However, the subsequent measurements of the student's knowledge level indicated a more substantial reduction in the knowledge level. Due to this fact, according to other authors, from September 2020, human capital formation was linked to income [39], employment [41], and general well-being [40]. According to Kaffenberger, theoretical models show that a decrease in student knowledge level was observed later over time [42].

The experts of the European Commission, K. De Witte and M. Smet, stated that the funding allocated to eliminate the damage caused by distance learning to students was insufficient [43].

In addition, it is also shall be noted that when assigning additional funds to students to eliminate and fight the damage caused by distance learning, financial allocations in most European countries were very limited:

Table 3. Growth of additional costs per student [1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,24, 25, 26, 27, 28, 29,30, 31, 32]

Country	Growth of additional costs per student percentage
Belgium (Flanders)	4.82%
Belgium (Wallonia)	0.43%
Estonia	4.77%
Finland	1.59%
Greece	2.16%
Italy	3.96%
Lithuania	0.68%
Malta	9.15%
Netherlands	32.22%
Portugal	13.55%
Romania	0.80%
Slovakia	0.05%
AVERAGE	**3.06%**

Notably, the evaluation and measurements of students' knowledge levels done after the first wave of the Covid-19 pandemic did not show such a significant decline (The assessment was made after analysing the achievements of students in different countries, the sources are provided). However, the subsequent measurements of the student's knowledge level indicated a more substantial reduction in the knowledge level. Due to this fact, according to other authors, from September 2020, human capital formation was linked to income [39], employment [41], and general well-being [40]. According to Kaffenberger, theoretical models show that a decrease in student knowledge level was observed later over time [42].

The experts of the European Commission, K. De Witte and M. Smet, stated that the funding allocated to eliminate the damage caused by distance learning to students was insufficient [43].

In addition, it is also shall be noted that when assigning additional funds to students to eliminate and fight the damage caused by distance learning, financial allocations in most European countries were very limited:

Table 4. Funds allocated to fight the pandemic in the field of education as a percentage of GDP [1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,24, 25, 26, 27, 28, 29,30, 31, 32]

No.	Country	GDP in 2022, in billions of US dollars	Allocated funds, as a percentage of GDP
1.	Belgium	579	0,09
2.	Estonia	38	0,09
3.	Finland	281	0,06
4.	Greece	219	0,06
5.	Italy	2 000	0,09
6.	Lithuania	70	1,93
7.	Malta	18	0,17
8.	Netherlands	991	0,92
9.	Portugal	252	0,39
10.	Romania	301	0,01
11.	Slovakia	115	0,002

According to the allocated funds as a percentage of GDP to solve the problem, Lithuania stands out, having allocated more than twice of funds (1.93%) compared to others, but this, however, was not sufficient to overcome the challenges. Slovakia allocated the least funds (0.002 %) [34] (table 4).

The evaluation of the emerging challenges caused by the Covid-19 pandemic cleared a need for creating a model for the distance learning (re)organization that could help eliminate the negative impact of the coronavirus on the student's education, physical and mental health, and socialization (table 5).

Moreover, it should be noted that when comparing the increase in funding with the previous one in 2017, the highest growth was observed in the Netherlands, while Lithuania being in second place, dropped sharply towards the end of the list (table 3). Based on the results of the research conducted by the authors, the developed distance learning exit model is presented:

Table 5. Distance learning exit model (The model was created based on the R&D research conducted by the authors, the duration of the research is 24 months)

Action	Aim	Method	Time used for evaluation	Remedial measures	Time used for the implementation of measures	Costs in euros per hour
Student IQ Evaluation	To define student IQ changes	Wechsler Short IQ Scale or similar method	60 min per person	Wechsler Short IQ Scale, testing of all students	60 min per person	45
Evaluation of students' learning achievements and progress situation	To define student learning results and learning load changes	Analysis of student learning achievements at school Research instrument is a research questionnaire (appendix No. 1)	3 hours	Prepared plan of measures provides for the following: - measures for improving the quality of teaching and learning (applied educational methods, assessment, attendance, etc.) - student assistance/support measures (consultations, support plans, cooperation with parents, etc.) - means of regulating students' workload (assignments for assessment, homework, the competence of students' learning ability, etc.)	80 hours	10
Identifying gaps in students' knowledge	To identify gaps in the knowledge of students that were caused by distance learning	Analysis of students' learning achievements at school Subject knowledge verification tests	8 hours	Based on the results, preparing/adjusting individual learning programs according to subjects, providing individual support/gap measures for students	80 hours per subject	10
Evaluation of the available IT infrastructure and provision	To determine the current state of the available IT infrastructure and provision of teachers and students with IT equipment and tools	Research instrument is a research questionnaire (appendix No. 1)	90 min	Acquisition/rental of required infrastructure tools/measures	-	15
Evaluation of digital learning environment and content	To determine the presentation and adequacy of digital learning environments and content used	Research instrument is a research questionnaire (appendix No. 1)	90 min	- Acquisition/rental of the necessary digital learning environments - Training of students and teachers in the use of digital environments - Joint agreements on the purposeful use of environments, methods, and means of content presentation	-	15
Evaluation of teacher and student digital competency gaps	To identify teacher and student digital competency gaps	Research instrument is a research questionnaire (appendix No. 1) SELFIE tool recommended	90 min	- Organization of necessary training - Incorporating elements of digital competence development into subject curricula	24 hours	10
Identification of	To identify gaps in	Research	90 min	Based on the results of	180 hours	10

gaps in the teaching, learning, and assessment processes in distance learning	the distance education, learning, and assessment process	instrument is a research questionnaire (appendix No. 1)		the survey, the following measures are planned: - elimination of gaps in students' learning (measures to compensate for subject knowledge and learning losses) - changes in the existing procedure for assessing students' achievements and learning progress		
Evaluation of assistance/support measures for teachers and students	To identify existing assistance/support measures for students and teachers	Research instrument is a research questionnaire (appendix No. 1)	90 min	Provision of individual assistance/support measures for teachers and students, summer camps, etc.	90 hours	10
Determining student engagement in the distance learning process	To evaluate students' motivation and level of cooperation during distance learning	Research instrument is a research questionnaire (appendix No. 1)	90 min	Based on the results of the study, to adjust/create the student motivational system, including the elements of distance learning that increase student motivation and cooperation (e.g., uploading and storing lesson material in digital environments, providing the possibility of consulting with teachers in a distance learning environment, organizing hybrid/mixed education, etc.)	80 hours	10
Evaluation of students' physical state	To evaluate changes in students' physical activity during distance learning	Research instrument is a research questionnaire (appendix No. 1) Tests for the evaluation of student physical capacity	90 min	Based on the study and physical capacity evaluation results: - to assign more tasks during physical education lessons that strengthen the weakest components of physical capacity (HR, muscle strength, endurance, flexibility, balance, etc.) - to cooperate with students' parents in providing recommendations on measures to improve children's physical activity - to organize physical activities during lessons and breaks; - to purchase ergonomic school furniture (e.g., adjustable height desks)	90 hours	10
Evaluation of students' social-psychological state	To evaluate the need for students' social-psychological assistance	Research instrument is a research questionnaire (appendix No. 1) Performing secondary data analysis	90 min	- Psychologist and social worker-teacher consultations - Child Welfare Commission‘s (VGK) student support plans. - Student involvement in activities for the development of social skills (preventive programs, social projects, social skills, educational groups, non-formal education activities, etc.)	48 hours per student	10

Taking international practice and research into account, we created a distance learning exit model to eliminate the damage caused by distance learning to students' knowledge, mental and physical health, as well as students IQ. In the case of Lithuania, we also evaluated the need for funding to implement this model. The calculations were made based on the average hourly salary of a teacher in Lithuania.

Notably, the increase in financing after the pandemic period in Lithuania was minimal, and compared to the previous period, it went up by only 0.68 %. Based on the evaluation of the common need for funds results by applying the model created as the example of Lithuania, the funding per student amounts to 6,795 euros when calculating the teacher's salary at 10 euros per hour. According to the 2023 data in Lithuania, there were 344,420 students in 2022-2023.

Therefore, considering this fact and in order to apply the created exit model to eliminate the pandemic-caused adverse consequences in education, a total of 2,340,333,900 euros would be needed for the entire number of students.

When modelling the future EU growth rates with an estimated target GDP inflation of 3%, the growth rate can be used to estimate the future income of the EU countries in 100 years as well as the possible losses due to distance learning can be evaluated. Considering that the average GDP growth rate in the EU is 3.54% after 100 years, the EU's GDP would increase by 354%, provided that the same growth rates are maintained. Another important estimated figure is that, according to the data of 2022, the EU GDP was 15.8 trillion euros or 16.6 trillion US dollars, which means that in 100 years, under the same conditions and growth rates and without changing the composition of the EU, the EU GDP will be 55.93 trillion euros or 58.76 trillion US dollars.

Having the same conditions when distance learning amounted to 1.5% of the EU GDP loss due to distance learning caused by the COVID-19 pandemic, the EU will lose about 0.84 trillion euros or 0.88 trillion US dollars and reach 55.09 trillion euros or 57.88 trillion US dollars during the period researched.

Other authors claim that the world GDP growth rate will be even faster, and the world's economy will grow by 400% in 50 years and reach 250 trillion US dollars [35]. Based on these estimates, it can be anticipated that after 100 years, the growth of the world economy should reach 800% and exceed 1000 trillion US dollars. In that case, the damage caused by distance learning would exceed 1.5 trillion US dollars.

When addressing the issue of sustainability, some authors argue that although contact learning is more effective, distance learning is more accessible, especially in conditions such as the COVID-19 pandemic. The authors agree that distance learning is obviously not equivalent to contact learning in terms of sustainability. Thus, blended learning is seen as a sustainable alternative [53].

Discussion

Many countries researched in this study did not divide the problems caused by the coronavirus into stages and therefore allocated the funds to general financing (GEN). The funding was often directed to facilitating access to distance learning, i.e., purchasing IT equipment for distance learning, creating programs, etc. Notably, this was also distinguished by the majority of analysed authors and the structure of funds allocated to the education sector they surveyed. We though studied the problem in more detail. As a result, with the detailed analysis of both positive and negative consequences of distance learning, we could distinguish the damage caused by distance education to students' physical and mental health, socialization, and knowledge. Based on the conducted research, we created a distance learning exit model and provided an algorithm for its application. Contrary to the opinion of other authors, in our opinion distance education brought more harm to children of this age. Also, we assessed the financial need for the model application.

The conducted studies showed that in order to apply the created model fully, 6,795 euros should be intended for each student. The required budget can be estimated depending on the number of students in the country. It should be noted that depending on each country's curriculum, the model can be adjusted, and the hourly salary of teachers must also be taken into account. The financing of the model was evaluated based on the actual circumstances in Lithuania, and respectively, an hourly pay of 10 euros for teachers was intended.

Conclusions

In response to the crisis caused by the pandemic, many EU member countries increased the education budget to finance short-term and long-term damage to students' knowledge. Additional set funding ranged from 2 euros per student in Slovakia to 2,795 euros per student in the Netherlands. The median was 163 euros. Relating these amounts to current expenditure, we see that this corresponds to an increase in public spending on education of 0.05% in Slovakia and 32% in the Netherlands. The average increase was around 3% [43, 44, 45].

Notably, many countries understood that the right way to deal with the COVID-19 pandemic challenges in education was to provide students and teachers with IT equipment, devices, and tools which used the primary funding.

After evaluating the common need for funds results by applying the model created as the example of Lithuania, the funding per student amounted to 6,795 euros when calculating the teacher's pay of 10 euros per hour. Taking into account the fact that according to the data of 2023, there were 344,420 students in Lithuania in 2022-2023, therefore, in order to apply the created model of exit from the pandemic, 2,340,333,900 euros would be needed for the entire number of students.

According to the allocated funds from the GDP to solve this problem, Lithuania stood out, having allocated two times more funds (1.93%) than others, but it was insufficient to solve the challenges. Slovakia allocated the least amount of funds (0.002%).

In order to implement a sophisticated distance learning exit model, the funds allocated to the education sector are insufficient.

The conducted studies showed that to apply the created model fully, the amount of 6,795 euros per student should be intended. The required budget can be estimated according to the number of students in each country. It should be noted that depending on each country, the curriculum model can be adjusted, and the hourly pay of teachers shall also be taken into account (the financing of the model was evaluated and estimated based on the actual circumstances in Lithuania, with a provided hourly pay of 10 euros for teachers).

When modelling the future EU growth rates with an estimated target GDP inflation of 3%, the growth rate can be used to estimate the future income of the EU countries in 100 years as well as the possible losses due to distance learning can be evaluated. Considering that the average GDP growth rate in the EU is 3.54% after 100 years, the EU's GDP would increase by 354%, provided that the same growth rates are maintained. Another important estimated figure is that, according to the data of 2022, the EU GDP was 15.8 trillion euros or 16.6 trillion US dollars, which means that in 100 years, under the same conditions and growth rates and without changing the composition of the EU, the EU GDP will be 55.93 trillion euros or 58.76 trillion US dollars.

Having the same conditions when distance learning amounted to 1.5% of the EU GDP loss due to distance learning caused by the COVID-19 pandemic, the EU will lose about 0.84 trillion euros or 0.88 trillion US dollars and reach 55.09 trillion euros or 57.88 trillion US dollars during the period researched.

World GDP growth rate will be even faster, and the world's economy will grow by 400% in 50 years and reach 250 trillion US dollars [35, 33]. Based on these estimates, it can be anticipated that after 100 years, the growth of the world economy should reach 800% and exceed 1000 trillion US dollars. In that case, the damage caused by distance learning would exceed 1.5 trillion US dollars.

The United Nations has the ten-year vision of the sustainable development of education, based on the transformations in values, attitudes and lifestyles to ensure a sustainable future and evolution of societies.

Distance learning is obviously not equivalent to contact learning in terms of sustainability. Thus, blended learning is seen as a sustainable alternative.

References

Digisprong | Vlaams Ministerie van Onderwijs en Vorming (vlaanderen.be)

Vermeersch, B. (2021). Honderden extra leerkrachten om leerachterstand bij leerlingen weg te werken. Honderden extra leerkrachten om leerachterstand bij leerlingen weg te werken | VRT NWS: nieuws

Honderden extra leerkrachten om leerachterstand bij leerlingen weg te werken | VRT NWS: nieuws

Rekenhof (2021). Impact van COVID-19 op de Vlaamse begroting. Verslag van het Rekenhof aan het Vlaams Parlement Goedgekeurd in de Nederlandse kamer van het Rekenhof.

Enseignement.be - Circulaires.

Avaleht | (kriis.ee)

Tila - OKM - Opetus- ja kulttuuriministeriö

Valtion erityisavustus lukiokoulutukseen koronaviruksen aiheuttamien poikkeusolojen vaikutusten tasoittamiseksi | Opetushallitus (oph.fi)

Finland earmarks €68m for educational inequality exposed during pandemic | News | Yle Uutiset

ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ & ΘΡΗΣΚΕΥΜΑΤΩΝ - ΑΡΧΙΚΗ (minedu.gov.gr)

Ψηφιακή Μέριμνα ΙΙ - Κοινωνία της Πληροφορίας Μ.Α.Ε. - Κ.Τ.Π. Μ.Α.Ε. (ktpae.gr)

Greece:- Voucher 200 euros for tablets, laptops: The process begins - The beneficiaries - Zakynthos Informer

The measures introduced by the Italian government to support families - Ministry of Economy and Finance (mef.gov.it)

Piano Estate: lingue, musica, sport, digitale, arte, laboratori per le competenze. Via libera a un pacchetto da 510 milioni per le attività rivolte a studentesse e studenti. Il Ministro Patrizio Bianchi: “Stiamo costruendo un ponte per il nuovo inizio” - Piano Estate: lingue, musica, sport, digitale, arte, laboratori per le competenze. Via libera a un pacchetto da 510 milioni per le attività rivolte a studentesse e studenti. Il Ministro Patrizio Bianchi: “Stiamo costruendo un ponte per il nuovo inizio” - Miur

Puslapis nerastas | Mano vyriausybė (lrv.lt)

Mokinių konsultacijoms – papildomi pinigai iš Vyriausybės rezervo | Mano vyriausybė (lrv.lt)

Korepetitoriai Vilniuje ir Kaune | PagalbaMokytis.lt

COVID – a learning curve - The Malta Independent

8,5 Miljard euro voor Nationaal Programma Onderwijs | Nieuwsbericht | Rijksoverheid.nl

Nationaal Programma Onderwijs steunprogramma voor herstel en perspectief | Kamerstuk | Rijksoverheid.nl

Q&A Plannen kabinet collegegeld bekostigd hoger onderwijs | Publicatie | Rijksoverheid.nl

Covid-19: Governo aumenta financiamento do ensino artístico em cerca de 10 ME (lusa.pt)

Ministério da Educação garante que computadores começam a ser distribuídos no segundo período | Coronavírus | PÚBLICO (publico.pt)

Governo paga 62,5 milhões por mais de 250 mil portáteis para alunos. Saiba quem os está a fornecer – ECO (sapo.pt)

Ministério da Educação compra 15 mil computadores adicionais - Educação - Jornal de Negócios (jornaldenegocios.pt)

Ministério da Educação compra 15 mil computadores adicionais - Educação - Jornal de Negócios (jornaldenegocios.pt)

Ministério da Educação prevê início de entrega de computadores aos alunos carenciados até março - Expresso

Guvernul alocă 150 de milioane de lei pentru tablete destinate elevilor din mediile defavorizate (europalibera.org)

Costul standard per elev, pentru anul 2021, aprobat de Guvern. Nicio creștere pentru salarii, dar o majorare până la 36% în mediul rural pentru componenta cheltuielile cu pregătirea profesională, evaluarea periodică a elevilor, bunuri și servicii - Edupedu.ro

Guvernul României trebuie să dubleze cât mai repede fondurile investite în educație | UNICEF Romania

Rezort školstva na projekt doučovania vyčlenil v prvej fáze pol milióna eur | Ministerstvo školstva, vedy, výskumu a športu Slovenskej republiky (minedu.sk)

Na projekt „Spolu múdrejší“ sme vyčlenili ďalší milión | Ministerstvo školstva, vedy, výskumu a športu Slovenskej republiky (minedu.sk)

EUROSTAT, 2022.

The World Bank, 2022.

World GDP (theworldcounts.com), 2023.

Woessmann, L., Freundl, V., Grewenig, E., Lergetporer, P., Werner, K., Zierow, L. (2020), Education in the Corona Crisis: How Did the Schoolchildren Spend the Time When

the Schools Were Closed and Which Educational Measures Do the Germans Advocate?, info Schnelldienst, Vol. 73/9.

OECD/Global Education Innovation Initiative, Harvard University (2020), Global Education Innovation Initiative at Harvard and OECD Rapid Assessment of COVID-19 Education Response.

Heckman, James J., Jora Stixrud, Sergio Urzua (2006), "The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior", Journal of Labor Economics, Vol. 24/3, pp. 411-482.

Chetty, R., Friedman, J. N., and Rockoff, J. E. (2014). Measuring the Impacts of Teachers II: Teacher Value-Added and Student Outcomes in Adulthood. American Economic Review, 104(9), 2633–2679. doi: 10.1257/aer.104.9.2633.

Hanushek, E. A., and Woessmann, L. (2020). The Economic Impacts of Learning Losses. OECD Education Working Papers, 225. Pp. 24.

Currie, J., and Thomas, D. (2001). Early Test Scores, School Quality and SES: Long-Run Effects on Wage and Employment Outcomes. Research in Labor Economics, 20, 103–132.

Kaffenberger, M. (2020). Modeling the Long-Run Learning Impact of the COVID-19 Learning Shock: Actions to (More Than) Mitigate Loss. RISE Insight Series, 2020/017. doi:doi.org/10.35489/BSG-RISE-RI{_}2020/017.

De Witte, K., Smet, M. (2021). Financing Education in the Context of COVID-19. European Expert Network on Economics of Education, European Commission.

Iterbeke, K. and De Witte, K. (2020). Helpful or Harmful? The Role of Personality Traits in Student Experiences of the COVID-19 Crisis and School Closure. Department of Economics, KU Leuven Discussion Paper Series 20.19, 30.

Iterbeke, K., De Witte, K., and Schelfhout, W. (2020). The Effects of Computer-Assisted Adaptive Instruction and Elaborated Feedback on Learning Outcomes. A Randomized Control 24 Trial. Computers in Human Behavior. In Press. (also, KU Leuven Discussion Paper Series DPS20.20).

Psacharopoulos, G., Collis, V., Patrinos, H. A., and Vegas, E. (2020). Lost Wages: The COVID-19 Cost of School Closures. Available at SSRN 3682160.

Azevedo, J. P., Hasan, A., Goldemberg, D., Iqbal, S. A., and Geven, K. (2020). Simulating the Potential Impacts of COVID-19 School Closures on Schooling and Learning Outcomes: A Set of Global Estimates (Policy Research Working Paper 9284). The World Bank.

Dorn, E., Hancock, B., Sarakatsannis, J., and Viruleg, E. (2020). COVID-19 and Student Learning in the United States: The Hurt Could Last a Lifetime (McKinsey and Company Public Sector Practice). McKinsey and Company.

Jann, O., Münich, D. and Zapletalova, L. (2021). Výluka prezenční výuky během pandemie COVID-19: odhad neviditelných ekonomických ztrát. Institute for Democracy and Economic Analysis. CERGE. Pp. 28.

Blainey, K., Hiorns, C., and Hannay, T. (2020). The Impact of Lockdown on Children's Education: A Nationwide Analysis.

Wals, A. (2014). Sustainability in higher education in the context of the UN DESD: A review of learning and institutionalization processes. Journal of Cleaner Production, 62(1), 8–15.

Contreras, L. E. V., Vega, N. E. M., Picazzo Palenci, E.P. E. (2015). Designing a distance learning sustainability bachelor's degree. Environ Dev Sustain (2015) 17:365–377 DOI 10.1007/s10668-015-9622-5.

Almajali, D., Al-Okaily, M., Barakat, S., Al-Zegaier, H., Dahalin, Z. (2022). Students' Perceptions of the Sustainability of Distance Learning Systems in the Post-COVID-19: A Qualitative Perspective. ISSN: 2071-1050 EISSN: 2071-1050 DOI: 10.3390/su14127353. Sustainability (Basel, Switzerland), 2022, Vol.14 (12), p.7353.

Dhanarajan, G. (2001). Distance education: Promise, performance and potential. Open Learning: The Journal of Open and Distance Learning, 16, 61–68. doi:http://dx.doi.org/10.1080/02680510124465.

Prinsloo, P. (2016). (Re)considering distance education: exploring its relevance, sustainability and value contribution, Distance Education, 37:2, 139-145, DOI: 10.1080/01587919.2016.1188445.

Ylmaz, H., Saliha Karadayi-Usta and Seda Yanık (2022). A novel neutrosophic AHP-Copeland approach for distanceeducation: towards sustainability. 2022 Informa UK Limited, trading as Taylor & Francis Group 2022 ISSN: 1049-4820 EISSN: 1744-5191 DOI: 10.1080/10494820.2022.2141265.

Simonson, M., & Berg, G. A. (2016). Distance learning.Encyclopedia Britannica.Smarandache, F. (1998).Neutrosophy: Neutrosophic probability, set, and logic: Analytic synthesis & synthetic analysis.American Research Press.

Merriam-Webster. (2022). Distance learning. InMerriam-Webster.com dictionary. Retrieved January 29, 2022, fromhttps://www.merriam-webster.com/dictionary/distance%20learning.

Musa, M. A., & Othman, M. S. (2012). Critical success factor in e-Learning: An examination of technology and studentfactors.International Journal of Advances in Engineering & Technology,3(2), 140–148.INTERACTIVE LEARNING ENVIRONMENTS21.

Bell,S., Douce, C., Caeiro, S., Teixeira, A., Martín-Aranda, R., & Otto, D. (2017). Sustainability and distance learning: Adiverse European experience?Open Learning: The Journal of Open, Distance and e-Learning,32(2), 95–102.https://doi.org/10.1080/02680513.2017.1319638.

Harizan, S. H. M., & Hilmi, M. F. (2021). Developing measures for the effectiveness of distance education as regards sustainability: The mixed method approach.Turkish Online Journal of Distance Education,22(3),177–195. https://doi.org/10.17718/tojde.961836.

Hilliger, I., Ortiz-Rojas, M., Pesántez-Cabrera, P., Scheihing, E., Tsai, Y. S., Muñoz-Merino, P. J., & Pérez-Sanagustín, M.(2020). Identifying needs for learning analytics adoption in Latin American universities: A mixed-methods approach.The Internet and Higher Education,45, 100726.https://doi.org/10.1016/j.iheduc.2020.100726.

Sánchez-Garrido, A. J., Navarro, I. J., & Yepes, V. (2021). Neutrosophic multi-criteria evaluation of sustainable alternativesfor the structure of single-family homes.Environmental Impact Assessment Review,89, 106572.https://doi.org/10.1016/j.eiar.2021.106572.

Naveed, Q. N., Qureshi, M. R. N., Tairan, N., Mohammad, A., Shaikh, A., & Alsayed, A. O. (2020). Evaluating critical success factors in implementing E-learning system using multi-criteria decision-making. PLoS ONE,15(5), e0231465.https://doi.org/10.1371/journal.pone.0231465.

Alqahtani, A. Y., & Rajkhan, A. A. (2020). E-learning critical success factors during the covid-19 pandemic: A comprehensive analysis of e-learning managerial perspectives. Education Sciences,10(9), 1–16. https://doi.org/10.3390/educsci10090216.

Abdel-Gawad, T., & Woollard, J. (2015). Critical success factors for implementing classless e-learning systems in theEgyptian higher education.International Journal of Instructional Technology and Distance Learning,12(4), 29–36.

Eom, S. B., & Ashill, N. (2016). The determinants of students'perceived learning outcomes and satisfaction in universityonline education: An update.Decision Sciences Journal of Innovative Education,14(2), 185–215.https://doi.org/10.1111/dsji.12097.

Alhabeeb, A., & Rowley, J. (2018). E-learning critical success factors: Comparing perspectives from academic staffandstudents.Computers & Education,127,1–12. https://doi.org/10.1016/j.compedu.2018.08.007.

Anggrainingsih, R., Umam, M. Z., & Setiadi, H. (2018). Determining e-learning success factor in higher education basedon user perspective using Fuzzy AHP. InMATEC web of conferences(154, p. 03011). EDP Sciences.

Muthuprasad, T., Aiswarya, S., Aditya, K. S., & Jha, G. K. (2021). Students'perception and preference for online educationin India during COVID-19 pandemic.Social Sciences & Humanities Open,3(1), 100101.https://doi.org/10.1016/j.ssaho.2020.100101.

Qashou, A. (2022). Obstacles to effectıve use of e-Learning in higher education from the viewpoint of faculty members.Turkish Online Journal of Distance Education,23(1), 144–177.

Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., & Ciganek, A. P. (2012). Critical success factors for e-learning in devel-oping countries: A comparative analysis between ICT experts and faculty.Computers & Education,58(2), 843–855.https://doi.org/10.1016/j.compedu.2011.10.010.

Kurilovas, E., & Vinogradova, I. (2016).Improved fuzzy AHP methodology for evaluating quality of distance learningcourses.International Journal of Engineering Education,32(4), 1618–1624.

Kabak, M., Özceylan, E., Dağdeviren, M., & Genc, T. (2017). Evaluation of distance education websites: A hybrid multicri-teria approach.Turkish Journal of Electrical Engineering & Computer Sciences,25(4), 2809–2819.https://doi.org/10.3906/elk-1512-271.

Jaukovic Jocic, K., Jocic, G., Karabasevic, D., Popovic, G., Stanujkic, D., Zavadskas, E. K., & Thanh Nguyen, P. (2020). A novelintegrated piprecia–interval-valued triangular fuzzy aras model: E-learning course selection.Symmetry,12(6), 928.https://doi.org/10.3390/sym12060928.

Jeong, J. S., & González-Gómez, D. (2020). Assessment of sustainability science education criteria in online-learning through fuzzy-operational and multi-decision analysis and professional survey.Heliyon,6(8), e04706.https://doi.org/10.1016/j.heliyon.2020.e04706

.

RECEIVED: 10 May 2024 ACCEPTED: 19 June 2024 PUBLISHED: 29 October 2024

Prof. dr. Vaidas Gaidelys, School of Economics and Business, Kaunas University of Technology. Economic, tax system, education system, Gedimino str.55, LT-44249 Kaunas, Lithuania Vaidas.Gaidelys@ktu.lt. https://orcid.org/0000-0002-3790-0542

Evelina Gaideliene, Lecturer, Candidate for C.G. Jung analytical psychotherapist, Utena Higher Education Institution. Education psychology; business psychology; family psychotherapy; trauma psychology ;art therapy Utena, Lithuania, Maironio str.7, LT-28142; evelinagaideliene@yahoo.com

Requirements for the authors, who want to publish their articles

The founder of a scientific journal "Vadyba / Journal of Management" is Lithuania Business University of Applied Sciences. Since 2000, the journal publishes technology, social sciences and physic sciences-related articles. The main goal of the scientific journal articles and conducted research is to emphasize the problems and present possible solutions for the public and private organizations of the region. The articles can be both empirical and theoretical.

The submitted articles must be original, previously unpublished. It is prohibited to publish the articles of this journal in other publications.

General requirements

- Articles submitted to the Editorial Board must be professionally edited, without spelling, punctuation and style errors. The articles must use scientific language.
- Articles shall be written in English.
- **The article shall be up to 10 pages long. The last page should take at least half a page, i.e. about 2/3 of the page.**
- The structure of the article must have a structure of a scientific article. It must contain the following:

1. The **title** of the article. Article's **author, institution**, which the author is representing. **E-mail** of the author of the article.
2. **Abstract** with the main words in the language of the article. The Abstract should briefly cover the contents of the article; specify the aspect of how the problem will be analyzed. The text of the Abstract must be clear and concise. **The Abstract must contain at least 2000 characters.**
3. **Keywords –** these are the words that express the most important features of the topic. Five or six keywords of the article must be included in the Lithuanian National M. Mazvydas library records of authoritative names and subjects. It is possible to check if the keyword is included in this list in the website of the library: <http://aleph.library.lt/F/UYSMKM4NY8C9H33SP6PV8F2585NQU59CEEBJVCYCA3HUQNQCR5-31681?func=find-b-0&local_base=LBT10>, by specifying the "topic, subject (lit)" (in Lithuanian) and "topic, subject (eng)" (in English) in the search field.
4. **Introduction**, which formulates the purpose of the scientific study, discusses the question of the study, its novelty and degree of research, specifies the object of the study, objectives and methods.
5. **Analysis – article material**. The sub-sections of the article are *unnumbered.*
6. **Conclusions**. *Unnumbered.*
7. **References.** *Unnumbered.* References in the body of the article should be cited in parenthesis by indicating the surnames of the authors and year, e.g. (Cooper 1994), (Cleland J.; Kaufmann, G. 1998). If an internet source does not have an author, the link is placed only in the main text in parenthesis. Letters "p" and "pp" are not written next to the pages.
8. Examples of referencing:

Books

Valackienė, A. (2005). *Crisis Management and Decision-making*. Technology, Kaunas.
Berger, P. L., Luckmann, Th. (1999). *The Social Construction of Reality.* Pradai, Vilnius.

Journal articles

Boyle, T. (2003). Design principles for authoring dynamic, reusable learning objects. *Australian Journal of Educational Technology*, 19(1), 46–58.

Book articles

Curthoys, A. (1997), History and identity, in W. Hudson and G. Balton (eds), *Creating Australia: Changing Australian history*, 25 - 84. Allenn and Unwin, Australia.

Web documents

Wiley, D. A. (2003). Learning objects: difficulties and opportunities. [Retrieved March 18, 2009], <http://opencontent.org/docs/lo_do.pdf>.

Statistical information and web resources

Lithuanian Emigration Statistics. (2009). Statistics Lithuania to the Government of the Republic of Lithuania. [Retrieved February 16, 2009], <http://www.stat.gov.lt/lt/news/view/?id=6819&PHPSESSID=5b1f3c1064f99d8baf757cde1e135bc0>.

9. **Summary** with **the keywords** is written in English. **The summary should include at least 3000 characters.**
10. Short CV of the authors, which consists of: name, surname of the authors. Degree. Work. Occupation. Research direction. Address. Telephone. Other information about the author. The author CV must include **up to 3000 characters**.

Requirements for the outline and layout of the article

- The articles must be written in MS Word A4 pages.
- Document margins: top – 2 cm, bottom – 2 cm, left – 2 cm and right – 2 cm.
- Full text: in lowercase letters, aligned to both margins, size – 10 pt, font – Times New Roman, first line of the paragraph indented by 0.5 cm.
- Title of the article: in capital letters, left alignment, size – 14 pt., **Bold**.
- Author's name, surname: in lowercase letters, left alignment, size – 12 pt., **Bold**.
- Institution name: in lowercase letters, left alignment, 10 pt., *Italic*.
- E-mail: lowercase letters, left alignment, 10 pt., *Italic*.
- Abstracts: text size – 8 pt, title – 10 pt, **Bold**. A full stop is not put after the last main word.
- Section names: lowercase letters, left alignment, size – 11 pt., **Bold**.

- Word *Literature* – 10 pt, literature list – 9 pt.

- **Figures** and **diagrams** must be clear, schemes – grouped into a single object.

Tables and **schemes** have to be numbered and titled.

1. Table titles are written above the table in the centre.
2. Figure names are written under the figure in the centre.

The text will not be further edited.

NOTE. It is obligatory to use the prepared template for the article.

Public Institution Lithuania Business College

Vadyba 2024/2(40). Mokslo tiriamieji darbai

Klaipėda, 2024

SL 1335. 2024 10 31. Apimtis 13,5 sąl. sp. l. Tiražas 50 egz.
Spausdino spaustuvė „Druka“
Mainų g. 5, Klaipėda 94101