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Editorial Office: Assoc. prof. dr. Jurgita Martinkienė  
Scientific Research Department  
Public Institution Lithuania Business College  
Turgaus st. 21, LT-91429  
Klaipėda, Lithuania  
  
Phone +370 46 311 099  
Fax +370 46 314 320  
E-mail: publisher@ltvk.lt

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Viešoji įstaiga Lietuvos verslo kolegija  
Turgaus g. 21, LT-91429  
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## EDITORIAL

“Vadyba/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 21 years anniversary. It has been well renowned by foreign scientists and number of international scholars publishing continues to increase. Currently, 39<sup>th</sup> 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, Kaunas University Technology, Vilnius Gediminas technical university and other. The following institutes from foreign countries: University of Mauritius, Ivan Franko National University of Lviv, Liepaja University (Latvia), Multimedia University (Malaysia) and other.

Editorial board of “Vadyba/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 criterion, 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, Journal is emphasizing scientific work of various countries scientific institutions and this edition is no different, as Ukrainian scientist A. Zadorozhna is analyzing digital technologies as a factor of national security of Ukraine. The purpose of this particular study is to estimate the state of digital development of Ukraine and the cyber threats that the country has experienced and formulate basic recommendations for the further digital development of Ukraine. The author examines the issue of digitalization from the point of view of strengthening Ukraine’s position on the world stage, and those dangerous moments of digitalization that may appear in the case of military aggression. The author analyzes various indicators of digitalization as well as the state’s contribution to the development of information and communication technologies.

In other article, Lithuanian scientists J. Zukauskiene and V. Snieska are analyzing the importance of investment for the green economy in countries at different levels of its' development. In this study, scientists are trying to find out whether richer or less rich countries invest more in renewable energy sources. Typically, the richer a country is and attracts more foreign investment, the faster its economy grows. On the other hand, if a country is less rich, it typically attracts less foreign investment, its economy grows slower. Authors analyze whether such phenomenon is applicable in the green economy as well.

Furthermore in this edition of the Journal, A. Lileikiene and J. Martinkiene are deep-diving into challenges to financial stability during the economic downturn. In this article authors explore financial stability and its relationship with effective operation of the financial system by using evaluation models of financial stability. These models illustrate the integral relationship between the impact of individual factors and the effects on the interest rates of commercial institutions, the impact of interest rates on household financing, and the assessment of the interaction between interest rates and inflation.

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. (HP) Valentinas Navickas, Editor-in-Chief





## **SOME CHALLENGES TO FINANCIAL STABILITY DURING THE ECONOMIC DOWNTURN**

**Angele Lileikiene, Jurgita Martinkiene**

*Lithuania Business College*

### **Abstract**

Financial stability issues, arising during the COVID-19 pandemic and the ongoing conflict in Ukraine, have affected the problems of financial market instability: interest rates of commercial banks started to rise, inflation increased, affecting consumer solvency issues, the need for bank financing and investment opportunities decreased, part of the staff was lost, labour supply decreased, productivity declined due to emerging economic stabilisation problems. Financial stability cannot be achieved without effective operation of the financial system, which is explored in this article, based on the evaluation models of financial stability. These models illustrate the integral relationship between the impact of individual factors and the effects on the interest rates of commercial institutions, the impact of interest rates on household financing, and the assessment of the interaction between interest rates and inflation. The assessment of financial stability takes into account the performance, liquidity, solvency, and evaluation of adverse conditions of banks as financial institutions.

**KEY WORDS:** Financial stability, interest rates, assessment under adverse conditions, bank activity.

### **Introduction**

With the Russian war continuing, high inflation, and central banks tightening monetary policy, the country's economy is growing slowly. Therefore, it is projected that the Lithuanian economy will grow by 1.3% in 2023. With tightening financing conditions and prevailing uncertainty, the financial cycle in Lithuania shifted to an economic slowdown phase since the end of 2022. This is clearly reflected in the significant deceleration of lending to households and businesses in the environment of rising inflation. As the financial cycle slows down, lending to firms in the manufacturing sector, which is sensitive to economic downturns, such as construction, tourism services, logistics, and trading businesses, slows down the most. Decreased economic activity in the country, continued high uncertainty, and a changed interest rate environment in conjunction with declining loan demand indicate that the credit cycle will remain in a decelerating phase for some time. As the research shows, the level of non-performing loans in the country's banks reached a low level in 2022. On the other hand, however, the study shows a new trend in the banking sector, where commercial banks are experiencing unexpectedly high profits due to the accumulation of high profitability and rising interest rates, which is projected to increase profits by up to a factor of 3. Therefore, the Government recommends that commercial banks establish a solidarity tax. The results of stress testing of banks under adverse conditions indicate that the banking sector has accumulated substantial capital reserves and is capable of withstanding even highly adverse economic scenarios, covering a decrease in deposits by about 40% with the available liquid assets (Financial Stability Review, 2023, Bank of Lithuania).

Many authors have examined the impact of financial stability on economic activity, inflation, the foreign exchange market, or the interaction of profitability and risk. When assessing financial stability and its impact on economic activity, in this study, we rely on the views of prominent authors, including Schinasi, Hauben bei Kases (2004), Morris (2010), Albulesen (2008), Morales ir Estrada (2010), Maliszewski (2009), Serbanescu (2022), Shehzad, Xiaoxing, Bilgili, Kocak (2021), Pulawsko (2021), Bessler, Vendrasco (2022), and others, who have analysed financial stability from various perspectives.

In the article, the authors specifically examine the challenges to financial stability in the context of economic stability and the impact of commercial banks.

The following questions are raised in the study:

1. The essence of financial stability and assessing its impact on economic activity
2. Assessing the challenges of financial stability in different economic activity periods.
3. Conducting an assessment of the impact of bank activity on the sustainability of the financial system.

The situation related to the Russian war has had a particularly sharp impact on energy prices, the rise in which has led to higher inflation, reduced consumer purchasing power and negatively affected the country's economic growth and unemployment, had a negative impact on financial stability. As the interest rate rises (the US Federal Reserve interest rate fluctuates between 5-5.25%, the Bank of England's interest rate is set at 4.25%, and the EURIBOR rate reached 3.9%), the continued high level of liquidity in the euro area financial system has a positive impact on banks' profitability, but the change in monetary policy direction causes some tensions in financial markets.

Uncontrollable interest rate risk and the failure of several banks in the US had a significant impact on financial stability, leading to corresponding corrections and large-scale turbulence in the financial sector worldwide.

## Theoretical background

From a theoretical perspective, financial stability is an integral part of the financial system, which includes institutions such as banks, insurance companies, stock exchanges, and others, performing the fundamental function of lending between borrowers and lenders. On the other hand, elements of the financial system also reflect the stability of the functioning system: lending conditions, restrictions, the possibility of risk, monetary policy that affects the scale of economic growth. And very important (Schinasi, G., 2004), useful principle is that financial stability not only implies that finance adequately fulfills its role in allocating resources and risks, mobilizing savings, and facilitating wealth accumulation, development, and growth; it should also imply that the systems of payment throughout the economy function smoothly (across official and private, retail and wholesale, and formal and informal payments mechanisms). This requires that fiat (or central bank) money—and its close-substitute, derivative monies (such as demand deposits and other bank accounts)—can adequately fulfill its role as the universally accepted means of payment and unit of account and, when appropriate, as a (short-term) store of value. In other words, financial stability and what is usually regarded as a vital part of monetary stability overlap to a large extent. A third principle is that the concept of financial stability relates not only to the absence of actual financial crises but also to the ability of the financial system to limit, contain, and deal with the emergence of imbalances before they constitute a threat to itself or economic processes.

Allen, Chui, and Maddaloni (2004), examining the financial system structures of European, US, and Asian countries, point out: 1) efficiency of the financial system; 2) stability of the financial system; 3) channels of monetary policy transmission. These conceptual approaches to the structure of the financial system have been confirmed in scientific studies by foreign authors. D. Hendricks, J. Kambhu, P. Mosser (2007), E. Cerutti, C. Claessens and P. McGuire (2011), A. G. Haldrup and R. M. May (2011), L. Allen, T. G. Bali and Y. Tang (2012) and G. N. F. Weis, S. Neuman, D. Bostandzic (2014). The authors agree that the sustainability of the financial system and the related economic situation arise when operational problems in one commercial bank affect the activities of other commercial banks, and such problems go beyond the external borders of one country and start to spread globally, affecting the entire financial system. Their arguments are supported by the Bank of Lithuania (2008, 2009, 2011) and national authors such as V. Deltuvaitė (2009), E. Martinaitytė, A. Keleras, V. Katkus, and G. Nausėda (2012), and by T. Ambrasas (2014). The problems of the financial system mentioned above become especially relevant in different phases of the economic cycle, such as recession or crisis.

Conceptually, there has been a prevalent view among researchers and practitioners regarding the liquidity aspect of the financial system. The negative correlation between liquidity and profitability was confirmed by P. Vadova (2011). According to A. Lileikienė and A. Likus (2011), in order to maintain the required liquidity level, commercial banks had to optimise the number of short-term loans, which is not profitable due to low interest rates. This means that the negative relationship between liquidity and profitability has been confirmed throughout the evolution of commercial banking. Therefore, according to the researchers, compliance with the new liquidity coefficient requirement not only determines the “cleaning” of commercial banks from “bad” assets and liabilities but also the potential insolvency of commercial banks in case of non-compliance. The latter perspective is confirmed by foreign authors. P. J. König (2010), R. A. Nowak (2011), P. Legland (2012), J. M. Liang (2012) and F. Housa (2013). According to these authors, the effectiveness of the convergence of the liquidity ratio for the sustainability of the financial system is not yet clear. R.A. Nowak (2011) argues that the new liquidity ratios are likely to be an ambitious project that may not deliver the desired results. In contrast, P.J. König (2010), P. Legland (2012), J.M. Liang (2012) and F. Housa (2014) highlight another problem with the new regulatory ratio: the most profitable assets are the riskiest, but their liquidity is low, and commercial banks tend to allocate assets to yield higher returns to ensure the profitability of their operations, and the new liquidity ratio requirement obliges banks to form a “buffer” of “good” liquid assets. Recently, certain developments in the activities of commercial banks have not proven successful and have contributed to ensuring the financial stability of banks amidst economic instability.

Pulawska (2021), in her examination of the consequences of economic crises on financial stability, emphasises that this leads to a negative impact, resulting in a decrease in the profitability of assets. Elnahass, Trink and Li (2021), through the analysis of the financial performance and risk indicators of banks around the world, argue that the outbreak of the pandemic crisis caused significant damage to the financial stability of banks, which in the course of the investigation revealed bank defaults, high liquidity and asset risks.

The challenges of financial stability during the crisis were examined by Rababak, Al-Haddad, Sial Chunmei and Cherian (2020), who in the course of the study found out the generalising financial performance of Chinese exchange companies, especially small and medium-sized ones, using the OLS (Ordinary least squares) method.

The authors of the article relied on hypothetical statements to substantiate their research, based on the correlation between the interest rate's influence on the loan portfolio, the assessment of the dependency between the loan portfolio of banks and household consumption, and the correlation between the banking system and state debt.

## Research methodology and research organisation

In the course of the research, in order to identify deeper factors influencing the quality of the loan portfolio, the interconnection situations of 3 groups were formulated. To determine the influence of factors, two hypothetical statements were made for each situation. In the course of the research, the method of pair correlation analysis was used, allowing to assess the strength of the

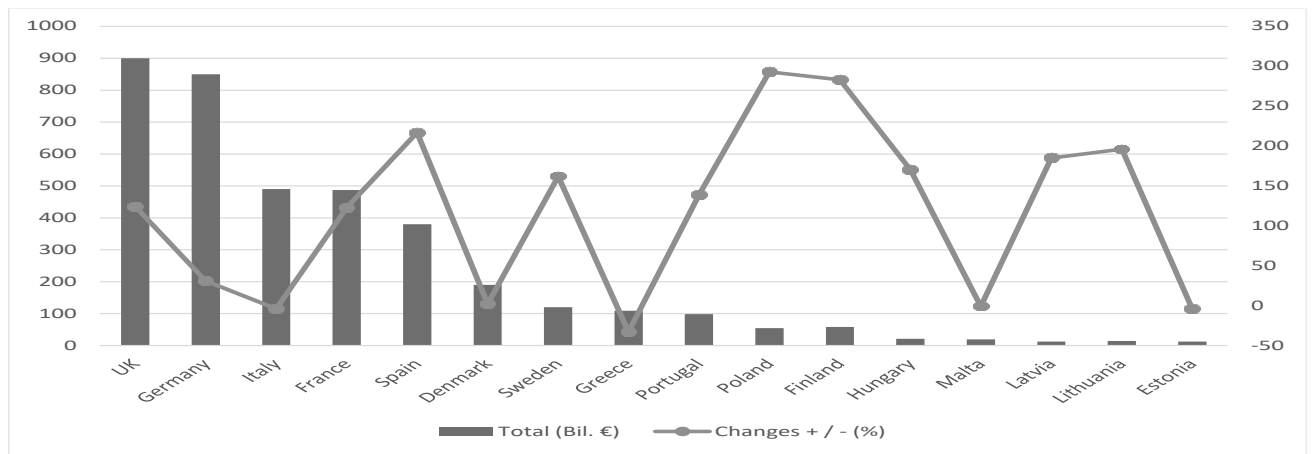
relationship of factors. In the First situation - interdependence between Lithuanian banking system's loan portfolio and public debt developments, exists the weak link. On the second situation - Interdependence between Lithuanian banking system's loan portfolio and housing price, when show analyses, exists very strong link. And in the III situation - Interdependence between Lithuanian banking system's loan portfolio and interest rate changes, exists strong link (table 1).

**Table 1**

Situation	Pair correlation analysis hypothesis	Results	Conclusion
Situation I : Interdependence between Lithuanian banking system's loan portfolio and public debt developments	H <sub>0</sub> : Interdependence between Lithuanian banking system's loan portfolio and public debt developments the statistical link does not exist; H <sub>1</sub> : Interdependence between Lithuanian banking system's loan portfolio and public debt developments the statistical relationships exists;	$r_{X1Y}=0,375$ $t_{fakt.}=2,809$ $t_{teor.}=2,074$ Because $2,809 > 2,704$ , tai H <sub>0</sub> rejected.	Interdependence between Lithuanian banking system's loan portfolio and public debt developments exist the weak link
Situation II: Interdependence between Lithuanian banking system's loan portfolio and housing price	H <sub>0</sub> : Interdependence between Lithuanian banking system's loan portfolio and housing price changes the statistical link does not exist; H <sub>1</sub> : Interdependence between Lithuanian banking system's loan portfolio and housing price changes the statistical relationships exists;	$r_{X6Y}=0,907$ $t_{fakt.}=9,609$ $t_{teor.}=2,074$ Because $9,609 > 2,704$ , tai H <sub>0</sub> rejected.	Interdependence between Lithuanian banking system's loan portfolio and housing price changes the exist very strong link;
Situation III: Interdependence between Lithuanian banking system's loan portfolio and interest rate changes	H <sub>0</sub> : Interdependence between Lithuanian banking system's loan portfolio and interest rate changes the statistical link does not exist; H <sub>1</sub> : Interdependence between Lithuanian banking system's loan portfolio and interest rate changes the statistical relationships exists;	$r_{X7Y}=-0,772$ $t_{fakt.}=-5,432$ $t_{teor.}=2,074$ Because $ -5,432  > 2,704$ , tai H <sub>0</sub> rejected.	Interdependence between Lithuanian banking system's loan portfolio and interest rate changes exist strong link;

In assessing financial stability, the study draws attention to lending trends and indebtedness. Borrowing trends increased significantly until the second half of 2022, at approximately 11.7% annual rates. However, the rise in the ECB base interest rates from the beginning of 2023 triggered a slowdown in the loan portfolio, although Lithuania, compared to EU countries, maintains a high

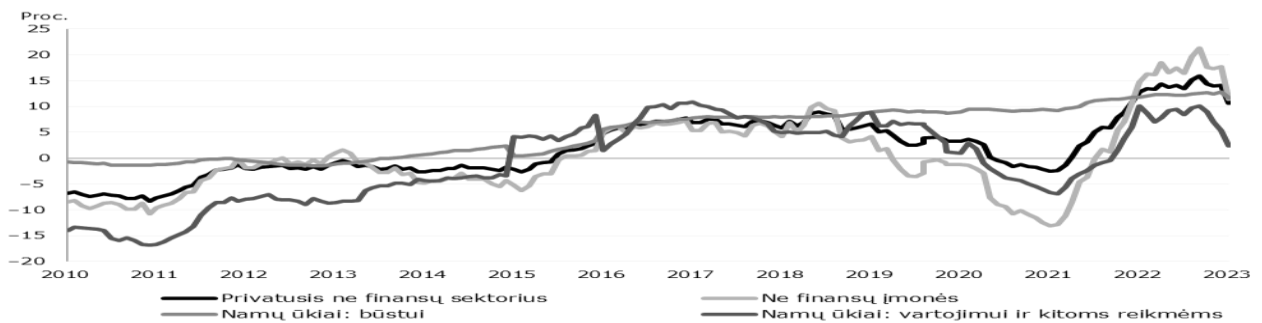
position in the borrowing process, as shown in Fig. 1. Dynamic changes in the loan portfolio in the EU countries are shown in Figure 1. According to the study, the largest changes in the loan portfolio in 2010 –2022 were in the following European Union countries, such as Finland, Poland, France, Portugal, Hungary and Lithuania. Fig.1.



**Fig.1.** Dynamic changes in the loan portfolio in the EU countries (%)

In Lithuania, a significant part of the loan portfolio, about 43%, consists of loans granted to households – for the purchase of housing. The volume of loans to households grew until the beginning of the crisis period in 2008. With the onset of the crisis, lending to

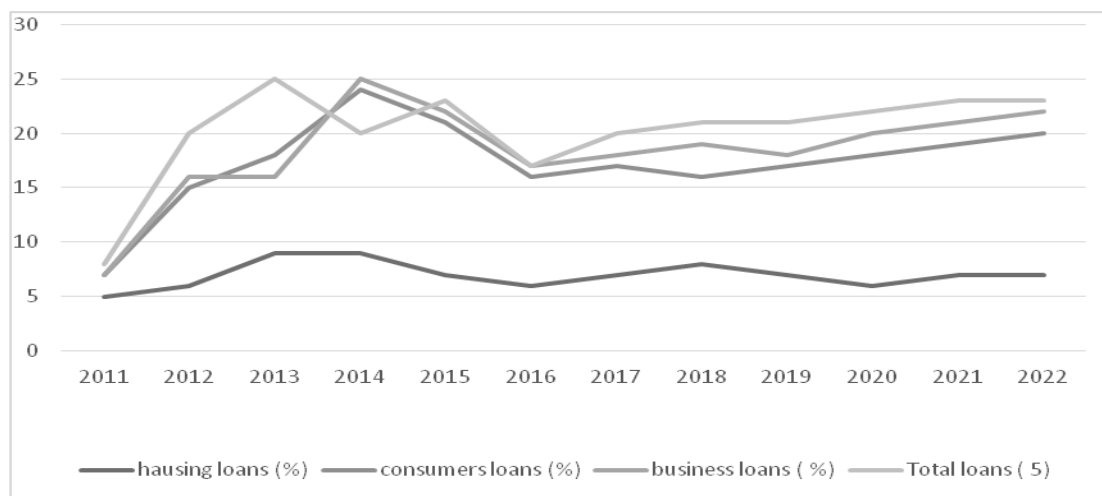
households became restricted by commercial banks, and as the study shows, in the structure of the loan portfolio, lending to households in 2010 –2023. gradually decreased (Fig. 2).



**Fig. 2.** The loan portfolio for the housing dynamic changes 2010–2023 (mln. €)

In the course of the research, relevant trends revealing financial instability are observed in the context of economic changes. In a period of economic growth, lending has taken place under simplified conditions, which triggered an “economic overheating” in 2008, and the financial crisis has affected the quality of the loan portfolio. 27

percent the loan portfolio was devastated by insolvent loans. In analyzing the quality of the loan portfolio, the largest share of insolvent loans was accounted for by loans to businesses and in period 2022-2023 year. (Fig. 3).



**Fig. 3.** Non-performing loans in the total loan portfolio (%)

The economic situation has influenced the factors that contribute to financial stability. Analyzing the factors

that influenced the insolvency of business enterprises, even 61 percent. consisted of the incorrect assessment of

the competitive environment, 22 percent – problematic business administration, 6 percent – inadequate financial

management, the inability to service the loan and 5 percent – conscious business disruption (table 2).

Table 2

Insolvency reasons characterization	Inadequate financial management,	The inability to service the loan	Incorrect assessment of the competitive environment	Problematic Business administration	Conscious business disruption
of all insolvent companies (%)	6	6	61	22	5

With the tightening of the ECB's monetary policy and economic uncertainty in recent years, financial institutions have notably witnessed a slowdown in financial activity.

## Discussion and Conclusions

Still high inflation, stricter financing conditions, and reduced trade prospects continue to hinder the country's economic growth, reducing economic growth rates to 3.6%. This was mainly influenced by a noticeable reduction in the activities of the industrial, transport and retail sectors. Analysing the decreasing trends, the reasons for the slowdown are evidently noticeable, such as tightening financing conditions, imposed international trade sanctions, and reduced foreign demand for Lithuanian-origin goods or services in countries like Poland, Germany, the Netherlands, and Latvia. With changes in financing policies, companies become more vulnerable. A business entity is considered vulnerable when, during an economic or financial shock, it becomes unprofitable, lacks surplus liquidity, and typically has negative equity. The most vulnerable businesses may result in job losses. According to NACE, the most vulnerable sectors during economic downturns include accommodation, trade, and entertainment activities.

As research results indicate, changes in household consumption, primarily the increase in mortgage payments, have a significant impact on financial stability. This interdependence is interconnected – individuals working in the transportation and trade sectors are the most vulnerable, with expected losses from mortgage loans. This can be explained by the high vulnerability of transport companies and the likelihood of employee insolvency in these sectors.

Transitioning from an environment of low-interest rates to one with steadily increasing interest rates can lead to financial market instability, especially when associated with the activities of bankrupt US banks in the spring of this year. Although major banks such as AB SEB Bank and Swedbank did not perceive increased risk in their banks, this was directly influenced by large amounts of capital and liquidity reserves of commercial banks.

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**Angele Lileikiene**, doctor of social sciences. Author of more than 85 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](mailto:angele.lileikiene@ltvk.lt), ORCID ID: 0000-0002-8414-5906

**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. 20 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. E-mail: [jurgita.martinkiene@ltvk.lt](mailto:jurgita.martinkiene@ltvk.lt), ORCID ID: <https://orcid.org/0009-0007-5190-3508>





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## **PRODUCT QUALITY (PQ) IDENTIFICATION IN MANUFACTURING COMPANIES: THE PERSPECTIVE OF MANAGERS AND EXECUTIVES**

**Algirdas Giedraitis<sup>1, 2</sup>, Rasa Romeryte-Sereikiene<sup>1</sup>, Modestas Vaiksnoras<sup>1</sup>**

*<sup>1</sup>Lithuania Business College, <sup>2</sup>Klaipėda University*

### **Abstract**

Pursuing quality as one of the main goals of a competitive manufacturing company is very important. 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. Decision-making often requires access to real-time data, analytics, and resources that are typically managed by relevant departments or MANAGERS. Expected, that EXECUTORS follow established procedures and report issues to their MANAGERS. Organizations must empower their frontline employees with the authority and training to make decisions related to equipment operation and maintenance. The results of the Exploratory research revealed that the work of managers and executives with product quality has a lot of disadvantages. The general perspective of managers and executors in solving product quality problems and making decisions to eliminate them include a shared understanding of quality standards, effective communication, data-driven decision-making, empowerment, a commitment to continuous improvement, problem-solving skills, resource allocation, risk management, ongoing training, customer focus, and documentation. Organizations must empower their frontline employees with the authority and training to make decisions related to equipment operation and maintenance. In such cases, EXECUTORS are expected to exercise their judgment and expertise to keep operations running smoothly. The general perspective of managers and executors in solving product quality problems and making decisions to eliminate them include a shared understanding of quality standards, effective communication, data-driven decision-making, empowerment, a commitment to continuous improvement, problem-solving skills, resource allocation, risk management, ongoing training, customer focus, and documentation. By working collaboratively and emphasizing these factors, organizations can effectively address and prevent quality issues.

**KEYWORDS:** product quality, managers, executors, production company.

### **Introduction**

Today and always, to survive in the market, it is important to be superior to your competitors, and this can be achieved through a quality product. It is necessary to ensure the quality of the processes and the product, which is one of the main characteristics of product quality, due to which consumers will always choose products of that company. It is understood as an initiative aimed at meeting consumer needs through product quality. To meet the needs of consumers, the organization must constantly improve its activities in terms of quality.

Every study in the organization is very useful for identifying the causes of product quality problems, which helps to generate useful ideas to solve these problems. Every motive or reason for a lack of product quality is a basis for change. It is most commonly used in analyzing causes and effect relationships, communicating this information to managers and executives, and facilitating the identification of product quality problems by associating them with the cause and solution of the problem. Research data indicate that the respondents believe that all employees must participate in the implementation of the standard, and the manager must interest and indicate specifically what changes await the employees (Krikščiūnienė, 2008). Different understanding of product quality assurance by MANAGERS and EXECUTORS is becoming one of the most common problems in manufacturing companies in Lithuania.

Different decisions of managers and executives to identify and solve product quality problems in production. Product quality in the manufacturing company. To present an exploratory study aimed at clarifying product quality identification problems and solutions in production from the perspective of managers and executives.

The research is exploratory. Methods used in the research: comparative analysis and synthesis of scientific literature; quantitative research - written survey. The research sample is non-probabilistic - a random way of selecting groups, since the researchers do not intend to extrapolate them to the entire population, that is, transform them outside the research group (Kardelis, 2016). The study involved 135 respondents divided into two groups - 32 MANAGERS and 103 EXECUTIVES involved in the production process.

The research instrument is a questionnaire. The questionnaire consists of three blocks (preparation for production, production, and production results) and statements prepared for decision-making according to categories: employees, methods, technique, technologies, tools, measurements, and environment. The respondents had to evaluate each statement according to the Likert scale - from 1 - completely disagree to 5 - completely agree. The Cronbach's alpha coefficients of the questionnaire range from 0.762 to 0.822, so the reliability is sufficient. The obtained research data were processed with SPSS and EXEL programs.

The research was conducted (in June 2023) in large furniture manufacturing companies in the Klaipeda region.

#### Theoretical background.

The competition is increasing day by day. It is becoming increasingly difficult for companies to convince consumers that the product they are selling is of high quality. A product is a good, service, or idea obtained through an exchange. It can be a tangible or intangible measure, including functional, social psychological measures or benefits (Ivanauskas, 2014). Product quality assurance is one of the goals of every manufacturing company. The right quality is not necessarily the best quality. It is determined based on the summary of necessary costs, technical characteristics of the product, taking into account the specific requirements of users, etc. (Giedraitis, 2015).

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 behaviour. 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.

Quality can be understood "as compliance with the requirements of standards and specifications, suitability for use, degree of satisfaction of customer needs" (Mikulis, 2007). The emergence of quality as an important element allowed to change not only business and/or industrial processes but also the mindset of people. More and more attention is being paid to ensuring quality and requirements when creating products, but little attention has been paid to the efficiency of the entire production process without degrading the quality requirements of the product. In the hierarchical system of quality criteria, the role of management is very clearly revealed, where data managed by managers and information about product quality assurance conveyed to executives is one of the priorities in the organization.

There are two groups of requirements for product quality assurance. The first group includes conditions about the buyer's wishes - requirements for the product. The other group consists of the requirements that must be maintained in the production processes in order to ensure that the product meets the needs of the customers. The abundance of technology and the vast number of ways it can be used in production creates many problems.

At the moment, the list of problems is narrowing when manufacturing more and more complex products in Lithuania, and the basis of everything is product quality assurance in manufacturing. A process is carried out related to a person's desire to solve a certain product quality problem or opportunity that he has recognized and perceived (Table 1).

**Table 1.** Common product quality issues

Product quality issues	Description of the problem	Authors
1. Defects and variability	Defective products and differences in product quality can lead to customer dissatisfaction and increased costs.	(You, DalBianco, Lin & Amankwah-Amoah, 2019); (Drejeris & Drejeriene, 2019)
2. Process inefficiency	Inefficient manufacturing processes can lead to waste, delays and reduced product quality.	(Heavin & Power, 2018)
3. Technological errors	Imperfection of technological equipment, failures, and human tuning errors.	(Wang et al., 2015); (Ramilo & Embi, 2014). (Deloitte, 2019)
4. Supply chain issues	Quality issues can arise from problems in the supply chain, such as substandard raw materials or components.	(Heavin & Power, 2018).
5. Insufficient communication	Poor communication between different departments or teams can lead to misunderstandings and quality problems.	(Leichteris et al., 2018)
6. Lack of training	Inadequate employee training can lead to errors and quality deficiencies.	(Bagdžiūnaitė et al., 2019); (Albukhitan, 2020); (Wang et al., 2016)

The causes of problems (Table 1) are grouped into general categories to identify the sources of these causes. Typically, these categories include people, methods, techniques, tools, measurements, and environment (Gifu et al., 2014). Before any transformations, it is necessary to see for yourself how the employees perform one or another process (Ranonytė, 2014). According to V. Howell (2015), it is the involvement of the entire organization. A. Ranonytė, (2014), it is useful to measure and describe the processes, because it allows to review of the entire value chain.

According to Martinkienė, J., Vaikšnoras, M. (2019), to 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.

According to V. Howell (2015), standardization of work increases efficiency, so it becomes possible to do the same work with fewer people. However, it is necessary to refrain from a hasty desire to abandon freed resources, because the first efficiency improvement project will also become the last. Employees would simply not get involved in them (Ranonytė, 2014). It is necessary to receive feedback in order to evaluate the benefits of the change (Ranonytė, 2014).



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.

According Čuhadar, 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.

Improving overall administrative performance reduces the number of errors. Company management and

employees understand how much work can be done in the same amount of time and with the same employee resources, while simultaneously improving work productivity, quality, costs, work morale, and customer satisfaction (Oppenheim, 2015). By correctly communicating with the organization's team on various issues, sharing information can create a strong internal culture of the organization and ensure continuous learning (Pociūtė and V. Janušauskienė, 2005). The ability to solve product quality problems is an integral part of improving the production process. A necessary prerequisite for decision-making is the ability to choose from several possible alternatives of future behavior or actions (Table 2).

**Table2 .** Possible solutions for product quality issues

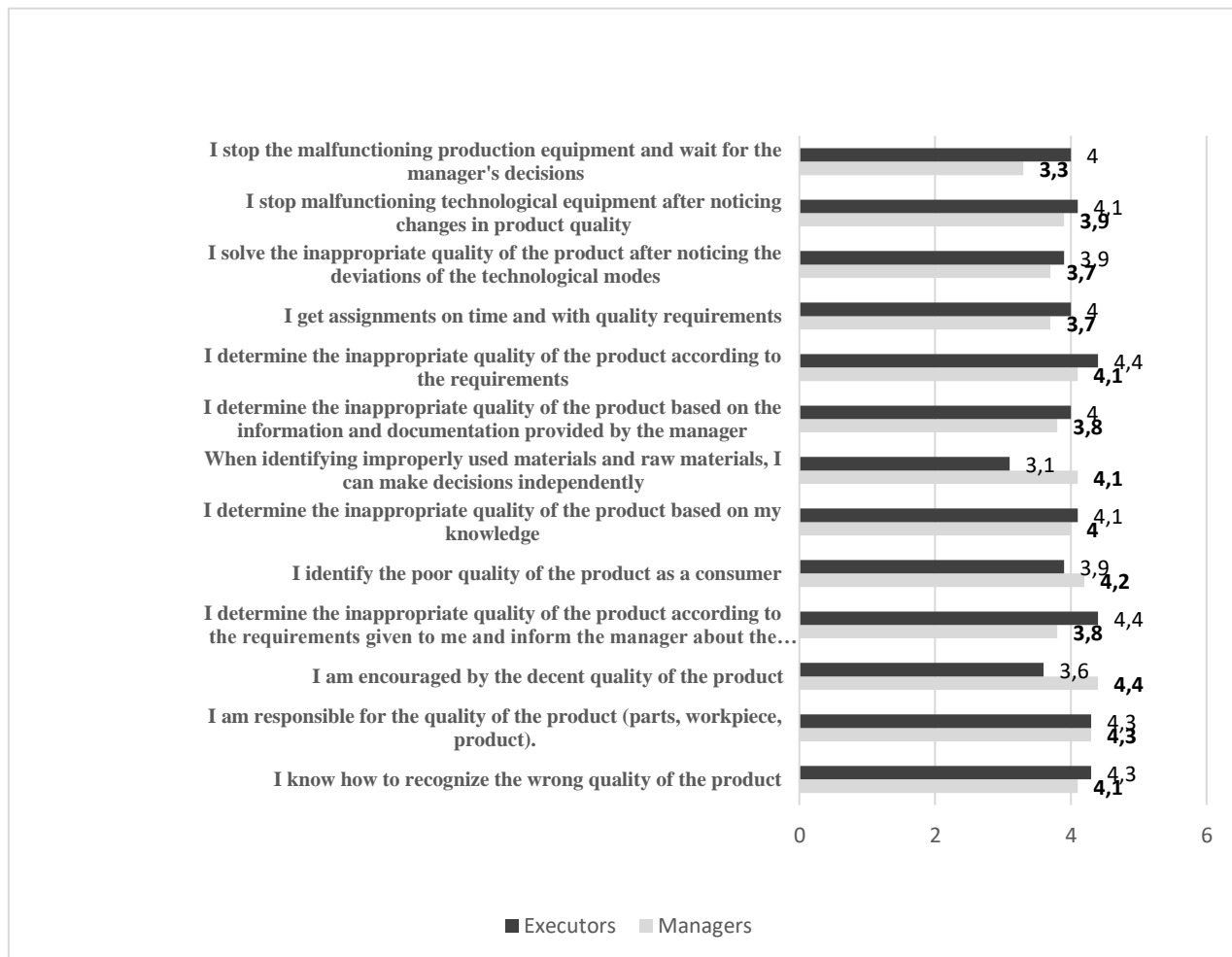
Means	Description	Authors
Quality management systems	Implementing quality management systems such as ISO 9001 can help standardize processes and ensure that quality standards are met.	Sharma, D. S. (2005)
Statistical process management (SPV):	Using statistical methods to monitor and control processes can reduce variability and prevent defects.	Serafinas, D. Ruželė, D. (2014)
Data-driven decision making	Using data and analytics to monitor processes and make informed decisions can help ensure more effective quality management.	Schildkamp, K. ir Datnow, A. (2020)
Root cause analysis	Identifying and addressing the root causes of quality problems using tools such as Fishbone Diagrams or 5 Causes can prevent recurrence.	Drejeris, R., & Drejjerienė E. (2019)
Cross-functional cooperation	Encouraging cross-departmental collaboration can improve communication and better align quality goals.	Niederhorn, M., Ruffini, C. (2008).
Supplier quality management:	Ensuring that suppliers meet quality standards through audits and collaborative improvement efforts can prevent quality problems.	Schildkamp, K. ir Datnow, A. (2020)
Automation and technologies.	The introduction of automation and advanced technology can improve the consistency and accuracy of manufacturing processes.	Smith, T. M. (2015)
Inclusion of customer feedback.	Collecting customer feedback and incorporating it into product development can lead to better product design and quality.	Schildkamp, K. ir Datnow, A. (2020)
Continuous process improvement.	Encouraging a culture of continuous improvement using methods such as Lean or Six Sigma can help to systematically solve problems and reduce waste.	Howell, V. W. (2015)

Each solution to product quality problems (Figure 2) is the identification and selection of a course of action to solve a specific problem. In Tables 1 and 2, the specifics of the problems and solutions can vary greatly depending on the product type and organizational context. Therefore, it is recommended to adhere to the combination of low production costs and high quality of your product and service (Giedraitis, 2015).

In some organizations, responsibility for product quality falls under the specific responsibilities of MANAGERS. EXECUTORS "individually" cannot be held responsible for product quality issues and cannot be authorized to assume full responsibility without resolving all issues of concern to them. Therefore, it needs to be constantly checked. All employees of the organization (MANAGERS and EXECUTORS) are different, so their internal motives are also different. Researchers and practitioners in manufacturing companies continue to explore and apply these concepts to address evolving manufacturing and product quality issues.

## Research results

The statements evaluated from the test, the first block, show that there is no significant difference between the ratings of MANAGERS and EXECUTORS (Figure 1).



**Fig. 1.** The relevance of product quality in the stage of preparation for production

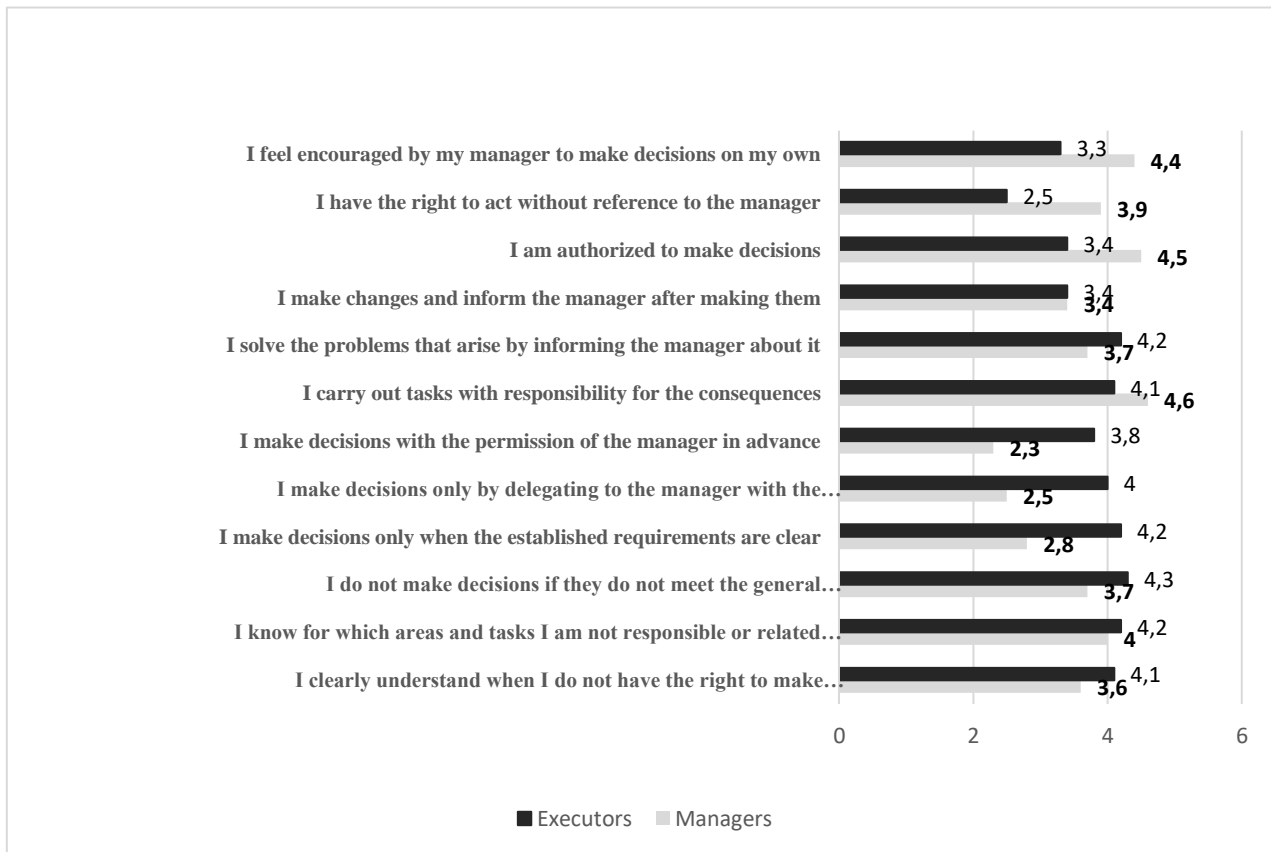
Research data (Fig 1) revealed that MANAGERS are reluctant to stop the malfunctioning production equipment and to wait for the direct manager's decisions (x-3.3). Waiting for above managerial approval in such situations can lead to unacceptable risks. Continuing to operate malfunctioning equipment can exacerbate the problem and lead to further damage or increased downtime. In some cases, immediate action is required to address emergencies, such as equipment overheating, electrical faults, or fires. Stopping the equipment promptly can lead to quicker resolutions and less production disruption. In order to change this situation, it is necessary to empower the responsible manager as well as monitor the operating equipment and, if necessary, make a decision to stop it.

Another important indicator is that EXECUTORS are not explicitly granted decision-making authority in quality matters (x-3.1), including materials management. This can occur when management does not trust their judgment and expertise. Decision-making authority regarding materials usage might rest with only higher-level managers or departments specializing in procurement, inventory management, or production. EXECUTORS often have defined roles and responsibilities within an organization, and their authority may be limited to specific tasks or processes. Also, EXECUTORS may not possess the necessary expertise

and might rely on managers or experts in these areas. EXECUTORS might be risk-averse when it comes to making decisions that can have financial or operational implications. Incorrect decisions regarding materials usage can lead to waste, increased costs, or disruptions in production. EXECUTORS may feel ill-equipped to evaluate all the potential impacts and may hesitate to make decisions without a comprehensive understanding of the situation. EXECUTORS may not have access to the necessary resources, data, or tools needed to evaluate and address materials usage issues effectively.

In urgent situations where improper materials usage poses an immediate threat to production, quality, or safety, EXECUTORS may need to step in and make quick decisions to mitigate the risk, regardless of their managerial structure.

In the second block, the statements evaluated show the opinions of MANAGERS AND EXECUTORS about actions on product quality issues in the production process. The presented data (Figure 2) show that the opinions of MANAGERS AND EXECUTORS differ more.



**Fig. 2.** The relevance of product quality in the production process

According to the research data presented in Table 2, it can be stated that MANAGERS do not receive permission for decision-making in advance ( $x=2.3$ ), even if the necessary information is agreed in advance ( $x=2.5$ ) and the requirements for decision-making are not clear ( $x=2.8$ ). It implies that MANAGERS may not have clear guidelines or criteria to follow when making decisions. Even if they have the necessary information and have reached agreements on it, there is a lack of clarity in the decision-making requirements, and they are still unable to make decisions without prior permission or approval. In other words, they are not allowed to make decisions without seeking prior approval or permission. This could imply bureaucratic or hierarchical constraints within the organization that hinder efficient decision-making by MANAGERS.

Another statement "I have the right to act without reference to the manager" revealed that the EXECUTOR does not have the right to act independently ( $x=2.5$ ) because he does not have the authority to do so. This one of the most common consequences is delayed decision-making. EXECUTORS must wait for managerial input, which can slow down operations and impact productivity, especially in fast-paced environments. MANAGERS may be concerned about the potential risks associated with allowing executors to make independent decisions. They may believe that centralized decision-making reduces the likelihood of errors or costly mistakes. In some cases, MANAGERS might want to maintain control to ensure accountability. They may want to be directly responsible for decisions to track and assess their outcomes. When employees are discouraged from making decisions independently, it can stifle innovation and creativity within the organization.

In the third block, the end of the production process, the opinions of MANAGERS and EXECUTORS differ in the evaluation of the statements as well (Figure 3).



**Fig. 3.** The relevance of product quality at the end of the production process

To another statement "I have various incentives for making good decisions and solving production problems", MANAGERS and EXECUTERS answered differently - MANAGERS  $x=3.8$  and EXECUTERS  $x=3.0$ .

This means MANAGERS and EXECUTORS do not have clear performance goals related to decision-making and problem-solving, and they may not feel motivated to improve in these areas. When the impact of good decisions and effective problem-solving is not measurable or timely feedback is not provided, employees may not see the value of these activities.

If performers fear punishment or negative consequences for mistakes, they may avoid taking risks, even if those risks are necessary for innovation and effective problem-solving. Lacking the necessary skills and knowledge can make it difficult for implementers to make good decisions and solve problems effectively. Poor communication and collaboration can hinder the sharing of ideas and the collective effort needed for effective decision-making and problem-solving. Solutions can be recommended to change the situation: Establish clear, measurable goals related to the quality of solutions, the effectiveness of problem-solving, and their impact on production results; Invest in training and

development programs that improve decision-making and problem-solving skills at all levels of the organization; Provide opportunities for continuous learning, mentoring, and coaching; To promote open communication channels and collaborative platforms that encourage the exchange of insights and ideas; To implement a performance appraisal system that tracks the results of decisions and problem-solving efforts. To provide regular feedback and use performance data to improve.

In summary, motivating MANAGERS and EXECUTORS to make good decisions and solve production problems requires a combination of clear goals, an enabling culture, training, empowerment, effective communication, measurement, and alignment with organizational goals. By addressing these factors, organizations can motivate their employees to excel in these critical areas and drive continuous improvement.

## Conclusions

The quality systems developed by the companies allow to ensure compliance of the product production processes with the requirements of the interested parties. The understanding of product quality and the application of the quality system in the processes are becoming more and more modern and all-encompassing. With a strategic

understanding of the importance of quality and its continuous supervision, it is necessary to involve people who know their field in the assessment, support, and improvement of this area - both MANAGERS and EXECUTORS.

Decision-making often requires access to real-time data, analytics, and resources that are typically managed by relevant departments or MANAGERS. Expected, that EXECUTORS follow established procedures and report issues to their MANAGERS.

Organizations must empower their frontline employees with the authority and training to make decisions related to equipment operation and maintenance. In such cases, EXECUTORS are expected to exercise their judgment and expertise to keep operations running smoothly. Organizations that embrace a culture of continuous improvement encourage employees at all levels to identify and address operational inefficiencies. EXECUTORS may view stopping malfunctioning equipment as a way to contribute to this culture and enhance overall productivity.

An organization values MANAGERS and EXECUTORS differently in terms of innovation and risk assessment and disproportionately rewards MANAGERS for these skills, it can lead to a variety of consequences. While it may encourage managerial innovation and calculated risk-taking, it can also create hierarchical divides, stifle creativity among EXECUTORS, and limit the organization's ability to adapt and innovate at all levels. Striking a balance and recognizing and nurturing innovation and risk assessment capabilities in all roles can be key to fostering a culture of innovation and ensuring the organization's long-term success.

To address these challenges, some organizations are moving toward more decentralized decision-making, empowering their employees to make informed choices within established guidelines. This approach can lead to increased agility, improved employee engagement, and more effective problem-solving. However, it also requires a culture shift and investment in training and development to ensure that employees are equipped to make responsible decisions independently.

The general perspective of managers and executors in solving product quality problems and making decisions to eliminate them include a shared understanding of quality standards, effective communication, data-driven decision-making, empowerment, a commitment to continuous improvement, problem-solving skills, resource allocation, risk management, ongoing training, customer focus, and documentation. By working collaboratively and emphasizing these factors, organizations can effectively address and prevent quality issues.

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**Algirdas Giedraitis.** Doctoral degree in Social sciences, Klaipėda University, associated professor of the Management Department. Research Interests: production management, personnel management. E-mail: [algirdas.giedraitis@gmail.com](mailto:algirdas.giedraitis@gmail.com) ORCID ID 0000-0001-6813-2980

**Rasa Romeryte-Sereikiene.** Master of Educology. Associated professor of the Department of Management in Lithuanian Business College, Head of Pe's Biurometa. Research Area - Human Resource Management. Address: Turgaus str. 21, Klaipėda, Lithuania. E-mail: [rasa.romeryte@gmail.com](mailto: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. Address: Turgaus str. 21, Klaipėda, Lithuania. E-mail: [modestas.vaiksnoras@gmail.com](mailto:modestas.vaiksnoras@gmail.com) ORCID ID 0009-0008-9546-1956



## **DIGITAL TECHNOLOGIES AS A FACTOR OF NATIONAL SECURITY OF UKRAINE**

**Anna Zadorozhna**

*Ivan Franko National University of Lviv*

### **Abstract**

Digitalization has a significant impact on the sovereignty of the state and its national security. In its turn, national security determines the measures and requirements that apply to the informatization of society and information security. The relationship between national security and digitalization means that one cannot talk about national security without taking into account the degree of digitalization of the country. The problems of digitalization of Ukraine has been researched by many authors. However, it takes on special significance now that national security is becoming especially important for the country. The purpose of the study is to estimate the state of digital development of Ukraine and the cyber threats that the country has experienced and formulate basic recommendations for the further digital development of Ukraine. The author examines the issue of digitalization from the point of view of strengthening Ukraine's position on the world stage, and those dangerous moments of digitalization that may appear in the case of military aggression. The author analyzes various indicators of digitalization as well as the state's contribution to the development of information and communication technologies. In particular, Ukraine improved its position according to the generalized indicator of the level of development of information and communication technologies NRI from 71st place in 2015 to 50th place in 2022. Calculations showed that in recent years the state did not allocate enough budget funds to the field of information and communication technologies. A different situation is observed for the private sector in 2019–2021 – the share of capital investments from internal sources of enterprises and organizations in the “Information and Telecommunications” section exceeds the average level of capital investments disbursed from such sources in the whole economy. The downside of digitalization is the increase in cyber attacks with the spread of information and communication technologies. The work examines those examples of cyber attacks that Ukraine has experienced since the beginning of Russian aggression. In the context of hostilities, Ukraine needs to increase the level of cyber protection, because the country is not among the top ten countries in the world with the highest GCI score.

**Keywords:** digitalization, digital economy, national security, cybersecurity, capital investment, Internet, digitization development indicators, new economy.

### **Introduction**

National security is a broad concept that means a set of measures to ensure and preserve the nation. Every nation that wants to preserve its identity, its culture and the territory on which it has formed a state must pay significant attention to ensuring national security. National security is one of the required factors for the existence of a state. It ensures stability in the existence of the state and society, promotes their gradual development by preventing, identifying and neutralizing threats to the state.

In today's world, digitalization has an impact on all areas of social development. It determines the progress of the state's development, including in the economic sphere. Active implementation of information and communication technologies promotes to long-term growth of the national economy, increasing the level of public administration, and improving health and education.

The widespread use of digitalization also affects the sovereignty of the state, its national security. In its turn, national security determines the measures and requirements that apply to the informatization of society and information security. Without a national policy for organizing the protection of information resources, there can be no national security. Therefore, national security and digitalization are interconnected.

Information security is of particular importance and can have a significant impact on the military security of the state and its existence as a whole. This is due to the development and active use of innovative technologies and modern information systems in human activity, and the acquisition by an information resource of the role of a strategic resource of the country.

In a broad sense, information security is a set of measures aimed at ensuring the security of information from unauthorized access, use, disclosure, destruction, modification, review, inspection, recording or destruction.

A new stage in the development of information security can be called cybersecurity, which in a simplified formulation can be defined as the security of an exclusively digital environment. The goal of cybersecurity is to develop and use methods and practices to protect digital data, networks, computer systems, servers, software and hardware, and mobile devices from intruders.

The purpose of the work is to analyze the state of digital development of Ukraine and the cyber threats that the country has experienced and formulate basic recommendations for the further digital development of Ukraine.

The object of research is digital technologies. The subject of the study is the impact of digital technologies on national security.

## Literature Review

The role of technology in the development of a society, changes in the development cycles of productive forces over a significant period of time were studied in (Melnyk, Dehtyarova, et al., 2019), where the positive and negative features of the implementation of disruptive technologies were noted. The work emphasized that digital technologies are one of the factors that improve economic development.

Many publications are devoted to the problems of the emergence and development of the “new” economy, the peculiarities of its formation. The authors (Dziatkovskii, Hryneuski, et al., 2021; Gobble, 2018) investigate the principles of digitalization of the economy and emphasize the need to attract both public and private investment in the digital economy also. According to the authors, the position of the state is important – the development of specific measures of state support of the economy digitalization.

General questions of business process management in the context of digital transformation were studied in (Stjepić, et al., 2020). It is indicated, that digitalization is more focused on customers who require high quality of services offered. The need for greater process flexibility leads to the appearance of new business models in organizations.

According to V. Koibichuk, N. Ostrovska (2021), the use of digital communication platforms for making purchases on the Internet is of particular importance. R. Bacik et al. (2020) showed that today's consumers prefer to make purchases on the Internet, in particular, using mobile devices. By using digital channels of communication with consumers in their activities, businesses can increase the level of profitability (Bacik, et al., 2020).

Some authors note that attention needs to be paid to the security and protection of consumer data when digitalizing business processes (Skrynnyk, 2020). At the same time, the digitalization process is considered as one of the most important areas of managing the development of an organization. This aspect also examines the impact of innovative information and communication technologies on employee performance (Alyoubi, Yamin, 2019).

In particular, the authors evaluate the advantages and disadvantages of ICT for organizations. G. Pajtinkova Bartakova, K. Gubiniova et al. (2017) assessed the potential and ease of use of social networks for employers – representatives of small and medium-sized businesses. The authors showed that the use of digital technologies makes it easier for SMEs to recruit staff through social networks. The issues discussed in our article are also, to a certain extent, related to the articles by Yanyshyn (2019) and Yu. Harust (2019).

Studying the creation of value for customers in the case of small businesses (using the example of the fashion, furniture and food industries), the authors (Matarazzo, Penco, et al., 2021) concluded that neglecting of digitization in the work of medium and small businesses can cause bankruptcy and closure of companies. They have shown, that digital transformation

causes a change in the business model and customer value creation processes.

The problem of the correct organization of financial security is considered in the work (Koibichuk, Dotsenko, 2023). A group of clusters has been formed that characterizes their methods and technologies for detecting cyber threats. This allowed the authors to provide comprehensive recommendations for organizing cybersecurity in financial institutions, as well as note the annual growth of the global cybersecurity market.

According to the authors (Simonavičiūtė, Navickas, 2022), the digitalization of business strongly depends on the general level of digitalization of the country. The latter depends on various factors, including financial investments in network infrastructure. The authors of (Simonavičiūtė, Navickas, 2022) found problematic points in the digitalization of Lithuania and noted the importance of achieving a high level of connectivity (5G) in the country.

The importance of a high level of communication (5G) is shown in work (Akpan, Ibidunni, 2021), where the influence of various generations of network technologies up to and including 5G on the rate of industry digitization and intelligent automation was studied. It is indicated, what opportunities can be provided by 5G communication for the further development of various industries, including smart industries, IoT, automobiles, smart cities and healthcare.

The need for comprehensive digitalization and implementation of ICT, the ability to use IT skills imposes its requirements on the development of society and its education. Thus, in work (Éva Görgényi Hegyes, et al., 2017), using the example of Hungary, the importance of developing of digital skills for the further development of the country's “new economy” is shown.

One of the factors that determine the success of the implementation of digital technologies and the development of society and the country in general is the level of human development. The latter takes into account many components – literacy level, life expectancy, standard of living. To find the Human Development Index (HDI), for example, a mathematical-statistical method is used, as in (Masárová, Husárová, 2013). A more detailed analysis of the role of human capital in the development of the economy and society in the context of information technologies is contained in (Vojtovič, Karbach, 2014). In the context of the global digitalization of all spheres of life, the authors (Vojtovič, Karbach, 2014) pay considerable attention to the problems of digitalization of Ukraine.

Attempts to estimate the quality of life in Ukraine were made in (Boronos, Plikus, et al., 2018), where the authors proposed a model for the digital transformation of the economy and society. Having decomposed the digital space into three components – business, education and science, state and society, the authors monitored the readiness of the components for digital changes and the use of information and communication technologies. Using this methodology, it is shown that in 2015 Ukraine lagged significantly behind in digital quality of life.

An assessment of the prospects that digital technologies can provide is made in (Pecheranskyi, Revenko, 2019). The authors focus on attempts to



overcome the post-Soviet past and make a technological breakthrough. To do this, the authors analyzed the experience of using advanced information and communication technologies in the digital economy of the advanced countries of the world. They recommend to create a technological infrastructure, teach digital skills and information security to personnel, create digital platforms and develop a legal framework. In this context, the work (Kaminsky, Korzachenko, et al., 2017) is of interest, in which the prospects for creating an innovative public cloud platform are considered, which will allow Ukraine to provide all government services and innovative services.

A comparative analysis of the level of digitalization and its impact on the economies of Ukraine and Poland was carried out in (Melnyk, Shcheliuk, et al., 2021). Research results indicate the strong impact of digitalization on economic growth and innovation. The work suggests ways to improve digitalization - invest more in the development of the information and telecommunications infrastructure of the regions, reduce the gap between the rural and urban populations. Great importance is also attached to the human factor – the growth of digital literacy of the population, as well as cybersecurity.

A study of the state of digitalization of Ukraine was also carried out in (Samoilovych, Garafonova, et al., 2021). It emphasizes the need for systemic action from the state.

In order to increase the level of digital skills and ensure high-quality human capital, significant attention must be paid to education. This problem is discussed in article (Djakona, Kholiavko, et al., 2021), where, using the example of Latvia, the influence of higher education on the dynamics of the information economy is studied and recommendations are given for the further digitalization of Ukraine.

The authors of work (Sembekov, Tazhbayev, et al., 2021), dedicated to digital modernization in Kazakhstan, also come to conclusions similar to those in (Samoilovych, et al., 2021; Djakona, et al., 2021). They link the development of the digital economy with the

availability of digital communications, the development of digital literacy and the level of e-government.

## Methodology

In order to estimate the level of digitalization of the economy, data from the State Statistics Service of Ukraine was used. The volumes of capital investments and their share in the Ukrainian economy as a whole and in the section “Information and telecommunications” have been calculated. Data on the Networked Readiness Index (NRI) were taken from the website of the Portulance Institute, an independent, non-professional, non-specialized research and educational institute based in Washington DC (Portulance Institute).

The use of information and communication technologies determines cybersecurity questions. The latter is closely related to the secrecy of information, especially during hostilities. However, some of the data on cyber attacks was made public on the CyberPeace Institute website, which tracks cyber attacks in times of conflict. In addition, data from the Statista website was used as well as an official information about cybercrimes against Ukraine and attempts to prevent them.

## Research Results

The digital economy refers to an economy that depends on ICT. In particular, in order to estimate the state of informatization of the country and the economy, some e-indices can be used. We will consider the Networked Readiness Index (NRI) – a generalized indicator that characterizes the level of ICT development in the countries of the world. The advantage of NRI is that it is calculated on the basis of 64 different assessments, and therefore it quite comprehensively reflects areas such as “Technology”, “People”, “Governance”, “Impact”.

Ukraine is improving the value of the Networked Readiness Index and continues to increasingly introduce network and digital technologies into its economy. According to data (Portulance Institute), Ukraine rose from 71st place in 2015 to 50th place in 2022 in terms of ICT influence (by network readiness).

**Table 1.** The Network Readiness Index (NRI) of Ukraine (100 = Best)

Year	Rank	Score	Total number of countries	Technology	People	Governance	Impact
2019	67	48.92	121	43.01	42.05	58.32	52.31
2020	64	49.43	134	41.51	48.87	58.19	49.16
2021	53	55.70	130	49.20	54.29	58.93	60.40
2022	50	55.71	131	50.52	54.43	60.81	57.08

Source: Portulance Institute

To analyze the state policy of Ukraine regarding the spread of information and communication technologies, let's turn to the statistical data on the volume of capital investments by sources of financing (by types of economic activity) (Table 2) (State Statistics Service of Ukraine).

As it can be seen, in 2020–2021 capital investments were financed from budget resources in the amount of 19 % and 18 % of their total volume, respectively (from

all sources of financing), as opposed to 2018–2019 (13 % and 14 % respectively). At the same time, the share of budget capital investments in the “Information and Telecommunications” section for 2020 is more than 6 times lower (2.7%) with the share of budget financing of capital investments in the economy as a whole (19 %). And only in 2021 the situation becomes the same as in 2019 – the share of budgetary capital investments in the section “Information and telecommunications” is 3 times

less (4.8 %) than the share of budgetary financing of capital investments in general economy (18 %). For these purposes, in 2020–2021 the share of capital investments amounted to 67.0 and 68.6% of the total costs at the expense of internal enterprises and organizations (non-budgetary expenses).

As can be seen in table 2, the share of capital investments from internal sources of enterprises and organizations (non-budgetary funds) in the section “Information and telecommunications” in 2020–2021 exceeds the average level of capital investments disbursed from such sources in the economy (85 and 83% versus 67 and 68.6% respectively).

**Table 2.** Volumes and structure of capital investments by sources of financing in the economy of Ukraine and in the section “Information and telecommunications” in 2019–2021

Years	Code	Total used capital investments, billion UAH	Including at the expense		Share of capital investments from budget funds	Share of capital investments from internal sources of enterprises and organizations (non-budgetary funds)
			budget funds	own funds of enterprises and organizations (non-budgetary funds)		
2019	in general for the economy	624.0	87.3	408.3	14 %	65 %
	in the section “Information and telecommunications”	21.1	0.80	18.4	4 %	87 %
2020	in general for the economy	419,8	80.1	279.3	19 %	67 %
	in the section “Information and telecommunications”	21.1	0.57	17.85	2.7 %	85 %
2021	in general for the economy	528.8	92.8	362.7	18 %	68.6 %
	in the section “Information and telecommunications”	20.1	0.96	16.7	4.8 %	83 %

Source: calculated from the data (Website of the State Statistics Service of Ukraine)

Using the data in table 3, we can conclude that the share of capital investments in the “Information and Telecommunications” section in the structure of capital investments in the economy in 2020-2021 was 5.0 and 3.8%, respectively. At the same time, enterprises and organizations allocated 6.4 and 4.6% of the total amount of financial resources that were allocated for capital investments in the respective years to capital investments in the “Information and Telecommunications” section at the expense of their own funds, while only 0.7 and 1.0 % were allocated from budget funds respectively.

Up to 90% of enterprises in Ukraine have access to the Internet (Table 3), while only 10 % of enterprises use cloud computing services. The authors (Pecheranskyi, Revenko, 2019; Kaminsky, et al., 2017) pointed out the same problem when they noted the need for more active use of cloud platforms in Ukraine.

An important priority for digital transformation is digital inclusion, so that all citizens can use government electronic services without limitation. The increased level of digitalization also means more active and simplified interaction between communities and government authorities, for which the e-Government system has been introduced in Ukraine. Despite the fact, that Ukraine belongs to the category of European countries with lower middle income, since 2012 it has gone from an average level of EGDI to a very high E-Government Development Index.

**Table 3.** The use of information and communication technologies at enterprises of Ukraine by types of economic activity (% of the total number of enterprises)

Type of service	2018	2019	2021
access to the Internet	88	86.4	86.6
website	35.6	35.2	35.3
cloud computing services	9.8	10.3	10.2

Source: Website of the State Statistics Service of Ukraine.

As can be seen from Table 4, it was the high Human Capital Component that ensured the average and high value of EGDI in 2014–2018. From 2020 there is a significant increase in the Online Service Component, and the telecommunication infrastructure is also improving (up to 0.727), which allows to estimate the level of EGDI as very high.

At the same time, when talking about digitalization, one should not forget about its reverse side - the increase in the number of cyber attacks with the spread of information and communication technologies. A lot of attention is devoted to the problem of studying of the development peculiarities and trends of cyber security. In particular, a generalized Global Cybersecurity Index (GCI) was introduced to estimate the level of cyber security of countries. It includes legal, technical and organizational measures to ensure cyber security, and also takes into account such indicators as building of the potential of the state and its international cooperation.

**Table 4.** E-Government Index of Ukraine

Year	Rank	EGDI level	EGDI	Online Service Component	Telecomm. Infrastructure Component	Human Capital Component
2014	87	middle	0.5032	0.2677	0.3802	0.8616
2016	62	high	0.6076	0.5870	0.3968	0.8390
2018	82	high	0.6165	0.5694	0.4364	0.8436
2020	69	high	0.7119	0.6824	0.5942	0.8591
2022	46	very high	0.9211	0.8148	0.7270	0.8669

Source: Unated Nations: Department of Economic and Social AffairsPublic Institutions

According to the report (Statista), the United States has the highest level of cybersecurity in the world in 2020 (GCI=100), the second and third places are occupied by the UK and Saudi Arabia, respectively, and Estonia is in fourth place. It should be noted, that the list of 10 countries with a high GCI rating includes countries from the East and Asia also. As for Ukraine, in 2020 it did not enter the top ten countries in the world with the highest GCI index. At the same time, it would be incorrect to claim that Ukraine does not take sufficient measures to guarantee its cyber security. Thus, the level of protection of management system of Ukraine's power system at the time of the 2015–2016 attacks was at such a level that it required cybercriminals to prepare for a long time and implement a multi-stage action plan.

The cybersecurity situation in Ukraine has become especially important since the proclamation of the anti-terrorism operation (ATO) and has become critically significant since the full-scale aggression of Russia.

The effectiveness of cyber attacks is evidenced by the failure of the Ukrainian energy system in 2015 and 2016. Then, within six hours, many users were de-energized using a whole system of measures. This was preceded by complex and lengthy preparation for a massive attack:

- infection of computer networks of energy companies;
- intervention in work of automated distance control systems;
- development of malicious programs and replacements of industrial programs with them;
- destruction of information on servers used by energy companies;
- disabling call centers for customer service.

As the leadership of the Cybersecurity and Infrastructure Security Agency (CISA) notes, attacks on the digital space of Ukraine were carried out in several directions simultaneously – the spread of malicious software, DDoS attacks and attacks on websites (Fedorov).

The fact that cyberspace can become one of the theaters of military operations, the criminality of the Russian Federation's intentions was stated in Decree of the President of Ukraine No. 447/2021 of May 14, 2021: "The Russian Federation remains one of the main sources of threats to national and international cybersecurity, and is actively implementing the concept information warfare based on a combination of destructive actions in cyberspace and information and psychological operations, the mechanisms of which are actively used in the hybrid war against Ukraine. Such a destructive activity creates a real threat of acts of cyberterrorism and cybersabotage against the national information

infrastructure". The same Decree contained a list of challenges and threats to Ukraine's cybersecurity, outlined the range of tasks for the further development of the national cybersecurity system, noted the priorities for ensuring it and the country's strategic goals.

As the events of the beginning of 2022 showed, this prediction of Russia's aggressive actions, including in the cyber direction, turned out to be correct. Even before the beginning of the large-scale invasion, from January 13, 2022, repeated attacks were carried out on Public administration (Campaign: Defacement of Ukraine Government Websites, Attempt to Compromise a Foreign Government Entity), ICT, nonprofit attacks (CyberPeace Institute).

Only within 6 months of the start of the large-scale invasion, Ukraine suffered 1123 hacker attacks and continues to experience them further. In particular, on the night of February 23-24, 2022, Russia attacked and disabled the sectors of energy, transport, education, medicine, government, public administration, and finance. The websites of the Ministry of Defense of Ukraine were also subject to aggressive hacker actions (CyberPeace Institute).

On February 25, Russia carried out DDoS attacks on news sites (media) and government administration, websites of Ukrainian universities were broken, and cyber attacks on border control points were continued. Civilian users became targets of aggressive actions also, for example, SunSeed and other malicious software were distributed, and disinformation was occurred on the social network Facebook. All these acts were designed to disable the main political, military and social institutions of the country, to cause panic and disorientation of authorities, organizations and people.

Investigations based on intelligence data from the UK, EU and Canada allowed the EU to gather evidence and accuse Russia of deliberately cyberattacking Ukraine's satellite network an hour before the full-scale invasion, which affected the infrastructure and users not only of Ukraine, but also of other countries. Thus, we can state that in the modern world, a military invasion of another country is necessarily accompanied by an attempt to invade its cyberspace, launching information attacks and disabling the country's main infrastructure.

The fact that cyber security is important for the security of the country is also confirmed by the efforts of the Russian Federation to attack the energy system of Ukraine in October 2022 not only with missile attacks, but also with massive cyber attacks on critical infrastructure facilities, with the aim of complicating the counteroffensive of the Ukrainian armed forces.

Assessing the danger of cyberattacks from the Russian Federation, the European Union decided to allocate 29 million euros to strengthen countermeasures against threats in cyberspace and digital space of Ukraine, and held consultations on countering hostile attacks also. At the same time, the scale of the Russian aggression may reach such a level that DDoS attacks will be attempted on the critical infrastructure of those EU countries that support Ukraine in the war of liberation and are its allies. Periodically, statements appear from various allies of Ukraine about Russia's attempts to attack and harm one or another of their industries. The Government of Ukraine, in its turn, by the Law of Ukraine "On Amendments to Certain Laws of Ukraine to Ensure the Formation and Implementation of State Policy in the Sphere of Active Counteraction to Aggression in Cyberspace" (No. 2470-IX dated July 28, 2022) granted additional powers to the State Special Communications Service.

The latter signed an international memorandum on cooperation in the field of cyber security with the Cybersecurity and Infrastructure Security Agency (CISA) of the US Department of National Security. Threats to digital security, which EU countries have observed on the example of Russia's aggression against Ukraine, force them to pay more attention to cyber security. An example is Slovenia, which recently signed a memorandum of understanding with Ukraine in the field of cyber security and information protection.

Today, more than ever, Ukraine needs to take all measures to counter cyberattacks for its sovereign future. Such counteraction will be effective only under the conditions of an integrated approach and requires comprehensive assistance from the state.

## Conclusions

An analysis of Ukraine's digital development showed that it improved its position according to the generalized NRI e-indicator. In particular, it moved from 71st place in 2015 to 50th place in 2022 and continues to increasingly incorporate networked and digital technologies into its economy.

As the study showed, the state is insufficiently financing the digitization process - the share of budget capital investments in the "Information and Telecommunications" section is 3 times less than the share of budget financing of capital investments in the economy as a whole in 2021. The opposite situation was observed for private enterprises. However, there is a problem that previous researchers have already emphasized. Despite the high level of Internet access, only a third of enterprises have websites, and only 10 % use cloud computing platforms. The state should pay more attention to the financing of the "Information and Telecommunications" section.

Among the advantages of Ukraine is the achievement of a very high level of EGDI indicator (0.9211) for the first time in recent years. It should be noted that if before 2022 Ukraine had a high level of EGDI, primarily due to the high value of the Human Capital Component, then in 2022 the Online Service Component (0.8148) and the

Telecommunication Infrastructure Component (0.727) also showed high values.

Unfortunately, Ukraine lags behind the leading countries in the world in cybersecurity level. So, if in 2015–2016 Ukraine provided a high level of protection for the energy system management system, then a different situation occurred in February 2022. A massive attack on the country's digital infrastructure by the Russian Federation was carried out on all state websites of Ukraine – websites of the energy, transport, education, medicine, government, public administration, finance, the Ministry of Defense on the first day of the war.

It is obvious, that countering massive enemy cyber attacks requires a comprehensive approach and support from the state. Further development of digital technologies will allow Ukraine to improve the state of its economy, accelerate social development, and strengthen national security.

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## LEGISLATION

- On the decision of the National Security and Defense Council of Ukraine dated May 14, 2021 “On the Cybersecurity Strategy of Ukraine”: Decree of the President of Ukraine № 447/2021. <https://zakon.rada.gov.ua/laws/show/447/2021#Text>
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**Anna Zadorozhna**, associate professor in the Department of Digital Economy and Business, Ivan Franko National University of Lviv, Ukraine. Field of Scientific research: information technologies and systems, economic and mathematical modeling of economic processes and phenomena, securities market. Address: St. Kopernyky 3, Lviv, 79000, Ukraine. E-mail: [an\\_zador@ukr.net](mailto:an_zador@ukr.net). ORCID: 0000-0002-9258-1679





## **AN INVESTIGATION BLOCKCHAIN TECHNOLOGY ON ENTERPRISE OPERATIONAL CAPABILITIES: A META-ANALYSIS APPROACH**

**Ashveen Kutowaroo<sup>1</sup>, Bhavish Jugurnath<sup>1</sup>, Samanta Straupaite-Simonavice<sup>2</sup>**

<sup>1</sup>*Faculty of Law and Management, University of Mauritius,* <sup>2</sup>*Lithuania Business College*

### **Abstract**

Blockchain technology, a brand-new category of disruptive internet technology, is frequently employed by businesses as a technological aid to enhance production procedures and reduce spending. In this paper, we will examine the effects of blockchain technology on business operations, as well as their advantages for internal business processes and their effects on external business collaboration. An examination of the literature revealed that it has largely ignored the link between blockchain technology and corporate operational capabilities based on actual data, focusing instead solely on the business process modelling and technology design process of a blockchain-based solution. As a result, this paper gathers information from African businesses that are either preparing to implement blockchain technology or already have. Quantitative analysis of the data was done. The findings indicate that one of the key driving forces for the adoption of blockchain technology is the growth of the enterprise asset scale. Additionally, this study demonstrates how implementing blockchain technology improves asset rotation rates and lowers sales expense rates. However, the adoption of blockchain technology is one of the key business choices, which is influenced by a number of significant elements, including the manager's style, the structure of human resources, and the external policy framework, in addition to the development circumstances and stage of the firm. This paper offers some helpful recommendations for developing blockchain initiatives in the future based on the findings of theoretical and empirical investigation.

**KEY WORDS:** Blockchain, Operational capabilities, Meta-analysis.

### **Introduction**

The use of blockchain technology is gaining worldwide prominence and Mauritius is also a part of it. Blockchain technology, which has gained global attention for its many advantages, has a lot to offer to the financial services industry and it is important to understand the technology behind a blockchain-based system to effectively integrate the financial services industry. Blockchain has attracted a lot of interest from businesses, allowing them to have more efficient and effective workflows in international markets. Due to the distributed ledger established by blockchain technology, which has the ability to facilitate international trade, this has transformed how international trade is carried out along with finance and business management.

Blockchain-based system offers safer transactions since it enables paperless trade, facilitates trade financing, improves intellectual property rights and speeds up government procurement procedures. Moreover, blockchain helps lower trade costs, improve business transparency, and create new business prospects for both small and large businesses. This technology increases trust, eliminates intermediaries, speeds up market access and serves as a link between individuals across the globe. Owing to its efficiency, central banks, regulators and governments around the world have recently started implementing blockchain technology to help international trade. Haber and Stornetta were the first to introduce the term "blockchain technology" in 1991 and later Satoshi Nakamoto popularized it in 2008. Blockchain was first conceptualised by Nakamoto as the core technology behind the bitcoin cryptocurrency (Mai et al., 2018; Zhao et al., 2016). It is anticipated that blockchain technology

will advance from blockchain 1.0 for digital money to blockchain 2.0 for digital finance and to blockchain 3.0 for a digital society as it finds applications outside the cryptocurrency (Zhao et al., 2016).

While blockchain is being explored across many sectors, Friedlmaier, Tumasjan and Welpé (2016) pointed out that the financial services sector is one where it is extremely well represented. This suggestion will consider an organization's operational skills and management as well as blockchain applications in international trade. The objective of this study is to find out the effect of blockchain technology on operational capabilities and to determine if this technology is able to improve operational capabilities.

### **Literature review**

The effectiveness of business operations and dynamic responsiveness are reflected in operation management, which is extremely important to the day-to-day operations of enterprises (Jantunen et al., 2018). The main goals of business operation management are to reduce production costs, manufacturing costs, transportation costs, maximize profit margins and produce high-quality products at the lowest possible operating cost (Prajogo et al., 2018). Additionally, knowledge and information sharing are an important aspect in establishing efficient collaboration across organisation and departments (Fiorini and Jabbour, 2017; Liu et al., 2018; Zhu et al., 2018; Cao et al., 2019).

Besides introducing the trust mechanism and lowering the cost of online transactions to increase business effectiveness, blockchain technology rebuilds the incentive mechanism in an organisation (Funk et al.,

2018). Furthermore, according to Wu and Chiu (2018), external collaboration is an important factor of integrating business functions into a productive and cohesive business model and it significantly enhances enterprise Operational Capabilities (OCs).

### Operational Capabilities

Operational capabilities (OCs), according to Winter (2003), is "a high-level routine (or collection of routines) that, along with its implementing input flows, confers upon an organization's management of a set of decision options for producing significant outputs of a particular type."

Organizations usually accomplish this by gaining a competitive advantage through improved processes, thereby lowering firm costs (Miocevic and Morgan, 2018). According to Lu et al. (2014) and Zhang and Chen (2018), the most important responsibilities for global enterprises are, promoting business transformation and enhancing their OCs. While at the same time, the fast development of information technology offers businesses significant opportunities to increase OCs and management models, enabling them to provide customers with high value-added goods (Akter, Wamb and Barrett, 2018; Cotteleer and Bendoly, 2006; Karabasevic et al., 2018). As stated by the World Economic Forum (held in Switzerland in January 2016) on "Managing the Fourth Industrial Revolution", information technology will bring a "new normal" to global economic growth.

### Blockchain Technology

Blockchain technology (BT) is a distributed ledger database that records business transactions in a way that is both verifiable and permanent (Perboli et al., 2018). Due to its distinct consensus mechanism and appropriate encryption algorithms, it has steadily gained interest in many sectors (Hughes et al., 2019; Lu and Xu, 2017).

According to many scholars and researchers, BT forms the basis of a new digital business (Figorilli et al., 2018; Kshetri, 2018; Toyoda et al., 2017; Yoo and Won, 2018). The efficiency, reliability and transparency of business management are increased by BT due to its capacity to ensure data immutability and public access to data streams (Wamba et al., 2018). The relationships between all participants in logistics and supply chain systems are also being transformed and remodelled through BT (Queiroz and Wanba, 2019).

#### Blockchain Technology and Operational Capabilities

From business point of view, the effective integration of internal and external information resources helps in improving OCs (Eltayeb et al., 2011; Dubey et al., 2017; Dubey, Gunasekaran, Papadopoulos et al., 2017; Pan et al., 2018). BT has helped in numerous issues with resource integration and information sharing in conventional business management and external collaboration. It has also introduced a new style of business operation and management (Nakasumi, 2017; Kshetri, 2018). The development of BT and its use, however, still face several challenges. The State Council's

guidelines, on actively promoting "Internet Plus", pointed out that conventional businesses lack the knowledge and skills necessary to use internet information technology and that there are numerous barriers to the creation of new formats, such as a lack of resources and qualified personnel. Additionally, very few organizations have actual plans to use BT, even though many are aware of its potential (Ying et al., 2018).

The implementation of BT has a positive impact on business operation capabilities such as improving business asset turnover rate and reducing sales expense rate, (Xiongfeng et al., 2020). Moreover, it has been found that BT has the potential to contribute positively to many sustainable developments goals as well as bringing positive changes within established industries and practices (Hughes et al., 2019).

The use of a blockchain system has been linked to a number of advantages, according to Drescher (2017) and Rabah (2017), as follows:

- i. **Disintermediation:** In the blockchain process, this refers to the absence of intermediaries or third parties. Blockchain has this built in by default, unlike traditional centralised procedures that require humans or additional technology to ensure trust.
- ii. **Non-repudiation** - This benefit pertains to the blockchain's integrity, where parties cannot dispute or reject their additions to the blockchain because the transaction history is accurate.
- iii. **Automation:** The way blockchains work can replace tasks that need to be done by hand if the use case involves automated interactions between parties.
- iv. **Process streamlining** - As company processes are adapted for the switch from old technologies to blockchain, they will become more transparent, standardized, and streamlined.
- v. **Processing speed:** The increased use of automation in blockchain processes, compared to centralized architectures, is likely to lead to big improvements in execution speed for some use cases.
- vi. **Cost reduction** - For applications that can benefit from blockchain technology, disintermediation and automation have the overall effect of lowering costs.
- vii. **Trust** - Blockchain efficiently substitutes technology and related protocols for human verification and trust. This will probably represent a considerable departure from the way things are done now in company. As blockchain becomes more widespread and costs start to come down, confidence in the reliability of security and payment processing may eventually become a commodity.
- viii. **Increased technical awareness** - This may be a byproduct of using blockchain, but it results in the development of new uses and insights for this technology.

The list of advantages mentioned above is supported by Lnes et al. (2017) who examined the possibilities of blockchain technology through the lens of governmental organizations and same falls under the categories of strategic, organizational, economic, international, and technological. Additional research has praised the benefits for businesses adopting blockchain technology, emphasizing the advantages of the distributed ledger



design (Swan, 2015; White, 2017; Lacity, 2018; Ying et al., 2018).

When opposed to conventional centralised designs, blockchain technology has the potential to provide a number of distinct advantages. The technology, however, has a number of drawbacks that must be taken into account in any business case for adoption (Beck et al., 2016; Gomber et al., 2018). Böhme et al. (2015), Coyne and McMickle (2017), Drescher (2017), Axios (2018) and Forester (2018) have identified some of the literature's issues with blockchain technology, including:

i. lack of privacy – every node within the network keeps a comprehensive record of all transactions. This may be a quality for particular applications and a benefit in terms of security, but it may be a drawback for use cases where privacy is essential.

ii. high costs – the blockchain's underlying processing which involves replicating the entire transaction history across all nodes, is computationally expensive. Although this characteristic offers security benefits, larger networks may be constrained by it. Blockchains' public key encryption is used for transaction execution and authentication. Although extremely secured, this technique needs the usage of both a public and a private key. The solution does not have a safety mechanism to add extra security in the case that one of the parties misplaces or unintentionally releases their private key.

iii. limitations on flexibility - while the immutable append-only nature of blockchain preserves the integrity of transactions, it can be a hindrance to use cases that call for changes to transactions.

iv. latency - the blockchain network's security credentials are ensured by the idea that every node stores the whole transaction history of every information block, however, adding new blocks and subsequent transaction records is currently computationally expensive.

v. governance - the blockchain architecture's distributed nature offers particular benefits for some use cases. It, however, poses a serious obstacle to general management and governance by oversight-based organizations.

The list of restrictions presented above highlights some of the unique technological difficulties and unforeseen consequences that could restrict the advancement and widespread use of blockchain technology. Lack of approval from governing bodies and user acceptability are two examples of non-technical restrictions. Due to the fact that blockchain technology is still relatively new, organizations have not yet fully addressed these important challenges, which pose serious risks to the technology's ability to gain wider adoption. There are still concerns about the legality of transactions, privacy and the implementation of the GDPR, as well as opposition among users due to their lack of technological understanding and confidence (Kypriotaki et al., 2015; Drescher, 2017; Kshetri, 2017; Levine, 2017). Additionally, there are restrictions when using blockchain in specific application genres.

Previous studies have focused mostly on the business process modelling and technological design processes of a BT-based solution. However, based on simulation approaches, research findings have often confirmed the

implementation impact of BT. There is, in fact, lack of evidence about the value of the BT as well as the total costs and benefits, restricting the development of real cases. In the same line, Trujillo et al. (2018), stated that there are very few BT projects with a lengthy lifespan. Only 8% of initiatives are actively maintained, while the rest failed.

This paper adds to the existing literature in two aspects:

1. to propose a standard model to examine the influence of BT on enterprise OCs; and

2. to quantitatively examine the effects of adopting BT on enterprise OCs by gathering relevant data from blockchain companies.

BT and enterprise OCs from the perspective of internal operation

The complexity and uncertainty of the enterprise's living environment are increasingly becoming significant as a result of the more intense market competition (Dubey et al., 2017; Dubey, Gunasekaran, Papadopoulos et al., 2017). Moreover, formal control and supervision help in facilitating business operations management (Jensen and Meckling, 1976). However, many scholars laid emphasis on the fact that these formal controls have a number of limitations when it comes to predicting and analyzing management behaviour (Davis et al., 1997). They emphasize on the importance of informal factors, such as, commitment and trust in internal corporate governance.

A healthy work environment that fosters trust enables individuals and groups to prevent the loss of financial gains through knowledge sharing (Chai and Kim, 2010). Knowledge sharing at the organizational and team levels refers to the transfer, acquisition, organization and storage of knowledge for effective implications. Building a trust mechanism using BT helps in developing a trust environment in the organization, boosts knowledge stock and flow, shapes core competitiveness and improves OCs (Dubey et al., 2017; Dubey, Gunasekaran, Papadopoulos et al., 2017).

Furthermore, BT's consensus mechanism promotes fairness amongst departments as it generates synergy between all process nodes, builds participation rules and incentive mechanisms (Fernandez-Carames and Fraga-Lamas, 2018). Using the BT consensus mechanism and technologies like Artificial Intelligence and big data, organizations may easily manage complicated data and information, alter internal business rules, and establish successful operational processes (Dinh et al., 2018; Wamba et al., 2018; Wamba, Kamdjoug et al., 2018).

BT and enterprise OCs from the perspective of external collaboration

BT applications have now upgraded to blockchain 3.0 from blockchain 1.0. Blockchain 1.0 refers to the use of BT in virtual digital currency markets such as currency transfer and payment system while Blockchain 2.0 refers to the application of BT in financial markets such as securities, futures, loans and bills, and primarily for the liquidation of financial assets and the use of smart contracts. On the other hand, Blockchain 3.0 is an extension based on 2.0, with a special focus on extending BT into additional parts of social life.

BT continues to strengthen payment, transaction clearing, trade finance, digital currency, equity, and risk control in financial services (Treleaven et al., 2017). BT encourages proxy voting, identity authentication and social credit in social management (Figorilli et al., 2018). Similarly, Fernandez-Carames and Fraga-Lamas (2018), stated that BT focuses on product information traceability, network security and contracts for Internet of things (IoT). From raw materials to finished goods, the business is a sophisticated functional network made up of suppliers, manufacturers, distributors, retailers, customers, logistics and other related businesses (Balasubramanian and Shukla, 2018; Mohamed et al., 2017). The idea is to enable businesses to operate together via trust-based foundations, connect individual businesses and to create a composite network which will eventually maximize overall efficiency, while providing more advantages to linked businesses along the chain (Woo, et al., 2016; Chi et al., 2018; Namagemb et al., 2018).

Effective business management methods encourage information exchange throughout the business and improve company OCs by enhancing external customer awareness and adaptability. Moreover, a diverse range of customer requirements also increase business adaptability. Business management is a strategic business approach including internal firms, customers and suppliers. If organizations can manage these integration connections well, their OCs will benefit. However, the existing business operation has information islands (Dominguez et al., 2018). Information is discretely disseminated throughout business firms, with minimal sharing, delayed operation, and poor authenticity and trustworthiness.

Establishing a business information platform with BT as the core can link business alliances, financial institutions and government regulatory departments together with integrating business flow, logistics, capital flow and information flow in the business (Kamble et al., 2019; Queiroz and Wanba, 2019; Wang et al., 2019; Wang, Singgih and Rit, 2019). By developing a BT-based business management platform, organizations may collect large volumes of data and record commodity circulation information based on source tracking, certificate storage, mutual trust and information exchange (Nakasumi, 2017). Furthermore, lower operational costs and enhanced quality can be obtained by connecting business firms and integrating commodity flows, logistics, capital flows and information flows (Khouri et al., 2018; Perboli et al., 2018; Aydiner et al., 2019).

## Methodology

### Sample selection

Following the report from the African Union Development Agency, it can be noted that blockchain based technologies is not a new subject in Sub-Saharan Africa. In fact, there are several economic sectors (finance, security, e-commerce and agriculture) which have already implemented same in their operations. For the purpose of this study, 100 listed companies were selected from the African Stock Market companies and

their annual financial data was collected from 2017 to 2021. In order to ensure validity of data, companies which were recently listed in the stock were excluded from the financials. Any missing values were removed and finally 60 samples that met the selected requirements were processed.

### Model selection

Blockchain has a unique aspect to its application. Given that it is on an econometric scale, more benefits can be created in analysing the financial performance of a financial institution, thereby exploring the corporate behaviour and the way in which the business is carried out. The implementation of blockchain technology was then analysed, bearing in mind asset size, staff size and sales size. In order to analyse and confirm the research problem number one, a logistic regression was employed, with the implementation of blockchain technology being a categorical, Yes and No variable, and asset size, staff size and sales size were employed as independent variable, with year being the control variable.

$$BT_{it} = a_1 \text{Asset} + a_2 \text{Staff} + a_3 \text{Sales} + \text{Year} + e_{it}$$

In the model, BT is a 0 or 1 variable which represents the implementation of blockchain in a company *i* in year *t*. Asset is the company's asset size, measured as the logarithm of the total assets. Staff is the company's staff size and Sales represents the company's revenue from sales. The Tobit model was utilised for the regression as the regression model is left centred. Secondly, to confirm the results of this study and analyse the influence of BT on operational capability, the second research problem, a second empirical model was employed, whereby BT, leverage, sales, asset and staff were independent variables while operational capabilities was the dependent variable. The Model is as follows:

$$OC_{it} = b_1 BT + b_2 \text{Leverage} + b_3 \text{Asset} + b_4 \text{Staff} + b_5 \text{Sales} + e_{it}$$

OC makes reference to the operational capabilities of a certain company *I* in year *t*, BT makes reference to the implementation of Blockchain Technology in that company "*i*" in year "*t*" and is a categorical variable, Leverage is the financial leverage ratio, Asset is the total asset size, Staff is the total staff size and Sales is the total revenue. For this model, linear ordinary least square regression shall be used as estimation method.

### Variable description

#### Operational capabilities

Operation management is essential to an organization's everyday operations since it reflects the effectiveness of business operations and the adaptability of the organization (Jantunen et al., 2018). The main goals of enterprise operation management are to maximize profit margins, manufacture high-quality products at the lowest possible operational costs, and decrease production, manufacturing, and transportation costs (Prajogo et al., 2018). Therefore, in the estimation, three main variables were used to represent operational capability, namely

asset turnover rate (AT), current asset turnover rate (ET) and sales expense ratio (SC).

#### Blockchain Technology

BT has been adopted in all the selected companies. It is only the year of implementation that differs in between the samples. A value of 1 is assigned to the variable as from the year in which BT has been implemented.

#### Analysis

Table 1 shows the descriptive analysis results for the study. The Pearson correlation coefficients were examined and it can be found that none of the coefficients are larger than 0.8. The Variance inflation factors were also examined and it was found that they are between 1 and 4, which is smaller than the maximum threshold of 10 as recommended by Gujarati (2011).

**Table 1.** Descriptive Analysis

Variable	Mean	SC	BT	Asset	Staff	Leverage	Sales
AT	0.362						
ET	0.410						
SC	0.420	1.000					
BT	0.363	-0.365	1.000				
Asset	6.345	-0.234	0.342	1.000			
Staff	2.364	-0.562	0.563	0.761	1.000		
Leverage	0.956	-0.723	0.459	0.634	0.364	1.000	
Sales	1.204	-0.420	0.653	0.561	0.432	0.612	1.000
VIF			1.36	3.64	2.36	1.69	1.36

#### Regression analysis – Model 1

Table 2 shows the results of the regression analysis of Model 1 with BT being the dependent variable. It can be noted that the regression coefficient of Asset is 0.182 indicating that a 1 unit increase in Asset shall result in an increase of 0.182 in BT. It is to be noted that the positive impact of Assets on BT is not followed by other variables and hence an ordinary least square regression was employed to test the robustness of the results. It was found that the results were consistent and robust as they followed a similar trend.

**Table 2.** Model 1 Regression Analysis

Variable	Tobit Model		Ordinary least squared	
	Coefficient	Std error	Coefficient	Std error
Asset	0.182**	0.067	0.162**	0.063
Staff	-0.086	0.089	-0.063	0.086
Sales	-0.076	0.094	-0.045	0.095
Cons	0.630	0.036	0.360	0.031
R squared	0.689		0.750	

#### Regression analysis – Model 2

For the second model, a threefold regression analysis was carried out in order to test the impact of BT implementation on OC, which is represented by AT, ET, SC. The Hausman test was used to test the panel model and the effect of BT implementation on OC was tested by using the fixed effect model. The results of the regression is shown in Table 3. From the results, it can be found that the relationship between OC and BT is statistically significant at 5% level of significance with a positive coefficient. From the asset turnover rate, it can also be found that the coefficient for BT is significant at 10% and positive. With respect to sales expense ratio, it can be

found that it shares a negative relationship with BT and is still statistically significant at 10%. This shows that the implementation of BT reduces the sales expense of companies.

**Table 3.** Model 2 Regression Analysis

Variable	AT		ET		SC	
	Coefficient	Std error	Coefficient	Std error	Coefficient	Std error
BT	0.102**	0.302	0.136**	0.036	0.122*	0.072
Asset	-0.306***	0.032	-0.630***	0.075	-0.236***	0.206
Staff	0.693***	0.036	0.632***	0.034	0.963***	0.145
Leverage	0.362***	0.056	0.014***	0.096	0.096***	0.163
Sales	0.176***	0.047	0.061***	0.042	0.016***	0.209
Cons	0.630***	0.362	2.62***	0.563	4.631***	0.663
R squared	0.485		0.369		0.402	
F test	23.21***		18.32***			
Hausman	15.32**		14.86**		6.31	

## Discussion and conclusion

Blockchain technology is a distributed ledger database that records business transactions in a way that is both verifiable and lasting. It presents an incredible possibility for the growth of company operational capabilities with the advancement of research and development performed by academics. On the other hand, there still exists some hurdles in the implementation of blockchain technology. Blockchain technology not only improves a transaction by bringing forward trust and security but also reduces the cost of an operation by improving the overall system management and efficiency. Hence, from a theoretical point of view, it was necessary to study the implementation of blockchain technology with respect to organisational capability. Therefore, this study developed two theoretical models in order to test the relationship between blockchain and operational capabilities.

From the result of the analysis, it can be noted that asset turnover plays a key role in the implementation of blockchain technology. It is also worth noting that the implementation of blockchain technology has had a significant positive impact on operational capabilities and has indeed improved the way through which a company operates. This paper hence adds to the body of knowledge by providing valuable insight on the effect of blockchain on enterprise operational capabilities, by testing a new model incorporating sales, asset and staff size.

Analysis results showed that the implementation of blockchain is dependent on the assets of a company. Blockchain also improves trust in between different stakeholders and significantly improves asset turnover rate and reduces sales expenses. This result goes in line with the study of Caro et al. (2018), who also highlighted trust as being an important factor driving the implementation of blockchain. This paper highlights the importance of staff size which is also sine-qua non to the implementation of blockchain as a good communication and timely cooperation shall be key for the successful implementation of blockchain and for improving enterprise operational capacities (Wu et al., 2012; Dubey, Gunasekaran, Childe et al., 2017; Dubey, Gunasekaran, Papadopoulos et al., 2017).

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**Ashveen Kutowaroo**, Research Scholar at the University of Mauritius – Research areas – Finance, International Banking and Fintech. The author has published 2 articles. He is currently involved in few projects on International banking. Address: Dhuny Lane St Paul Phoenix, Mauritius, Phone: +230 57743308, Email: akutwaroo@gmail.com

**Bhavish Jugurnath**, Senior Professor at the University of Mauritius. Research Areas – International Finance, Emerging technology, Smart Agriculture and Taxation. The author has already published 32 articles in Accounting, Finance and Emerging Technologies area, prepared a Book Publication 'Global Microfinance' which is currently in press by World Scientific Publishing (USA). Address: Dhuny Lane St Paul Phoenix, Mauritius, Phone: +230 52525108, Email: b.jugurnath@uom.ac.mu, ORCID ID: 0000-0002-9895-1597

**Samanta Straupaite-Simonavice**, PhD candidate in Educology, Head of International Relations and Projects Department and assistant at Lithuania Business College. Research area – digitalization and sustainability in ecological citizenship. The author has already published 4 articles about youth and Erasmus+ students. Address: Turgaus str. 21, Klaipėda, Lithuania, phone: +370 46 314 320, E-mail: samanta.straupaitė@ltvk.lt



## **THE IMPACT OF MACROECONOMIC FACTORS ON THE PERFORMANCE OF THE CONSTRUCTION SECTOR IN LITHUANIA**

**Rokas Pyrantas, Vilda Giziene, Daiva Laskiene**

*Kaunas University of Technology*

### **Abstract**

The construction sector is closely related to the economic situation in the country. The main products of this sector are residences, business structures. Demand for these products is highest when the economic situation in the country is good, but when the economy slows down, the demand for these products also falls. This is because when the economic situation is good the population has spare money, loans are cheaper and the risk of job loss is low. This leads to an increase in the rate of growth of residential construction, as there is more demand for this product. Similarly, businesses are expanding due to increased sales, higher demand, and the resulting increase in non-residential construction. Therefore, in order to maximize the performance of the Lithuanian construction sector, it is important to keep an eye on the macroeconomic environment and to understand when the economy offers opportunities and when it brings threats. To this end, the construction sector and the macroeconomic environment are analyzed, the theory of economic cycles and the impact of macroeconomic factors on the construction sector is analyzed, and an empirical study of the impact of macroeconomic factors on the construction sector is carried out. An analysis of the scientific literature on business cycles and the main macroeconomic factors that affect the performance of the construction sector. Economic cycles are closely linked to construction performance. The boom or peak phases of the economy provide opportunities for the construction sector, while the recession and crisis phases bring threats. Understanding potential threats or opportunities maximizes performance, and this understanding requires an analysis of macroeconomic factors. Therefore, the main macroeconomic factors to be taken into account when analyzing both the changes in economic cycles and the factors that directly affect the construction sector are identified. The main factors identified are: aggregate demand, employment levels, corporate profits, import levels, interest rates, gross domestic product. However, it is also very important to analyze the existence of a real estate bubble, especially in the construction sector. An empirical study has been carried out to analyze the relationship between the identified macroeconomic factors and the construction sector in Lithuania. For this purpose, the Eviews software is used to construct a correlation matrix, regression models, find the elasticity coefficient and forecast.

**KEYWORDS:** GDP, construction sector, economic fluctuations, economic cycles.

### **Introduction**

The construction sector is an important driver of economic activity. In 2022, Lithuania's gross domestic product was EUR 66.8 billion and the construction sector's share of gross domestic product was EUR 4.7 billion or 7%. The sector also employed 106.9 thousand workers, which accounted for 7.5% of the total employment in Lithuania. Construction projects create jobs, encourage investment and contribute to gross domestic product (GDP) growth (Lewis & Hosein, 2004; Sun et al. 2013). The construction sector is directly linked to the development of a country's infrastructure, including the construction of roads, bridges, ports, airports and other infrastructure, i. e. it is very closely linked to the country's output, as the product created (buildings and infrastructure) is used by other sectors of the economy. (Taluntis & Lapinskiene, 2018; Correia et al. 2023) It is also highlighted that construction is also very "closely linked to the transport and manufacturing sectors, especially the technical, chemical production and wood processing sectors" (Averjanovienė et al, 2008). This is one of the main reasons why the sector is highly responsive to external factors. Macroeconomic factors can affect the demand for construction, which will have a direct impact on the profits of the construction sector. These factors cannot be influenced by the construction sector and the construction sector must adapt to them,

which is why it is important to analyze the situation of the Lithuanian construction sector in Lithuania and the external factors influencing this situation. An understanding of macroeconomic factors can help to understand the economic situation in the country and the construction sector can exploit opportunities when the economy is healthy and growing. Otherwise, in a worse economic situation, the construction sector would have to reduce the pace of construction, as there is a risk of a fall in property prices or a drop in demand. Efficient infrastructure is essential for a country's economic competitiveness and growth.

The construction sector is highly sensitive to economic fluctuations (dos Santos & Silva, 2019; Tserng et al., 2012). Recently, the economy has been in turmoil due to events such as the COVID-19 pandemic, the war in Ukraine and the resulting wave of inflation in Europe and beyond, and there is already talk of a recession in Lithuania. All of this is putting a strain on the business sector, which is why now is a particularly important time to keep an eye on developments in the economy. This is particularly important for the construction sector, as it is directly dependent on the economic situation in the country. Constantly changing economic conditions and global trends require constant monitoring and analysis in order to understand the impact of these factors on the construction sector and to implement appropriate measures. The aim of this paper is to analyze and assess



the impact of macroeconomic factors on the construction sector in Lithuania.

## Literature review

The construction sector is an important part of the economy and its performance is influenced by various macroeconomic factors. The growth rate of gross domestic product (GDP) has a positive impact on the profitability of firms operating in the construction sector (Sui Pheng et al., 2019). This is because an increase in the GDP growth rate leads to an increase in demand for construction services, which in turn leads to higher revenues and profits for firms in the sector. Every company wants to maximize its revenues and profits, but in order to do so, it is important to analyze the economic situation in the country at the time, to observe the state of the economy, and to take appropriate action based on this. The stage of the crisis is clear to everyone, and the population and businesses are well aware of this stage and are coming to terms with it. It is almost impossible to distinguish the peak stage, and at that time the performance of a company is excellent if it is operating efficiently. It is therefore most important to analyze the stages of recession and boom in an economy. Understanding these stages can help a company to ensure that it takes the best action and maximizes its profits, and to understand the risks and opportunities.

Economic growth is the most important factor in a country's development. The conventional measurement of economic growth is usually calculated in terms of gross domestic product (GDP). In a recessionary phase, demand for GDP falls, unemployment rises, corporate spending and profits fall, as do imports, and interest rates fall. Meanwhile, in an expanding economy, aggregate demand, consumption, employment, wages, corporate profits, imports and government revenues also rise as

more taxes are collected and investment grows (Zabarauskaitė & Blažienė, 2012; Fatmawati, 2022; Elbashbishy & El-adaway, 2023). In summary, in all phases of the economic/business cycle, macroeconomic factors such as aggregate demand, employment levels, corporate profits, import levels, interest rates and GDP determine the state of the economy. The change (increase/decrease) in these factors is the basis for determining the movement of the business cycle phase (Phatudi & Okoro, 2023). Understanding both phases is equally important, except that one phase presents opportunities, and the other phase presents threats. By understanding the opportunities, a business can exploit them to the fullest and thus earn the highest possible profit, while by understanding the threats, it can make intelligent decisions and thus maximize profits or minimize losses (Simaviečienė & Keizerienė, 2011; Morris, 2010). Some factors react faster to a changing situation, others more slowly. Therefore, it is important to analyze all of them together and not to focus on just one factor, because theoretically, if an economy is in recession, all or almost all factors should reflect it. GDP remains one of the most accurate indicators of the economic situation. It represents the value created in a country, thus reflecting the economy, but it changes relatively little and quite slowly, so that it is sometimes possible not to measure this factor in a meaningful way.

In analyzing academic literature, authors have identified the concept of a financial or real estate bubble. Zhao et al. (2017) agree, stating that financial bubbles result in a financial crisis, and that the focus should therefore be on so-called bubbles, and on real estate bubbles, as this directly affects the performance of the construction sector. The following definitions of a bubble can be found in the literature (see Table 1).

**Table 1.** Definition of the economic bubble

Author	Definition of the economic bubble
Garber (1990)	A situation where asset prices do not behave in a way that can be explained by economic principles.
Mayer (2011)	A bubble can occur when house prices are too volatile over the cycle, rising faster than fundamentals during a boom and falling faster than fundamentals during a bust.
Sornette, Cauwels (2014)	A period of unsustainable growth when asset prices are rising at an ever-faster rate. During the bubble phase, the price increases faster than the exponential power-law growth process.
Glaeser, Nathanson (2015)	Housing markets are subject to high price volatility, with short-term price appreciation and medium-term price appreciation. Together, these characteristics, especially at the most extreme, create the classic asset bubble.
Tien et al. (2019)	Real estate bubbles are a type of economic bubble that occurs periodically in local or global real estate markets, a rapid rise in real estate market prices until they reach an unsustainable level, and then a decline relative to fair value
Liu et al. (2023)	A bubble is a common economic phenomenon where speculation leads to a sharp increase in the money supply, leading to high property prices, a high vacancy rate and an increase in bank bad loans.

A common view of bubbles is that they are a period in which asset prices rise faster than other economic indicators, and that it is quite difficult to explain these price increases in economic terms.

Bjorklund and Soderberg (1999) suggest using the gross income multiplier (GIM) to determine the state of the property market. The gross income multiplier is the ratio of the price of a property to its potential annual earnings (1). This multiplier is a simple and easy way to calculate the investment value of a property (Razali, Fachrudin, & Fachrudin, 2022):

$$\text{Gross Income Multiplier} = \frac{\text{Current Value of the Asset}}{\text{Gross Annual Income of the Asset}} (1)$$

Bjorklund and Soderberg (1999) provide criteria to determine whether an economy is in a bubble or a bubble in the making:

- The gross income multiplier has been rising for a long time, but this increase cannot be explained by a change in the interest rate.
- The gross income multiplier has been increasing over a long period of time, but this increase



cannot be explained by expectations of rising rental growth.

- The variables that should be the basis for the level of rental prices are more related to the gross income multiplier than to the level of rents or prices.
- Changes in fundamental factors cannot explain price increases.

If any one of these criteria is correct, then a financial bubble can be said to exist or to be forming. As can be seen, a lot of attention is being paid to rental prices. It can therefore be argued that it is also necessary to monitor rental prices for construction companies, even though their activities are not related to renting.

Tupėnaitė & Kanapeckienė (2009) also identify the characteristics of a real estate bubble, which are:

- Easily available loans, which allow to buy a home in instalments even for low-income earners.
- Low interest rates on loans, which allow large loans to be taken out for long periods.
- Rent equal to or close to the monthly mortgage payment.
- Profitability in the construction sector is clearly higher than in other sectors.

Thus, the key elements in the emergence of real estate bubbles are the easy availability and cheapness of loans, the high rental prices which are equivalent to loan repayments, and the increase in profitability in the construction sector, i.e., an increase in the share of profit in relation to the costs incurred.

To summarize the authors' description of the characteristics of a bubble, they can be reduced to a change in the rental price of real estate and the interest rate. These indicators are key to the formation of a bubble. It is therefore important in an emerging economy to monitor these indicators to ensure that the rate of increase is not too high, as this could mean that the phase of the economic cycle is about to change and things will turn around, and the economy will begin to shrink.

Krivka (2013) identifies ten indicators to assess the impact of the economic crisis on companies, the most important of which are profitability, liquidity, and turnover. These indicators not only allow the impact of

the crisis to be assessed, but also show the effects of the crisis on the performance of the firm. It was found that turnover was the first to be affected, followed by profitability, liquidity, and indebtedness, and finally revenue, number of employees and average wages. This means that not all indicators are affected immediately when the economic situation deteriorates. The real estate sector has been singled out as the sector most affected by the crisis. This therefore further highlights the importance of assessing the macroeconomic environment for the construction sector.

To summarize the whole chapter on the theoretical aspects of macroeconomic factors in the construction sector, it can be argued that economic cycles have a significant impact on all businesses and individuals in a country. This is a particularly important aspect when analyzing the performance of the construction sector, as it is directly dependent on the country's economic situation, the development plans of businesses and the population's access to real estate (Mach, 2019; Brzezicka & Wisniewski, 2023).

The analysis of the scientific literature allows us to identify six main macroeconomic factors that have the greatest impact on the performance of the construction sector: aggregate demand, employment rate, corporate profits, import levels, interest rates and gross domestic product. The importance of the property bubble is also highlighted, which inflates property prices, irrespective of economic factors, which can then lead to a sharp fall in property prices. The construction sector must therefore assess whether, even in a very profitable period, a bubble is forming, which could result in a very large drop in profits.

## Methodology

The aim of the empirical study is to assess the impact of economic factors on the construction sector in Lithuania. To achieve this objective, a correlation analysis, regression analysis and forecasting of the performance of the Lithuanian construction sector were carried out. The logical progression of the study is presented in Figure 1.

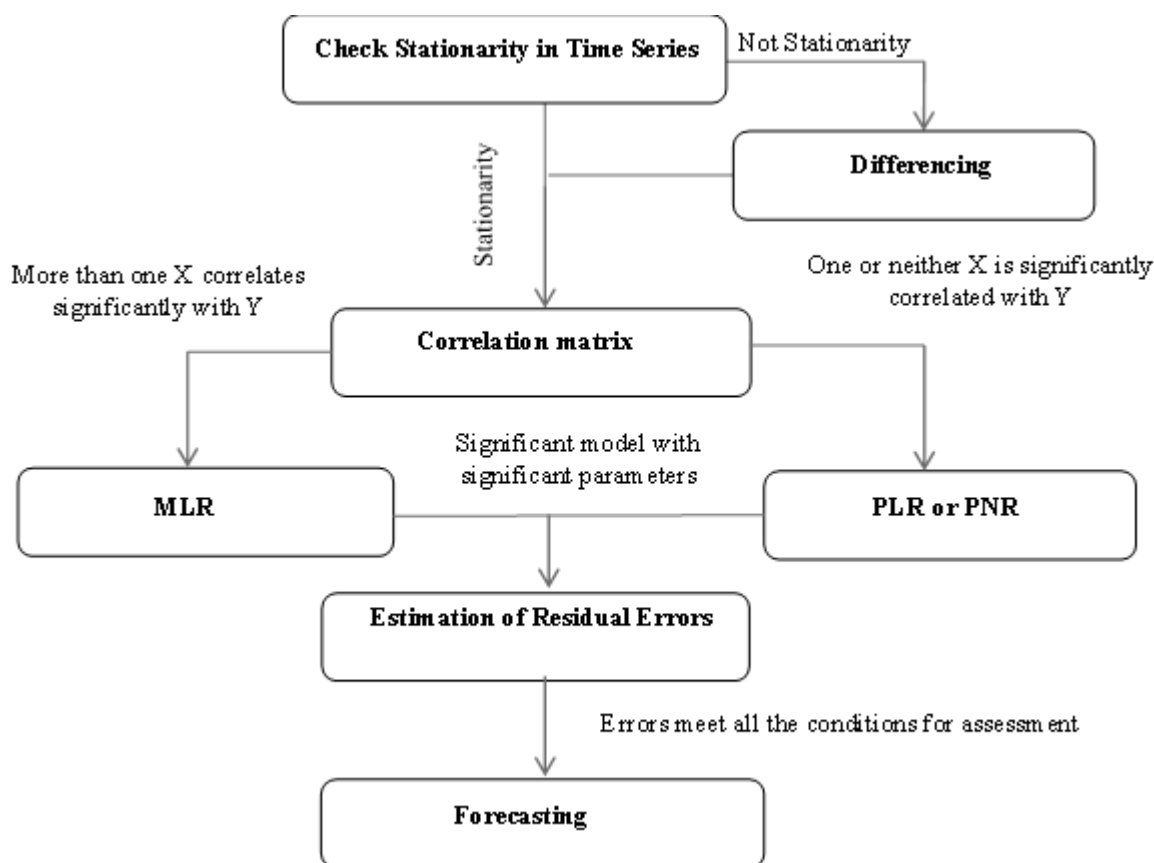


Fig. 1. Logical framework of the research

Most time series in macroeconomics are trending and non-stationary. Using standard regression modelling to test for normality can lead to incorrect conclusions. The first step in model building should be to test for stationarity, thus avoiding spurious regression models with spurious results. Therefore, the first step is to check the stationarity of the time series to avoid obtaining a spurious regression model. Stationarity is checked by the Dik Fuler test. The probability values obtained show that if the probability is greater than 0.05, the time series is not stationary; if the probability is less than 0.05, the series is considered stationary.

A correlation matrix is constructed which shows how the dependent variable Y (construction works in the country at current prices) depends on the independent variables X (employment, imports, corporate profits, EURIBOR interest rates, wages, and GDP). The correlation matrix shows the coefficient of significance of the correlation and the probability value indicates whether the relationship is significant. A significant correlation is significant when the probability is greater than 0.05. Correlation is needed to determine whether a linear model or a non-linear model can be built between the dependent variable and the independent variables. A linear model is only possible with variables that have a significant dependence. Non-linear models can be constructed with both significant and nonsignificant dependent variables.

With significant variables, either a multivariate linear regression model (MLR) or a paired linear (PLR) or a paired non-linear regression model (PNR) is constructed (see Figure 1). A multivariate regression model is

constructed with more than one independent variable that is significantly correlated with the dependent variable. Paired regression models are constructed with only one independent variable that is significantly correlated. Only non-linear regression models can be built with independent variables that are insignificantly correlated with the dependent variable. The parameters of the regression model must be significant, and the likelihood of the parameters must not exceed 0.05. The model itself must also be significant, i. e., the probability of the F-statistic must be less than 0.05.

Further, we need to assess the errors of the regression model, which will show whether the model is accurate enough for forecasting. The errors must satisfy the conditions of zero mean, normality, independence, and constancy of variance (Chatterjee, Hadi, 2013). Once the model meets these conditions, prediction of the dependent variable is possible.

The performance of the construction sector is characterized by the construction work done, and therefore the value of construction work done at then-current prices (S) is used as the dependent variable in the statistical analysis. In this study, the value of construction work is presented as the total output of all construction work. Therefore, the indicator reflects the total annual value of construction work for non-residential buildings, residential buildings, and civil engineering structures (in thousands of Euros).

The factors of the macroeconomic environment that have the greatest impact on the volume of construction work were selected following a literature review. These factors are aggregate demand, employment, corporate

profits, the scale of imports, interest rate and gross domestic product (GDP) (Phatudi & Okoro, 2023; Zabarauskaitė & Blažienė, 2012; Fatmawati, 2022; Elbashishy & El-adaway, 2023). For each of these factors, the indicator that best describes it is selected and used as an independent variable in the statistical analysis.

For the aggregate demand factor, net wages (average monthly wages for the year in question, in euros) was chosen as the indicator to reflect the aggregate demand factor, since consumption and aggregate demand are the most important determinants of personal income. Employment in the country is represented by the average annual employment rate (%), corporate profits are represented by the aggregate annual profits of the construction sector (thousand euro), imports are measured as the annual imports of the country (thousand euro) and GDP is chosen as the annual indicator of the country (million euro). The interest rate indicator chosen is the EURIBOR interest rate, as this interest rate has a significant impact on both the interest rates offered to businesses and the interest rates received by individuals.

**Table 2.** The evaluation of the correlation strength between construction activities conducted in the country and macroeconomic indicators.

Independent variable	Correlation coefficient	Size of the connection
Net wages	0,88	High positive correlation
Import	0,70	
Employment	0,68	Moderate positive correlation
GDV	0,67	
Corporate profits	0,47	Low positive correlation
EURIBOR interest rate	0,11	Negligible correlation

High positive correlation is observed between wages and imports, suggesting that these independent variables move over time in a similar way to the dependent variable. A moderate positive relationship is observed between employment and GDP, low positive correlation and negligible correlation are observed between corporate profits and the EURIBOR interest rate, respectively. The significance of the correlation analysis shows that there is a significant correlation between construction works and corporate profits, GDP, net wages, imports, and employment. The only variable, the EURIBOR interest rate, does not have a significant linear correlation with the construction work carried out by construction companies in the country.

With significant linearly related variables, a multiple linear regression model is constructed, the parameters of which and the model itself must be significant. The analysis of the significance of the variables and the model and the removal of the non-significant parameters (firms' profits, GDP and employment) lead to a significant multiple regression model with the dependent variable being the construction work carried out in the country at the prices of the time (C), and the two independent variables being the average monthly net wage (W) and the annual import volumes (IM):

$$C=24666.83+14795.10 \text{ DU}+0.036280 \text{ IM} \quad (2)$$

The parameters of the model and the model itself are estimated to be significant. In addition, attention should be paid to the absence of multicollinearity among the

Annual data from 2000 to 2022 were chosen for the analysis. They are taken from the Lithuanian State Data Agency (State data agency, 2023). The econometric analysis of the data was carried out with the EViews software.

## Results and Discussion

The analysis of the stationarity of the statistics shows that almost all the data analyzed are non-stationary, except for the EURIBOR interest rate. Data which are integrated processes of degree I (1) are differentiated once and integrated processes of degree I (2) are differentiated twice. This yielded stationary time series, which were used in the correlation analysis in the next stage of the study. The correlation analysis allowed us to assess the strength of the relationship between the dependent variable and the independent variables (see Table 2).

model parameters. It is found that there is no collinearity between wages and imports, so both variables are good parameters for the regression model.

Based on the resulting regression model, we can calculate the elasticity coefficients, which estimate the impact of the independent variables on the dependent variable. The resulting elasticity coefficients are presented in Table 3.

**Table 3.** Coefficient of elasticity

Independent variable	Coefficient of elasticity
Wage	0,45
Import	0,43

The elasticity coefficient shows that a 1% increase in wages will lead to a 0.45% increase in construction output, while a 1% increase in imports will lead to a 0.43% increase in construction output.

The coefficient of determination of the model ( $r$ -squared corrected) indicates that the model is sufficiently reliable for forecasting, with a confidence level of 80%. To ensure the quality of the forecasts, the residual errors of the model were checked, which fulfilled the conditions of zero mean, normality, independence and constancy of variance. The analysis of the model's errors showed that the model is suitable for forecasting the volume of construction work in Lithuania.

To forecast the volume of construction work for 2003, the first step was to forecast the independent variables (W

and IM) by analyzing various exponential smoothing models and selecting the best one according to the criterion of the smallest error. The forecast showed that net wages are expected to increase in 2023, while import volumes are expected to decrease compared to the

previous period. The data obtained for 2023 allowed to forecast the volumes of the Lithuanian construction sector in 2023 using a selected regression model. The results of the forecasts are presented in Table 4.

**Table 4.** Forecasted values of the variables in the regression model

Year	Actual Net Wage (Euro)	Forecasted Net Wage (Euro)	Actual Import (thousand Euro)	Forecasted Import (thousand Euro)	Actual construction work (thousand Euro)	Forecasted construction work (thousand Euro)
2000	200,5		6046360		762425	
...	...		...		...	
2016	602,3		24737298		2278909	
2017	660,2		28516178		2563712	
2018	720,0		30942631		2999593	
2019	822,1		31949100		3390534	
2020	913,1		29127104		3377640	
2021	1001,8		37690668		3769105	
2022	1119,0		52392133		4677751	
2023		1235,6		40809988		4273825

The resulting forecast shows (see Table 4) that the volume of construction work in 2023 is expected to decrease compared to 2022 by EUR 400 million or 8.6%. The projected decrease is significant and a very important indicator for the economy. The analysis revealed that the sector's decline would be mainly driven by a fall in imports. Higher wages are forecast to boost growth in the sector, but the sharp fall in imports has overturned the positive forecast.

## Conclusions

An analysis of the theoretical aspects of the impact of economic cycles and macroeconomic factors on the construction sector has led to the conclusion that economic cycles have a strong correlation with the performance of the construction sector. The construction sector is highly dependent on the economic situation and the economic cycles are constantly changing this situation. It is therefore very important in time to understand when the economic cycle is changing or what stage of the cycle one is currently in, and thus to take advantage of this situation in business. Understanding the situation allows you to maximize performance in the peak or boom phases or avoid losses in the downturn or crisis phases. The main macroeconomic factors identified as influencing the cycle and the performance of the construction sector are aggregate demand, employment levels, corporate profits, import levels, interest rates, gross domestic product (GDP).

The study of macroeconomic factors influencing the construction sector in Lithuania shows that the macroeconomic environment affects the performance of the construction sector. The analysis showed that the construction sector indicator (construction works at current prices) moves in the same direction as the selected macroeconomic indicators in the time series,

except interest rates. This means that, historically, as macroeconomic indicators increase or decrease, construction revenues are directly related to them. The study revealed that the most significant macroeconomic factors influencing the performance of the sector are imports and net wages. Although the construction sector's revenues are relatively inelastic for both of these indicators, a forecast of the sector's revenues in 2023 showed that there is a possibility of a significant decline in the sector's revenues, which will be mainly influenced by a decline in import volumes.

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**Rokas Pyrantas**, bachelor of Economics (Study programme Economics), School of Economics and Business, Kaunas University of Technology. Research Interests: Macroeconomic Factors, Construction Sector, Economic Cycles. Address: Lietaus st. 6, Miriniškiai, Kauno r., LT53368, Lithuania. E-mail: [r.pyrantas@gmail.com](mailto:r.pyrantas@gmail.com)

**Vilda Gizienė**, assoc. Prof. of School of Economics and Business, Academic Centre of Economics, Business and Management; Field of scientific research: investment in human capital, labour market, macroeconomics, energy market. Gedimino str. 50-329, Kaunas LT-44239, Lithuania. E-mail: [vilda.giziene@ktu.lt](mailto:vilda.giziene@ktu.lt). ORCID ID: 0000-0003-0195-4538.

**Daiva Laskienė**, assoc. Prof. of School of Economics and Business, Academic Centre of Economics, Business and Management. Field of scientific research: Income inequality; Macroeconomic environment, Poverty problems. Gedimino str. 50-501, Kaunas LT-44239, Lithuania. E-mail: [daiva.laskiene@ktu.lt](mailto:daiva.laskiene@ktu.lt). ORCID ID: 0000-0001-5224-5040





## **THE IMPORTANCE OF INVESTMENT FOR THE GREEN ECONOMY IN COUNTRIES AT DIFFERENT LEVELS OF DEVELOPMENT**

**Joana Zukauskienė, Vytautas Snieska**  
*Kaunas University of Technology*

### **Abstract**

Investment in renewable energy sources is gradually becoming the most popular investment in the world. Sustainable investment is an encouraged solution because it does no harm to nature. The aim of the study is to find out whether richer or less rich countries invest more in renewable energy sources. The richer a country is and attracts more foreign investment, the faster its economy grows. If a country is less rich, attracts less foreign investment, its economy grows slower. We found that investment in the green economy is following this trend as well. Countries invest in the green economy because they want to be either completely energy independent or become less dependent on other countries. It is important for the country's economy not only to invest in other countries, but also to attract foreign investment in order to strengthen the domestic economy. The high level of the country's economy is indicated by direct investment in foreign states. Economic development depends on the kind of investment. Economic growth can be predicted based on investment. Investment increases the productive potential of the economy. Net investment shows the country's economic situation. The economy is growing if the amount of total investment exceeds depreciation. Investment is very beneficial and important for the development and growth of the country's economy. All investments, including green investment, improve and increase the development and growth of the country's economy. Through the generated gross domestic product, investment affects the country's economy. Economic growth depends on foreign and domestic investment. The main problem of investing in renewable resources is the cost of technology: the higher the price, the longer the payback period is. Therefore, economically stronger countries can invest more in renewable energy sources. Economically stronger countries with favourable climate conditions invest more in renewable energy sources, while economically weaker countries with poorer climate conditions invest less in them. Economic growth depends on foreign and domestic investment. The richer a country is and attracts more foreign investment, the faster its economy grows. If a country is less rich, attracts less foreign investment, its economy grows slower.

**KEY WORDS:** investment, green economy, energy prices, GDP.

### **Introduction**

Nowadays, there is a strong focus on the green economy. Therefore, investment in the green economy is significant for future generations. Green investment refers to investment associated with the implementation of environmental goals. The most popular types of investment in the world are business, raw materials, real estate, renewable energy sources. Sustainable investment is the best solution because it does no harm to nature (Doval, Negulescu, 2014). Countries invest in renewable energy sources, solar power plants, wind farms. Investing in renewable sources is a long-term process. Most of the available funds are being employed and profit or benefit is expected. Different financial instruments can be chosen for investing, which may differ from each other in terms of risk or return. The more profitable an investment, the riskier it is. "The high cost of technology is the main problem of renewable energy sources, which leads to a longer period in which investment projects will pay off" (Kanopka, 2015). In order to attract investment in different areas of renewable energy sources, it is important to correctly select subsidy and incentive schemes. It is not the size of renewable energy prices but their fluctuations that create the greatest investment risk, thus it would be more appropriate for the state to help stabilize those fluctuations. The main goal of the investor is to maximise the return and reduce risks. One way to derive income or benefit is by investing funds (European

Environment Agency, 2011). Currently, all countries are investing in the green economy. They want to be either completely energy independent or become less dependent on other countries. A share of the energy produced can be exported to other countries. Investment associated with environmental protection and renewable energy sources is called green investment. Green investment are friendly to nature (Solomatina, 2022). This term relates to activities for the implementation of environmental protection goals, such as landscape preservation, renewable source management, climate change prevention. Green investment is related to green finance i.e., green investments are finances that are used for the preservation of the environment. These are investments in renewable energy, reforestation, agriculture, and other activities that protect the environment. Green investment is an environmentally friendly union of finance and business. Globally, the main goals of green investment are reforestation, biodiversity maintenance, agriculture, protected area establishment, and renewable energy production and supply. Of all these goals, the supply of renewable energy and the creation of the green, sustainable, harmonious economy are becoming more popular. The green, sustainable, harmonious economy is an economy that does no harm to nature, reduces global warming (Kazlauskienė, Alekna, 2019). The European Commission encourages countries to invest in the green economy and thus preserve nature for future generations.

## Literature review

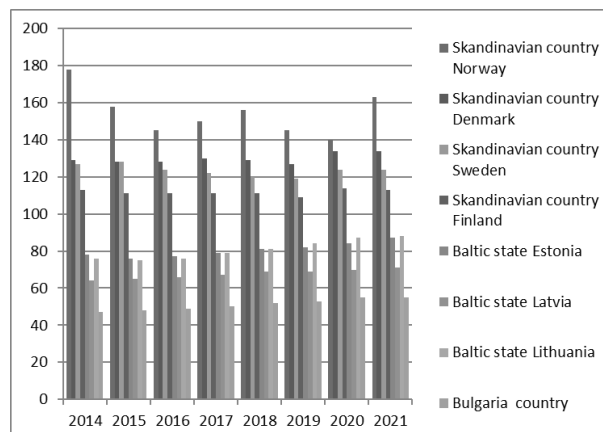
Investment can be direct, for the purchase of equipment and the establishment of economic entities, and indirect, which do not affect the economic entity. Depending on the investor, the country or the person's permanent establishment, the investment can be foreign or domestic. Domestic investment is an investment that is invested within a country, while foreign investment is an investment that is invested from abroad or in foreign capital, with the aim of making a profit. Foreign direct investment is the basis of economic growth (Loiseau, Saikku, Antikainen, Droste, Hansjurgens, Pitkanen, Leskinen, Kuikman, Thomsen, 2016). It is important for the country's economy not only to invest in other countries, but also to attract foreign investment in order to strengthen the domestic economy. The high level of the country's economy is indicated by direct investment in foreign states. For the investor, direct investment has many advantages. Uptake of new markets in foreign countries is one of the main advantages (Quental, Lourenco, Nunesda Silva, 2011). Countries, wanting to attract foreign capital, want to show their attractiveness to investors. The competitiveness and advancement of a foreign country is enhanced by new technologies. Foreign direct investment results in the creation of new jobs in a foreign country and the loss of jobs in the home country. With increasing global competition, all countries are looking for ways to attract foreign and local investment in order to achieve economic growth. Economic development depends on the kind of investment (Šileika, Tamašauskienė, 2003). Foreign investment from similar countries may be more beneficial (Zdiarski, Swiatowiec, Troilo, Matys, 2017).

At the micro level, investment plays a crucial role. It is necessary for maximizing state income, ensuring the normal functioning of the economic entity. Investment increases the productive potential of the economy. Investment is the basis for accelerating technological and scientific progress, ensuring competitiveness, improving the development of the economy and its sectors, creating a base, raw materials for industry, solving the country's unemployment, security, defence, and environmental problems. In summary, we can say that investment is very beneficial and important for the development and growth of the country's economy. All investments, including green investment, improve and increase the development and growth of the country's economy.

## The importance of investment for the green economy in countries at different levels of development

Gross domestic product is the main macroeconomic indicator that can describe the development of a country, standard of living, and economic growth (Mackevičius, Molienė, 2009). Through the generated gross domestic product, investment affects the country's economy (Žukauskienė, Navickas, 2018). Figure 1 shows that among the analysed countries, the highest gross domestic product is in the Scandinavian countries, i.e., in Norway, Denmark, Sweden, Finland, while the lowest is in Bulgaria. Scandinavian countries are more economically

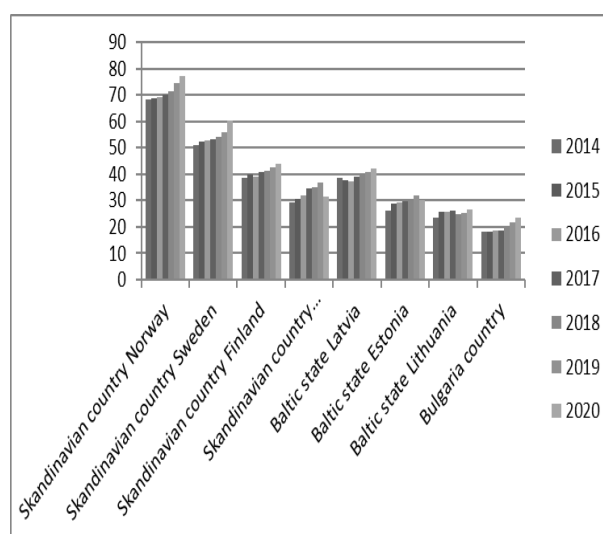
developed than Bulgaria. Foreign countries invest in states that are at a similar level of development. The richer a country is and attracts more foreign investment, the faster its economy grows. Investment, private capital flows increase the gross domestic product.



**Fig. 1.** Gross domestic product millions euros in 2014–2021.

*Source: Eurostat data*

Figure 1 shows that the highest gross domestic product is in Norway. Norway has a well-regulated market economy, politics. Vital sectors, i.e., of oil production, renewable energy sources are controlled by the government. Norway is rich in natural resources: hydropower, oil, minerals, forests, fish. Norway is ranked seventh in terms of oil exports in the world. Oil money is invested abroad and domestically. This is due to the fact that over time, gas and oil resources will be depleted. The country has one of the highest standards of living, not only among Scandinavia and the Baltic states, but throughout the world. Norway is one of the most environmentally friendly countries. The country is investing heavily in renewable sources that will replace fossil fuels over time. There are excellent conditions for investing in wind energy. This investment would allow not only Norway to be supplied with energy, but it would be possible to export energy to other countries as well.



**Fig. 2.** Percentage of renewable energy in 2014–2020

*Source: Eurostat data*



Solar energy is the source of almost all renewable energy sources. Renewable energy sources can be water, solar, wind, biofuels, geothermal energy. The use of renewable energy sources is expanding very rapidly around the world. The solar and wind energy sectors are growing. The share of renewable energy in all countries has increased over the period analysed. In some very dramatically, in others not so much. This can be explained by a very strong focus on the green economy. Figure 2 shows that the share of renewable energy sources in Norway, Sweden, and Finland is increasing very rapidly. Scandinavian countries are investing heavily in renewable resources. Norway is investing heavily in hydropower. About 96% of Norway's electricity comes from hydropower plants. Norway is very strong not only in terms of economy, but also energy. Among the Baltic states, Latvia has the highest percentage of renewable energy sources at 42,132%. Bulgaria has the lowest percentage share of energy from renewable sources. Bulgaria is economically the weakest of all the countries analysed. The country benefits the most from tourists, thus tourism is given great attention and the state mainly invests in tourism.

## Methods

Statistical data in Table 1 (see attachments) shows the difference between the countries' outward investment and inward investment in the years 2005–2022. Table 2 (see attachments) presents the statistical data of the gross product per capita for the years 2005–2022. From the statistical data presented in the tables, it can be seen that as direct investment increases, the gross domestic product (GDP) per capita increases. I used the moving average method to confirm this point. This method is based on the average basis. It can be used to predict annual data. After applying the moving average method and performing the calculations, we can see in Tables 3 and 4 (see attachments) that as investment increases, the gross domestic product also increases — this can be seen from the result of year 2021.

In summary, we can say that economic growth depends on foreign and domestic investment. The richer a country is and attracts more foreign investment, the faster its economy grows. If a country is less rich, attracts less foreign investment, its economy grows slower. The stronger the country's economy, the more it can invest in renewable energy sources.

## Investment in electricity

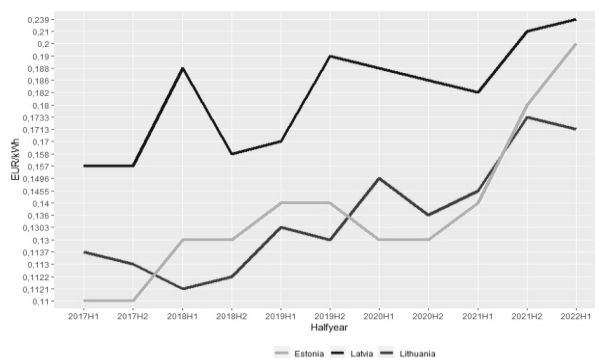
Investment in renewable energy sources is one of the more important and relevant topics today around the world. There is ever-growing talk about investment in the green energy. Climate change makes it important to switch to renewable energy sources. Energy is the driving force of society. The entire world depends on oil and fossil fuels, which makes us wonder how we extract and use these fuels. An essential step towards the future of renewable energy is renewable energy sources (Piebalgs, 2008). We are moving towards the goal of being able to meet all emerging needs with renewable energy sources.

Renewable energy sources are divided into potential and real energy sources (Matulionytė-Jarašiūnė, 2010).

The electricity sector of the Baltic states underwent very strong changes, which led to the price of electricity and the structure of the fuel balance. Falling and stable electricity prices is one of the main goals of opening up the electricity market (Šikšnelytė, 2016).

In the 1980s, many transitional-type developed and developing countries around the world began to carry out reforms in the electricity sector. The reform model of the sector included the creation of regulatory systems, legislation, privatisation, restructuring (Nagayama, 2007). Price has become a key parameter in electricity markets, and today it has many characteristics. The main characteristics of the price of electricity are as follows: prices are characterized by modernity, volatility; negative electricity prices are increasingly more visible; new prices are forming more and more often; prices are characterized by seasonality (Bobinaitė, Juozapavičienė, 2012).

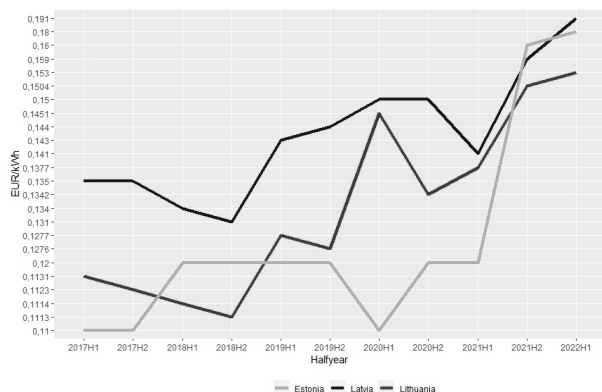
The main tasks of the Estonian electricity sector are to increase the production of electricity, the use of local fuel in the production of electricity, and the productivity of transmission. Power plants in Estonia transmit electricity to consumers and retailers. Next, electricity is sold by retailers to consumers. Consumers must have a contract with network operators to receive electricity. Electricity producers compete in the wholesale market, offering electricity to large consumers and retailers. In Estonia, the main electricity comes from oil shale, thus electricity production is stable all year round. The rest of the electricity is produced from renewable energy sources. Figure 3 shows that the lowest electricity price is in Estonia and the highest in Latvia. In Estonia, consumers can freely choose from whom to buy electricity, as well as change supplier once a month. Latvia's electricity production is highly dependent on seasonality, as hydroelectric plants generate the most electricity (Jankauskas, 2006). More electricity is produced than consumed during rainy periods. Also, electricity produced from renewable energy sources in Latvia accounts for 32%. The Lithuanian energy system consists of renewable energy sources, thermal power plants, hydropower plants. Lithuania is currently investing heavily in renewable energy sources, i.e., solar power plants, wind farms are being built.



**Fig. 3.** Electricity prices for households consuming less than 1 000 kWh, 2017H1–2022H1.

Source: Data of the statistical departments

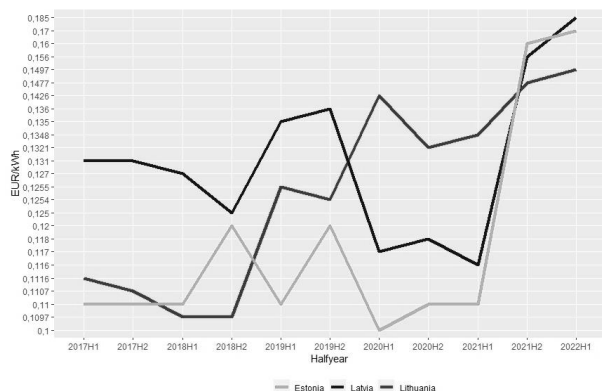
Figure 3 shows how electricity prices have changed for household consumers using electricity up to 1 000 kWh. We see that from the second half of 2018 to the first half of 2021, electricity prices in Lithuania, Latvia and Estonia rose, with prices in Estonia being the lowest, but with the outbreak of the war in Ukraine, since 2021 they have jumped significantly upwards.



**Fig. 4.** Electricity prices for households consuming 1 000–2 500 kWh, 2017H1–2022H1.

*Source: Data of the statistical departments*

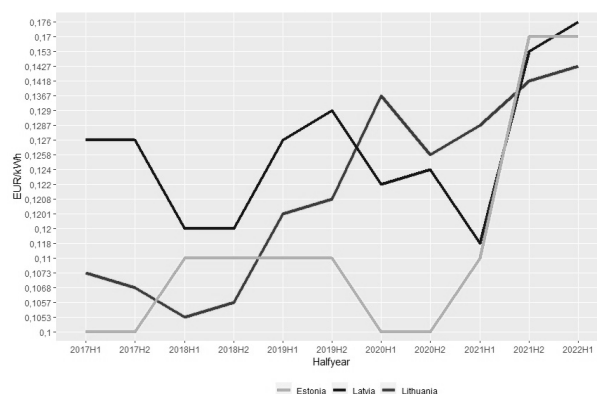
Figure 4 shows that the prices for households consuming electricity from 1 000 to 2 500 kWh varied over the analysed period. In all Baltic states, prices rose in the first half of 2021 and were the highest during the entire period analysed.



**Fig. 5.** Electricity prices for households consuming 2 500–5 000 kWh, 2017H1–2022H1.

*Source: Data of the statistical departments*

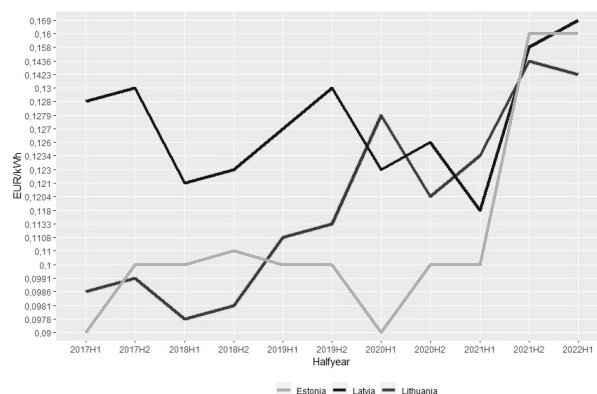
Figure 5 shows the electricity prices for households consuming between 2 500 and 5 000 kWh. We see that prices in Lithuania and Latvia were high until the second half of 2019. Then, until the first half of 2021, they were decreasing, and from the first half of 2021, the prices in all the Baltic states skyrocketed. Electricity prices in Latvia are the highest for the entire period analysed.



**Fig. 6.** Electricity prices for households consuming 5 000–15 000 kWh, 2017H1–2022H1.

*Source: Data of the statistical departments*

Figure 6 shows that in Lithuania, Latvia, and Estonia, the electricity prices for households consuming between 5 000 and 15 000 kWh have risen sharply since 2021.



**Fig. 7.** Electricity prices for households consuming more than 15 000 kWh, 2017H1–2022H1.

*Source: Data of the statistical departments*

Figure 7 shows that the electricity prices for households consuming more than 15 000 kWh in Lithuania, Latvia and Estonia have risen since the first half of 2021.

Looking at all five graphs, we can summarize that among the Baltic states, the lowest electricity prices are in Estonia, and the highest in Lithuania and Latvia. All the figures show that the price of electricity has grown sharply since the start of the war in Ukraine in 2021. While the war is going on, electricity prices in all states remain high.

## Conclusions

Countries invest in the green economy because they want to be either completely energy independent or become less dependent on other countries. It is important for the country's economy not only to invest in other countries, but also to attract foreign investment in order to strengthen the domestic economy. The high level of the country's economy is indicated by direct investment in foreign states. Economic development depends on the kind of investment. Economic growth can be predicted

based on investment. Investment increases the productive potential of the economy. Net investment shows the country's economic situation. The economy is growing if the amount of total investment exceeds depreciation. Investment is very beneficial and important for the development and growth of the country's economy. All investments, including green investment, improve and increase the development and growth of the country's economy. Through the generated gross domestic product, investment affects the country's economy. Economic growth depends on foreign and domestic investment.

The main problem of investing in renewable resources is the cost of technology: the higher the price, the longer the payback period is. Therefore, economically stronger countries can invest more in renewable energy sources.

Economically stronger countries with favourable climate conditions invest more in renewable energy sources, while economically weaker countries with poorer climate conditions invest less in them. Economic growth depends on foreign and domestic investment. The richer a country is and attracts more foreign investment, the faster its economy grows. If a country is less rich, attracts less foreign investment, its economy grows slower.

Electricity prices in the Baltic states have risen sharply since the first half of 2021. This significant jump in prices was influenced by the outbreak of the war in Ukraine.

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## Attachments

Table 1. The difference between countries' outward investment and inward investment in 2005–2022.

TIME	Bulgaria	Denmark	Estonia	Latvia	Lithuania	Finland	Sweden
2005	-22 789.0	74 092.0	-7 883.2	-3 921.0	-6 541.6	23 205.7	352 201.0
2006	-34 200.0	74 253.0	-6 575.4	-5 340.0	-8 001.5	60 454.0	319 971.0
2007	-49 320.8	89 050.0	-6 604.4	-6 829.0	-9 562.5	17 329.0	326 818.0
2008	-59 888.9	222 056.0	-6 469.6	-7 384.0	-8 020.2	22 221.0	433 472.0
2009	-64 931.0	301 976.0	-6 649.1	-7 376.0	-8 317.9	31 318.0	262 022.0
2010	-62 042.7	456 652.0	-7 488.8	-7 437.0	-9 585.7	38 112.0	281 144.0
2011	-64 703.1	533 902.0	-8 922.2	-8 625.0	-9 941.5	34 344.0	272 942.0
2012	-67 298.2	561 077.0	-9 755.7	-9 380.0	-10 480.5	41 495.0	156 209.0
2013	-66 352.2	606 289.0	-11 013.7	-10 372.0	-11 211.5	41 076.0	287 575.0
2014	-70 240.7	529 116.0	-12 094.6	-10 975.0	-10 896.6	19 516.0	616 495.0
2015	-74 874.2	578 947.0	-11 829.1	-11 845.0	-11 368.2	11 896.0	319 232.0
2016	-75 660.7	598 409.0	-12 674.6	-11 756.0	-11 818.3	27 520.0	350 163.0
2017	-78 713.3	650 416.0	-13 538.0	-12 869.0	-12 750.1	29 119.0	170 870.0
2018	-81 628.2	694 410.0	-14 925.8	-13 290.0	-12 735.9	49 535.0	513 883.0
2019	-85 126.2	738 453.0	-15 998.2	-14 125.0	-14 390.7	53 987.0	547 682.0
2020	-89 454.2	746 130.0	-19 377.6	-14 716.0	-15 340.0	44 081.0	373 536.0
2021	-94 082.0	930 927.0	-19 890.6	-15 913.0	-16 971.8	48 840.0	608 050.0
2022	-98 869.3	990 439.0	-20 954.8	-17 266.0	-19 156.1	44 505.0	1 211 294.0

Source: Eurostat data

Table 2. Real GDP per capita in 2005–2022

TIME	Bulgaria	Denmark	Estonia	Latvia	Lithuania	Finland	Sweden
2005	4 170	44 400	11 070	8 210	7 960	34 250	37 990
2006	4 480	45 990	12 230	9 280	8 690	35 490	39 540
2007	4 800	46 210	13 230	10 280	9 770	37 210	40 590
2008	5 120	45 700	12 590	10 050	10 130	37 330	40 100
2009	4 970	43 220	10 770	8 760	8 720	34 150	38 030
2010	5 080	43 840	11 060	8 550	9 050	35 080	39 950
2011	5 320	44 240	11 890	8 940	9 820	35 810	40 920
2012	5 390	44 170	12 320	9 680	10 330	35 140	40 380
2013	5 390	44 410	12 540	9 980	10 810	34 660	40 510
2014	5 470	44 890	12 960	10 270	11 290	34 390	41 180
2015	5 700	45 630	13 230	10 760	11 620	34 460	42 580
2016	5 910	46 720	13 620	11 110	12 070	35 330	42 920
2017	6 120	47 740	14 410	11 590	12 760	36 380	43 430
2018	6 330	48 450	14 920	12 140	13 400	36 740	43 760
2019	6 630	48 970	15 410	12 540	14 060	37 150	44 180
2020	6 410	47 890	15 280	12 330	14 050	36 220	42 910
2021	6 950	50 010	16 490	12 980	14 820	37 290	45 280
2022	7 250	51 460	16 250	13 320	14 970	37 780	46 250

Source: Eurostat data

Table 3. The difference of the moving average method results between countries' outward investment and inward investment in 2005–2022

TIME	Bulgaria	Denmark	Estonia	Latvia	Lithuania	Finland	Sweden
2006	-14148	79132	-7021	-5363	-8035	33663	332997
2007	-47803	128453	-6550	-6518	-8528	33335	360087
2008	-58047	204361	-6574	-7196	-8634	23623	340771
2009	-62288	326895	-6869	-7399	-8641	30550	325546
2010	-63892	430843	-7687	-7813	-9282	34591	272036
2011	-64681	517210	-8722	-8481	-10003	37984	236765
2012	-66118	567089	-9897	-9459	-10545	38972	238909
2013	-67964	565494	-10955	-10242	-10863	34029	353426
2014	-70489	571451	-11646	-11064	-11159	24163	407767
2015	-73592	568824	-12199	-11525	-11361	19644	428630
2016	-76416	609257	-12681	-12157	-11979	22845	280088
2017	-78667	647745	-13713	-12638	-12435	35391	344972
2018	-81823	694426	-14821	-13428	-13292	44214	410812
2019	-85403	726331	-16767	-14044	-14156	49201	478367
2020	-89554	805170	-18422	-14918	-15568	48969	509756
2021	-94135	889165	-20074	-15965	-17156	45809	730960

Source: Authors own calculations

**Table 4.** Real GDP per capita results after applying the moving average method

TIME	Bulgaria	Denmark	Estonia	Latvia	Lithuania	Finland	Sweden
2006	4483	45533	12177	9257	8807	35650	39373
2007	4800	45967	12683	9870	9530	36677	40077
2008	4963	45043	12197	9697	9540	36230	39573
2009	5057	44253	11473	9120	9300	35520	39360
2010	5123	43767	11240	8750	9197	35013	39633
2011	5263	44083	11757	9057	9733	35343	40417
2012	5367	44273	12250	9533	10320	35203	40603
2013	5417	44490	12607	9977	10810	34730	40690
2014	5520	44977	12910	10337	11240	34503	41423
2015	5693	45747	13270	10713	11660	34727	42227
2016	5910	46697	13753	11153	12150	35390	42977
2017	6120	47637	14317	11613	12743	36150	43370
2018	6360	48387	14913	12090	13407	36757	43790
2019	6457	48437	15203	12337	13837	36703	43617
2020	6663	48957	15727	12617	14310	36887	44123
2021	6870	49787	16007	12877	14613	37097	44813

Source: Authors own calculations

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**Joana Zukauskienė**, Kaunas University of Technology PhD candidate in economics. Master of Business Economics. Field of scientific research, green economy, international trade. Dissertation topic: The impact of international trade on the European green economy. Dissertation aim of the study is to develop an econometric model of the impact of international trade on the European Green Economy, which would allow a more accurate assessment of existing processes and propose sound economic policy measures to prevent and address emerging problems and ensure stable and sustainable. Scientific publication: The labor force migration impact on countries with different economic development level J. Žukauskienė, V. Navickas (2018). Address: Gedimino g. 50, LT-44239 Kaunas- Lithuania. Phone: +37060603779. E-mail: joana.zukaus@gmail.com. ORCID 0009-0005-2265-0658.

**Vytautas Snieska**, professor, dr., Kaunas University of Technology, School of Economics and Business, Economics, Business & Management Centre, professor. Field of scientific research: Economics, macroeconomic forecasting. Scientific publications: Zykiene, I., Snieska, V., Bruneckiene, J., & Burksaitiene, D. (2021). Assessment of regions using an index for a location's attractiveness for business development. Economic research = Ekonomska istrazivanja, 34(1), 1366-1384. Kuzmenko, O., Vasylieva, T., Vojtovič, S., Chygryn, O., & Snieska, V. (2020). Why do regions differ in vulnerability to Covid-19? Spatial nonlinear modeling of social and economic patterns. Economics and sociology, 13(4), 318-340. Przekota, G., Szczepańska-Przekota, A., Mentel, G., Mentel, U., & Snieska, V. (2020). Causality of the relationship between wheat prices and economic conditions - an evidence for sustainable development. Journal of international studies, 13(3), 161-179. Snieska, V., Zykiene, I., & Burksaitiene, D. (2019). Evaluation of location's attractiveness for business growth in smart development. Economic Research-Ekonomska Istraživanja, 32(1), 925-946. Valodka, I., Snieska, V., & Mihi-Ramirez, A. (2020). Impact of the international trade on the EU clothing industry carbon emissions. Inžinerinė ekonomika = Engineering economics, 31(3), 314-322. Snieska, V., & Valodka, I. (2019). Sustainability integration impact on fast fashion supply chains. In Eurasian studies in business and economics: Vol. 10/2. Eurasian economic perspectives: proceedings of the 22nd Eurasia Business and Economics Society conference (pp. 27-42). Cham: Springer Nature. Address: Gedimino g. 50-227, LT-44239 Kaunas. Phone: +37069801714. E-mail: vytautas.snieska@ktu.lt. ORCID0000-0001-8777-273X





## **PRECONDITIONS FOR THE "FARM-TO-SCHOOL" MODEL FROM STAKEHOLDERS' PERSPECTIVE: THE CASE OF KLAIPEDA REGION**

**Julija Melnikova<sup>1</sup>, Simona Grigaliuniene<sup>1,2</sup>, Inga Dailidienė<sup>1,2</sup>, Jennifer Avci<sup>3</sup>**

<sup>1</sup>Klaipėda University, <sup>2</sup>Lithuania Business College, <sup>3</sup>Sustainable Gastro

### **Abstract**

Farm-to-school programs represent a global movement aimed at bolstering childhood nutrition, enhancing the quality of school meals, and empowering of local markets. However, these initiatives exhibit significant diversity in their implementation strategies across different countries and remain variably defined in both research and program evaluation literature. In the context of the Klaipėda region project, Farm-to-school programs could be conceptualized as initiatives centred around local or regional food procurement, alongside agriculture and nutrition-based educational endeavours. These activities would encompass the provision of locally sourced foods in schools, the facilitation of educational sessions, and the establishment of school gardens, all aimed at bridging the gap between educational institutions, local farmers, food producers, and distributors. The overarching goal is to integrate fresh, locally sourced food into both school cafeterias and curricula. The research findings, based on interviews conducted in the Klaipėda region with municipality specialists, shed light on the specific nuances of possible Farm-to-school program implementation in this region. Key takeaways from the responses include the commitment to regulatory compliance with Green Public Procurement rules, with a strong emphasis on sourcing food produced within Lithuania. Despite their dedication to supporting local agriculture and providing fresh, locally sourced food, these programmes grapple with challenges related to quantity, cost, administrative hurdles, and procurement policies. Decision-making processes are influenced by a diverse array of stakeholders, including municipal bodies and the broader community.

**KEYWORDS:** Farm-to-school programme, stakeholder involvement, Klaipėda region.

### **Introduction**

Today's world tendencies such as increasing population, growing consumption, the problems of climate change, anthropogenic pollution of the environment, are becoming more prominent and raise the relevant issues of food quality and sufficiency. Growing demand for organic food products requires to rethink the current supply chain approaches for e-grocery and it is estimated that the world population is expected to reach 9.8 billion by 2050, the average life expectancy in Europe will be 82 years by 2050 (Gužauskas and Burinskienė, 2022). The priorities of the world, European, including Baltic countries, strategic documents are related to the goals of implementing sustainability and food strategies. In order to ensure the sustainable development of countries, in 2015 The UN has approved 17 Sustainable Development Goals, which cover the areas of improving the social environment, economic development, environmental protection and cooperation (The Sustainable Development Agenda 2030, 2015). All UN member states are committed to the implementation of these goals, where one of the strategic issues addressed is to eliminate hunger, ensure food self-sufficiency and better nutrition, promote sustainable agriculture. Sustainable and resilient food production systems are key to achieving this goal. Transitioning to sustainable agriculture will help ensure food security in the future as demand increases and the climate changes. Policymakers will need to promote sustainable food production systems and ensure the proper functioning of food markets and access to market information. One of the relevant areas

for achieving this goal is improvement of childhood nutrition and school meals systems.

School meal systems are common throughout the world and are used to promote healthy eating in children and improve learning outcomes (Morgan, Sonnino, 2008). In recent years, there has been increasing emphasis on the possibility of improving school meals by including locally grown products, thus contributing to the development of local economic systems (Sumberg, Wheeler, 2011). This model has been called "Farm-to-school" in practice of some countries and, according to its proponents, emphasizes public procurement of locally grown food as a key market opportunity for farmers (Botkins, Roe, 2018).

Farm-to-school model in different countries has given a start to various initiatives that aim to connect schools with local farmers, food producers, and distributors to provide fresh, locally sourced food in school cafeterias. Generally known as Farm-to-school programmes such initiatives not only promote healthier eating habits among students but also supports local agriculture, strengthen communities, and educate students about where their food comes from. Farm-to-school programmes are common in countries in South America, North America, Asia and Europe, e.g. "Farm Safe Schools" (Ireland), "Food for Life" (England), "From Farm to Cafeteria" (Canada), etc. (<https://foodtank.com/news/2017/10/national-farm-school-initiatives/>).

Although Farm-to-school programmes vary according to place and the people who run them, they typically include one or more of the following programme components: they connect local farmers and food

processors with school cafeterias in preschools (kindergartens), secondary schools (grades 1-12) and colleges, they serve and promote locally produced agricultural products on the lunch line, and they connect youth to food production and preparation through activities such as school gardens, field trips to farms, and chefs in the classroom (Watts et al., 2005). Overall, Farm-to-school programmes promote a holistic approach to education and nutrition, emphasizing the importance of fresh, locally sourced food for students' well-being and the well-being of their communities. Moreover, Farm-to-school programmes align closely with the principles of sustainable development by addressing social, economic, and environmental aspects. It contributes to achieving the United Nations Sustainable Development Goals (SDGs) by promoting healthier communities, supporting local economies, and fostering environmental sustainability.

An analysis of the experiences of foreign countries implementing Farm-to-school and similar programmes (Ratcliffe, 2012) suggests that the distinctive feature of these programmes is their multi-component nature. The programmes involve schools and farms as well as many other social actors such as state and regional government agencies, nutrition services, hygiene services, public health centers, food processors and manufacturers, etc. These social actors traditionally have different goals and objectives, not necessarily focusing on school meals. Therefore, the need to participate together in creating new school food markets poses certain challenges to those, who seek to deploy similar initiatives.

The present article has been prepared within the framework of the BSR Food Coalition project funded by Interreg Baltic Sea Region Program (contract #S002), the aim of which is to create the conditions for the emergence of the "From farm to school" model in the Baltic States. The study presented in the article is a part of a wider research which has been sought to disclose the conditions and opportunities for the promotion and use of foods produced by local farmers in general education schools in Klaipeda region, Lithuania as well as at defining necessary educational efforts to increase healthy nutrition, develop general health habits, and agricultural and food system literacy within general education schools and their communities. To achieve the aim the project research covered different target groups of social actors in Klaipeda region: farmers and representatives from educational institutions (Melnikova et al., 2023(a); school administrators, students, and parents (Melnikova et al., 2023 (b)). The present piece of research has been specifically sought to involve another group of social actors – municipality procurement specialists of Klaipeda region, who deal with food procurement issues and are involved in decision making regarding school meals and disclose their opinion on the preconditions for the development of Farm-to-school model in Klaipeda region. The present article will highlight the main findings of the interviews thus helping to raise the awareness among all interested groups and promote collaboration.

## Theoretical background

*The concept of Farm-to school.* At a broad level, Farm-to-school programmes share the goals of improving childhood nutrition and school meals as well as supporting local markets (Joshi et al., 2014; Roche et al., 2012). However, there is a great deal of diversity in programme implementation strategies in various countries that are developed to meet these goals, and Farm-to-school is defined in different ways across the research and programme evaluation literature. A primary definition was clarified by a foundational document in Farm-to-school literature, "Evaluation for Transformation" (Joshi et al., 2014), which describes the potential outcomes of Farm-to-school and provides a common language for researchers, programme evaluators, and practitioners. This document broadly describes Farm-to-school as enriching "the connection communities have with local, healthy food and food producers by changing food purchasing and educational activities at schools and preschools" (Joshi et al., 2014, p. 2). Though Farm-to-school programmes are unique and vary by location and school resources, comprehensive programmes, according to this document, include three core elements: (a) procurement of local and regional food products, (b) gardening based at schools and preschools, and (c) education that is food and farm-related. An additional definition that provides an organizing framework is the "3-C" approach embraced by leaders in the Farm-to-school movement, which defines three domains of intervention: the cafeteria, classroom, and community (Bagdonis et al. 2009).

The growing body of literature on Farm-to-school programmes across the countries defines their two main functions generally as:

- procurement and preparation of locally produced foods for school meals and
- experience-based educational activities addressing the agricultural, culinary, and nutritional qualities of such foods (Schafft et al., 2010).

The procurement and preparation component accomplishes four distinct aims. These are to (Izumi et al., 2009; Meter, 2011):

- improve students' nutritional intake;
- create markets for small- and medium-sized farmers in the schools' own communities and regions;
- strengthen local economies by spending a greater percentage of school food services' budgets on foods produced nearby; and
- enhance the natural environment by supporting sustainable agricultural practices.

The experiential educational component of most Farm-to-school programmes has been shown to increase students' appreciation and preferences for healthful foods that are produced locally in an environmentally sound manner and is often portrayed as the overarching goal of Farm-to-school programmes. Farm-to-school is also described as decreasing the social distancing between food production and consumption by fostering efforts which bring food to consumers with the farmer's face or story on it (Barlett, 2009).

Proponents believe that the combined application of both these components of Farm-to-school programme -



local food procurement and experience-based education - is instrumental in encouraging students' consumption of healthful, locally produced food. Research on school gardens demonstrates that experience-based agricultural education increases students' willingness to eat fruits and vegetables (Kloppenburger, Hassanein, 2006; Morris et al., 2000).

In the scope of the BSR Food Coalition project, we define the idea of Farm-to-school programme in Klaipeda region as activities that generally centre around procurement of local or regional foods, agriculture or nutrition-based educational activities such as but not limited to (Renting et al., 2003):

- Serving local food products in schools (meals and snacks);
- Serving local food products in classrooms (snacks, taste tests, educational tools);
- Conducting educational activities related to local foods such as farmers in the classroom and culinary education focused on local foods, field trips to farms, farmers' markets or food processing facilities, and educational sessions for parents and community members;
- Creating and tending school gardens.

Hence, the concept of the Farm-to-school programme in Klaipeda region would revolve around connecting schools with local farmers, food producers, and distributors to integrate fresh, locally sourced food into school cafeterias and educational curricula. It's a multifaceted initiative that encompasses nutrition, education, community engagement, and sustainability. Here's a breakdown of the key components of the Farm-to-school concept that could be valuable for Klaipeda region (Vallianatos et al., 2004; Berkenkamp, 2011):

1. Local food procurement: The programme focuses on sourcing food from local farms and producers, prioritizing fresh, seasonal, and locally grown ingredients. Schools establish relationships with farmers, food cooperatives, and distributors to ensure a steady supply of local produce and products.

2. School cafeteria: Locally sourced foods are integrated into school meal programs, allowing students to enjoy healthier and more nutritious meals. Cafeteria menus reflect seasonal variations in food availability, promoting a diverse range of fresh options.

3. Education and curriculum integration: The Farm-to-school programme extends beyond the cafeteria to the classroom, integrating food and agriculture education into various subjects. Teachers incorporate lessons on farming, nutrition, food systems, and sustainability, providing students with a well-rounded understanding of food sources.

4. Hands-on learning: Students engage in hands-on activities such as gardening, cooking, and food tastings, fostering a deeper connection to their food and its origins. Learning experiences may include field trips to local farms, visits to farmers' markets, and participation in community gardening projects.

5. Community engagement: The programme encourages collaboration between schools, students, parents, farmers, and the wider community. It fosters a sense of community pride and cooperation, promoting the idea of "knowing where your food comes from."

6. Nutrition and health: By offering fresh and nutritious meals, the programme contributes to students' overall health and well-being. It helps develop healthy eating habits early in life, potentially reducing the risk of diet-related health issues.

7. Economic support for local agriculture: Farm-to-school programme provides a market for local farmers, supporting the local agricultural economy and helping farmers sustain their operations.

8. Sustainability and environmental awareness: The concept promotes sustainable agricultural practices by reducing the carbon footprint associated with food transportation. It encourages students to understand the environmental impact of their food choices.

9. Cultural diversity: Farm-to-school initiatives celebrate cultural diversity by incorporating diverse foods and culinary traditions from the local community.

10. Food security: The programme can contribute to addressing food insecurity by providing access to fresh, nutritious foods for all students.

Overall, the Farm-to-school concept is about creating a dynamic and interconnected system that benefits students, communities, local farmers, and the environment. It emphasizes the importance of understanding where food comes from, making healthier food choices, and supporting local economies.

Klaipeda Region has a regional specialisation strategy for 2030 where different measures are dedicated to food topics under the „Bioeconomy“ priority (Klaipeda economic development strategy (2021). One of them is the promotion of an application of green public procurement criteria on the municipal level, also, district municipalities are working actively on the creation of short food supply chains, organizing catering services in the Klaipeda region in public institutions (schools, hospitals, etc.). Also, on the regional level, the importance of educating society and informing about local food value, is being emphasized. Small farms still predominate in Klaipeda region, but it is becoming more and more difficult for them to operate in market conditions, especially during the coronavirus pandemic. The biggest problem is the lack of the necessary infrastructure in Klaipeda region for the successful cooperation of schools and local farms (Melnikova et al., 2023a). Moreover, some other problems have been identified. Neither the heads of educational institutions nor the farmers have the time and ability to devote all their time to the paperwork and documents of public procurement, then to the inspection of goods, logistics, etc. It's just that the system is not developed and does not work smoothly. It is difficult for small farmers to provide purchases and ensure large quantities of products needed (Melnikova et al., 2023a). This requires to further improve the cooperation of regional food chains and farmers. Today, there are legal options to buy food products from farmers, but that path is quite complicated, which is why few choose it. Anyway, Klaipeda region sees its task to promote information and education of the population, why local products and locally produced food are more useful, healthier and better for people.

Previous research has outlined a broad array of social actors involved in the support of and implementation of the Farm-to-school programmes, including local decision

makers, food services providers, distributors, farmers, community partners, school professionals etc. (Conner et al., 2011). Government namely state and regional government agencies can provide funding, grants, and policy support for farm-to-school programmes. They can also help streamline regulations and provide guidance on food safety and procurement practices. Therefore, it is important to disclose their views on the possibilities of Farm-to-school model in Klaipeda region.

## Methodology

During the implementation of the project “BSR Food Coalition” the open-question interviews with Klaipeda region stakeholders (municipality specialists) were conducted. The interviews were carried out in October–November 2022. 6 informants were interviewed (table 1).

Coding	Institution and department	Role
S1	Department of Agriculture of Klaipeda region Municipality Administration	Representative
S2	Department of Agriculture of Klaipeda District Municipality Administration	Representative
S3	Association “Klaipeda region”	Representative
S4	Association “Klaipeda region”	Representative
S5	Skuodas district municipality, department of Agriculture	Representative
S6	Skuodas district municipality	Representative

Open-question interviews, also known as open-ended interviews, were chosen as a qualitative data collection research method, as interviewers ask participants broad, open-ended questions to gather in-depth information, insights, and narratives. Unlike closed-ended questions that elicit specific responses, open questions encourage participants to provide detailed, unrestricted responses (Žydzūnaitė, 2006).

The instrument for qualitative data collection was elaborated by project researchers based theoretical analysis of research publications (Conner et al., 2011). It included 7 open questions for stakeholders, namely:

1. There has been recent publicity about locally grown food. How do you define “locally grown”? Probes: Same city, region, or country? Within a specific radius? Within a day’s drive?

2. Can you talk about your food service operation in general education schools? How do your efforts to buy locally grown food fit into the goals of your food service operation?

3. Can you walk me through your procurement procedure for commercial foods? Probes: Who are your vendors (e.g., commercial distributors, shippers, wholesaler, farmers)? What do they offer in terms of products, services, or financial incentives?

4. What factors do you consider when buying locally grown food? Probes: How important is price? Do you consider product attributes such as organic, quality, and local? Does your relationship with your vendor (including farmers) come into play?

5. Can you tell me about your farm to school collaboration (if any)? Probes: How did it get started? How has it changed over the years? Do you have an educational component? Which vendors do you go to for locally grown food? Have you requested locally grown food from your broadline distributor?

6. What could motivate you to begin buying locally grown food? What motivates you to continue buying locally grown food? Probes: What are the benefits of buying locally grown food?

7. What are the challenges, if any, to buying locally grown food? Probes: How do state, or local procurement policies impact your ability to buy locally grown food, if at all? What influence, if any, does school board or municipal education department have on your procurement decisions? What about students, and parents?

The informants’ answers were analysed applying the method of interpretative qualitative data analysis.

## Results

The provided answers from research participants shed light on their approach to sourcing locally grown food for general education schools. The informants’ responses to the first question allowed to clear out the definition of “Locally grown food”. For these specialists it includes several criteria, which are as follows: “*Grown in Lithuania*” (S1): This is a national-level definition, indicating that they prioritize domestic agricultural products. “*No matter the distance/the respective region as close as possible to the contract (service) provision place*” (S3). This suggests that informants consider the proximity of the food source to the location where it will be served, showing an emphasis on minimizing transportation distances. “*Same city, region, or country*” (S6). This further refines the concept, indicating that they may consider food from the same city, region, or country as locally grown. Moreover, according to study participants, seasonality is considered, indicating a preference for products that are in season, which, according to them, is “*a common aspect of local sourcing*” (S3).

Informants’ responses to the second question allowed disclosing the issues of food service operation in school in Klaipeda region. The provided information gives insights into the food service operations in general education schools and the integration of locally grown food procurement into their goals.

The food service operations in general education schools vary, with “some schools relying on catering service providers to deliver meals” (S1), and “others having school canteens owned by themselves or by external parties” (S5). This dual approach suggests flexibility in how schools manage their food services.

Regardless of whether school meals are provided by external providers or through school canteens, procurement for food is conducted uniformly across all schools in the county. This uniformity implies a standardized approach to sourcing food products. “*The primary framework guiding food procurement for schools is the adherence to Green Public Procurement rules*” (S3). “*These rules likely focus on environmental and*

*sustainability criteria when purchasing products*" (S4). This indicates a commitment to environmentally responsible practices.

According to informants, municipalities make an effort to encourage the participation of local farmers in the procurement process. They do this by *"dividing lots and distinguishing smaller regions to facilitate local farmer involvement"* (S3). This approach aligns with the concept of supporting local agriculture and reducing the carbon footprint associated with food transport. A limitation mentioned is *"the practical challenge of having contracts with numerous local farmers"* (S6). This is seen as administratively challenging, and it's acknowledged that such an approach may not be feasible for municipalities. Notably, the study participants mentioned that no additional special efforts are made to specifically procure locally grown food beyond what is required by Green Public Procurement rules. The rationale for this is that *"municipalities believe these rules are sufficient to encourage local farmer participation"* (S3).

The responses also touch on the limitations faced by procurement specialists, including *"a lack of capacity, motivation, and knowledge to go beyond the established requirements"* (S4). This highlights the importance of resources and expertise in shaping procurement decisions.

In summary, the integration of locally grown food procurement into the food service operations of general education schools is primarily driven by adherence to Green Public Procurement rules and a desire to support local farmers where feasible. The approach appears to balance environmental sustainability and practicality, recognizing that managing contracts with numerous local farmers can be challenging. While there is an emphasis on uniformity and compliance, the responses did not delve into potential benefits or drawbacks of this approach, leaving room for further exploration of its implications.

The answers to the third questions allowed distinguishing procurement methods. The specialists explain that there are two methods of providing school meals: *"through catering service providers and by purchasing food directly"* (S1). Both methods adhere to Green Public Procurement requirements. Informants also mention that municipalities try to divide lots and distinguish smaller regions to involve local farmers. However, they also acknowledge practical limitations, such as *"not being able to manage contracts with different farmers"* (S5). It's mentioned that no special additional efforts are made to specifically procure locally grown food beyond what is required by Green Public Procurement rules. The specialists cite reasons such as *"capacity constraints, lack of motivation, and limited knowledge as barriers to going beyond the set requirements"* (S4).

Informants' answers to the fourth question outline the procurement procedure for commercial foods used in the context of schools and highlight some key aspects of their approach.

The procurement procedure involves a range of vendors, including farmers/producers, shippers, and wholesalers. This suggests that schools may consider a variety of sources for their food supply. The responses indicate that vendors, including farmers, shippers, and

wholesalers, *"do not offer any incentives in terms of products, services, or financial incentives due to the nature of the procurement procedure"* (S3). This implies that the procurement process is strictly regulated and does not allow for additional offerings or negotiations with vendors.

The responses state that there is *"no direct link between the needs of schools and local farmers in the region"* (S3). This suggests that the procurement process does not prioritize local sourcing based on the needs of schools or the support of local farmers. Informants also mentioned that the *"needs of farmers are not taken into consideration before procurement"* (S5). This indicates that the procurement process may not involve consultation or collaboration with local farmers to align their capabilities and offerings with the needs of the schools.

It's also noted by the informants that *"prices offered by shippers and wholesalers tend to be lower than those offered by local farmers/producers"* (S3). This suggests that cost efficiency may be a significant factor in the procurement decision-making process.

The informants also talked about the Green Public Procurement procedure, which according to them includes several requirements, namely ensuring that food products do not contain GMOs and meet specific quality standards, traceability of the entire product supply cycle, including producer and supplier affirmations, compliance with organic farming, national food quality scheme, or agricultural products' integrated cultivation requirements throughout the contract period, use of seasonal fruits, berries, and vegetables, following the Ministry of Agriculture's seasonality calendars, limiting food product delivery distances to not more than 250 km from the product's growing/production place to the municipality.

In summary, the procurement procedure outlined appears to be highly regulated, with a focus on adhering to specific quality and sourcing standards, rather than fostering direct relationships with local farmers or incentivizing their participation. Cost considerations and adherence to Green Public Procurement requirements play a significant role in their decision-making process.

The study participants' responses shed light on the motivations and challenges faced by municipalities when it comes to buying locally grown food. The primary motivation for municipalities to start buying locally grown food seems to be related to *"compliance with Green Public Procurement rules"* (S1). They are required to source products grown in Lithuania to meet these regulations. However, the main limitation mentioned is the inability of small farmers *"to provide the necessary quantities"* (S4). Therefore, the motivation to begin buying locally grown food appears to be more regulatory and compliance-driven rather than driven by other potential benefits. In summary, the primary motivation for municipalities to buy locally grown food appears to be regulatory compliance.

The challenges to buying locally grown food in the context of school meal programs are multifaceted and can be influenced by various factors, as indicated in the provided information.

One of the primary challenges is *"the limited quantity of produce that local farmer can provide"* (S6). Small-

scale farmers may not have the capacity to meet the volume demands of larger institutions, such as schools that serve multiple students. This limitation makes it difficult to source all required food locally.

The administrative aspect of procurement is a significant challenge. “Coordinating and managing contracts with small local farmers can be complex and resource-intensive” (S6). “Municipalities or institutions may find it impractical to divide procurement among many small suppliers, as it can become unmanageable” (S3).

According to the informants, “while supporting local farmers is a goal, the cost of locally grown food may be higher than that of larger-scale commercial suppliers” (S3). This can make it challenging to justify the increased cost, especially when budgets are constrained.

Moreover, informants mentioned that “*state or local procurement policies can have a significant impact on the ability to buy locally grown food*” (S4). If these policies prioritize cost savings or are overly restrictive, they may hinder efforts to source locally.

Research participants mentioned that “*the decision-making authority of school boards and municipal education departments can also affect procurement choices*” (S5). These bodies may prioritize factors such as cost, compliance with regulations, and logistics, which can impact the feasibility of local sourcing.

Moreover, research participants added, that “encouraging local farmers to participate in procurement programs can be challenging, particularly if they are not incentivized by pricing or if the administrative burden is high” (S3). Farmers need to see tangible benefits and motivations to engage with school meal programs. On the other hand, according to interviewees, “the preferences and priorities of students and parents can influence procurement decisions to some extent” (S1). If there is a strong community desire for locally sourced and fresh food, it may encourage institutions to overcome some of the challenges associated with local procurement.

In summary, while there are numerous benefits to buying locally grown food, including supporting local economies and providing fresher products, challenges related to quantity, cost, administration, and procurement policies can pose significant hurdles. Balancing these challenges with the desire to source locally is an ongoing consideration for institutions and municipalities involved in school meal programs in Klaipeda region.

## Conclusions

The concept of Farm-to-school programmes aims to enhance childhood nutrition, improve school meals, and support local markets. While these programs share common goals, they exhibit diversity in implementation strategies across different countries and are defined variably in research and programme evaluation literature.

The main functions of Farm-to-school programmes, as defined in the literature, encompass the procurement and preparation of locally produced foods for school meals and experience-based educational activities related to agriculture, culinary skills, and nutrition. The procurement component serves to improve students'

nutrition, create markets for local farmers, strengthen local economies, and enhance the natural environment. Meanwhile, the educational component aims to increase students' appreciation and preferences for healthful, locally produced food and decrease the distance between food production and consumption.

In the context of the Klaipeda region project, Farm-to-school programmes are defined as activities centring around local or regional food procurement and agriculture or nutrition-based educational activities. These activities include serving local food in schools, conducting educational sessions, and establishing school gardens. The overarching goal is to connect schools with local farmers, food producers, and distributors to integrate fresh, locally sourced food into school cafeterias and curricula.

The research results based on the interviews provide insights into how Farm-to-school programmes are implemented in the Klaipeda region. Here are key findings from the responses:

Farm-to-school programs in the Klaipeda region are driven by a commitment to regulatory compliance with Green Public Procurement rules, with an emphasis on sourcing food produced in Lithuania. While these programs aim to support local agriculture and provide fresh, locally sourced food, they face challenges related to quantity, cost, administration, and procurement policies. The decisions are influenced by various stakeholders, including municipal bodies and the broader community.

Despite these challenges, the Farm-to-school concept remains a vital initiative with the potential to improve childhood nutrition, support local economies, and foster a connection between students and the sources of their food. Balancing the regulatory requirements with the desire to promote local food sourcing continues to be a central consideration in the Klaipeda region's approach to Farm-to-school programs. Further exploration of the benefits and drawbacks of this approach may be needed to inform future program enhancements.

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**Julija Melnikova**, Doctor of Social Sciences (Education), senior researcher at the Department of Pedagogy, Faculty of Social Sciences and Humanities, Klaipėda University. ORCID 0000-0001-6078-6963 [Julija.melnikova@ku.lt](mailto:Julija.melnikova@ku.lt)

**Inga Dailidienė**, Doctor of Physical Sciences (Physical Geography). Chief researcher at Klaipėda University Marine Research Institute. Chairman of academic council and professor of Technology department in Lithuanian Business College. ORCID 0000-0001-7919-6090 [inga.dailidienė@ku.lt](mailto:inga.dailidienė@ku.lt)

**Simona Grigaliūnienė**, Doctor of Technological Sciences (Materials Engineering), Klaipėda University. Field of Scientific research: composite materials, printing and packaging technologies, digital processes. Working as a Head of technology department in Lithuania Business College. Expert in Agency for Science, Innovation and Technology (MITA), Expert for study field evaluation in IT and Material Sciences for AIKA (Latvia) and SKVC (Lithuania). ORCID 0009-0009-5423-9600 [simona.grigaliuniene@tvk.lt](mailto:simona.grigaliuniene@tvk.lt)

**Jennifer Avci**, founder of Sustainable Gastro. She works internationally with projects focused on cross-sector collaboration on sustainable food systems. Over the past year, she has also had the role of project manager for several UN Food Systems Summit dialogues and Nordic Talks events, which have led to several calls to action and transnational collaborations. One of them is a farm-to-school program project in the Baltic countries. [jennifer@sustainablegastro.com](mailto:jennifer@sustainablegastro.com)





## STRENGTHENING SOCIAL COHESION OF LOCAL, REFUGEE AND MIGRANT YOUNG PEOPLE

**Kristina Puleikiene<sup>1</sup>, Simona Grigaliuniene<sup>1</sup>, Samanta Straupaite-Simonavice<sup>1</sup>,  
Mihaela State<sup>2</sup>**

<sup>1</sup>Lithuania Business College, <sup>2</sup>Ștefan cel Mare University of Suceava, Romania

### Abstract

Migration has been a part of human experience from the earliest days of civilization. Today cross-border movements are characterized by their diversity, as there are no typical characteristics, their legal statuses, and their circumstances and prospects. The millions of refugees worldwide live in a high - income countries, but the majority still are hosted by the low – and middle-income countries. Thought more than 90% of migrations in the world have taken place for employment purpose, youth including students chooses migration also for educational, administrative, social and cultural aspects. The European Union (EU) faces challenges that effects its persistence, including the revival of national populism in many EU members and studies have shown that individuals with immigration histories identify less strongly with Europe, such aspect must be taken into account, because the citizens and their identities are vital for European cohesion. Successful integration benefits both migrants and destination societies, but there are various triggers, which can effect affect the relations toward emigrants, like the pandemic or convivial attitude toward emigrants. Psychological and socio-cultural adaption of refugees are strongly influenced economic concerns, pre-migration expectations, religion and other factors. Settlement in a new country can be challenging process for refugees in general, and for unaccompanied minors in particular. Based on the current situation, a project on “Strengthening social cohesion and capacity of local, refugee and migrant young people by creating STEM/STEAM areas” funded by the Erasmus+ programme was developed with 6 partner institutions from Turkey, Greece, Italy, Spain, Portugal and Lithuania. The activities and workshops carried out during the project with the participants inspired the development of a research study. This article aims to research the aspects and possibilities to strengthen the social cohesion and capacity of local refugee and migrant young people. Quantitative research included respondents by country of origin from Asia: Iraq, Syria, Turkey and Afghanistan. Analysing the results the hypotheses were tested assuming the differences between opinion of men and women and between respondents grouped by age. The findings of this research can be used to minimize factors that undermine favourable levels of psychological and socio-cultural adaptation and promote factors that facilitate strengthening social cohesion and capacity of local, refugee and migrant young people.

**KEYWORDS:** Social Cohesion, Integration, Adaptation, Migrant, Refugee, Young People.

### Introduction

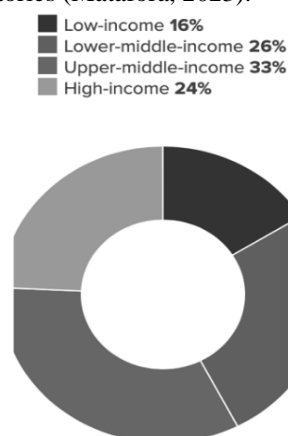
From the earliest days of civilization, 200.000 years ago, migration has been part of the human experience. Today cross-border movements are characterized by their diversity, as there are no typical characteristics, their legal statuses, and their circumstances and prospects. There are over 25 million refugees worldwide, around half are children, and the majority (84%) are hosted in low- and middle-income countries (Brown, Aoun, 2020).

The World Bank report in 2023, defined that about 40% (64 million economic migrants and 10 million refugees) live in a high- income countries that belong to the Organization for Economic cooperation and Development (OECD). But most of the refugees – 76% are hosted by low – and middle-income countries (Fig. 1.).

Global conflicts during the past decade have led to repeated major humanitarian protection crises in Europe: Syrian refugee crisis in 2015, Europe hosted around 2.3 million people, and today the ongoing war in Ukraine has resulted in more than 8 million Ukrainians seeking refuge (Bansak et al., 2023).

The European Union (EU) faces challenges that affects its persistence, including the revival of national populism in many EU members and studies have shown that individuals with immigration histories identify less

strongly with Europe than individuals without immigration histories (Matafora, 2023).



**Fig. 1.** Refugee hosting displacement by the country's incomes [UNHCR Global Trends, 2022]

Citizens and their identities are vital for European cohesion, so those who identify more strongly with Europe can be expected to feel greater solidarity with member states (Verhaegen, 2018). Most contributors to

the debate of immigration agree that it is important to educate immigrating youth in order to lay the foundations for their successful future (Alexander and Nurnberg, 2018).

## Literature Review

The definition of a “refugee” has changed across the years, until the 1951 Refugee Convention and its 1967 Protocol that are the key legal documents defining the basis of UNHCR’s work. It is important to understand the difference between the refugees, asylum seekers and migrants since these differences do affect the main reason for people to migrate in the first place. For refugees the main reason of leaving the origin country is fleeing armed conflicts or persecution [European Youth Portal, 2023]. In violent conflicts, it is mostly the adolescents and youths – female and male who are conscripted into armed groups or targeted for sexual violence (Maguire, 2012; United Nations, 2019).

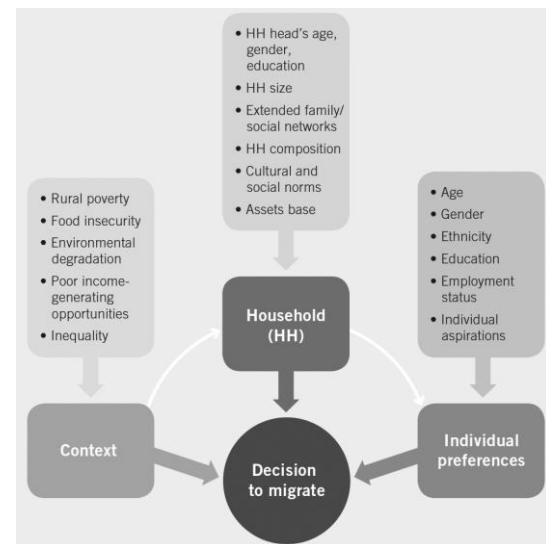
Asylum seekers are people who claim to be refugees but haven’t been recognized as such yet, and this means that not every asylum seeker will be recognized as a refugee. In 2018, EU countries granted protection to almost 333,400 asylum seekers [Eurostat, Asylum decisions in the EU, 2019]. For example, in England, the Red Cross supports people who were lawyers and teachers in their home countries: all keen to lend their skills [BritishRedCross, 2023].

Migrants on the other hand, generally choose to move because of a direct threat or persecution but mainly to improve their life: finding work, seeking better education, reuniting with family. And while the refugees are protected by international law, specifically the 1951 Refugee Convention, whereas national governments handle migrants under their own immigration laws and processes. But under international law, migrants have human rights by virtue of their humanity as international customary law and international human rights [Migration Data Portal, 2023].

United Nations have determined the distress migration of rural youth and defined analysis of the main factors determining the propensity of rural youth to migrate out of distress, at country, household, and individual level (Fig. 2.).

More than 90% of migrations in the world have taken place for employment purpose; migrants move either alone or with their families (Sultana and Fatima, 2017). The investigations also show that as a result family with migrants are in a better situation to acquire land and obtain education for their children (Noyori-Corbett and Moxley, 2016). Also, as a prime causes of movements, can be defined geographical conditions, civil war, hunger, epidemic diseases, population growth, insufficient resources (Gocke Uygur, 2020).

Sciences categorized the factors affecting migration of students as follows: economic, educational, administrative, professional, social, and cultural factors beside the phenomenon of globalization (NooriHekmat et al. 2009; Asadi et al. 2018).



**Fig. 2.** Determinants of distress migration of rural youth (Food and Agriculture organization of the United Nations, 2016)

Settlement in a new country can be a challenging process for refugees in general, and for unaccompanied minors in particular. Minors face new laws, customs, education systems, cultural codes, etc., all without the support of parents or extended family. Having fled their home countries and endured challenging and traumatic experiences, on reaching safe havens, their relief may be short lived as they begin to grapple with the realities of settling in unfamiliar environments (Brook, Ottemöller, 2020). After arrival in the host country, refugees usually continue to face many challenges and they suggest that the impact of war and forced migration on mental health is compounded or alleviated by the post-migration resettlement context (Hornfeck et al. 2023; Hohne et al. 2020). According to the World Health Organization, mental health problems, such as anxiety, post-traumatic stress, and depression, are higher among refugee populations than the general population (WHO Regional Office for Europe, 2018). Separation from the family in different locations pointed to the heavy emotional burden of learning for the families back in the country of the origin (Integration of young refugees in the EU, 2019). There are several studies about refugee children and adolescents which highlight the protective effect social support after resettlement for mental health and its importance for recovery after trauma (Hornfeck et al., 2023; Verelst et al. 2022).

Providing care and support to refugee youth and their families is a worldwide concern. Refugee youth may experience severe stressors during the pre-migratory, migratory, and post-migratory periods. In their home countries, war-exposed young people may witness or experience war atrocities, be deprived of food and water, and be separated from family members. They can experience other hardships including significant disruption of their daily lives, separation from loved ones, and disruption of schooling (Measham, Guzder et al., 2014).

Social cohesion and capacity of local emigrants is investigated in various scientific articles, analysing



practices, diverse processes and there many studies on social cohesion, but in non-European, refugee and local contexts remain limited (Ozcurumez and Hoxha, 2020).

Successful integration benefits both migrants and destination societies: migrants gain significantly through better outcomes in the labor market, as well as stronger society and destination countries benefit through migrant's stronger economic contributions and by avoiding the emergence of a marginalized population (Migrants, refugees, and societies, 2023). But there are various triggers, that can affect the relations towards emigrants, like it was investigated that after the pandemic, convivial attitudes toward Latin American migrants decreased (Castillo et al., 2023).

Findings of research revealed that psychological and socio-cultural adaptation of refugees are strongly influenced by economic concerns, pre-migration expectations, religion and perceptions of natives' expectations/ attitudes towards refugees. Economic concerns and uncertainty regarding duration of stay have a negative impact on refugees' acculturation, leading to delayed psychological and socio-cultural adaptation. Positive perceptions of natives' expectations/ attitudes towards refugees are perceived to increase motivation to seek social support, which promotes well-being and life satisfaction in the country. Yet, negative perceptions such as prejudice and discrimination, may pose a risk for psychological health and low socio-cultural adaptation. Religion can be considered a binding/ equalizing function subsuming refugee and native groups under a superordinate identity. Nonetheless, it also appears to generate social distance when perceived as a threat to the secular national identity (Şafak-Ayvazoglu, Kunuroglu et al., 2021).

Given the increasing use of low-intensity psychological interventions in humanitarian mental health and psychosocial support work, more attention is needed to strengthen the intersection between evidence-based interventions and cultural contextualisation. Undertaking the process of cultural adaptation ensures the appropriateness and acceptability of psychological interventions in these contexts (Akhtar, Engels et al., 2021). Children frequently experience significant stressors and barriers to healthy development during the refugee experience, including poverty, education interruptions, exposure to traumatic events, increased family and community violence, and child protection risks. These experiences contribute to a greatly increased risk for poor mental health. Host communities in low – and middle-income countries also face similar stressors, associated with living in adversity, and these stressors impact significantly on child and adolescent mental health (Brown, Aoun, 2020).

Good mental health may be a manifestation of resilience, post-traumatic growth, or both. Resilience is defined as the ability to maintain a stable, healthy psychological and physical functioning despite exposure to trauma (Measham, Guzder et al., 2014).

## Methodology

The data were collected via a questionnaire survey. The questionnaire was developed in the January of 2023, after a comprehensive literature review and consultations with project partners *Gocmen Hakları Sosyal Uyum Dernegi* (Turkey), *SOPRO - Solidariedade e Promoção ONGD* (Portugal), *Association of Human Rights Educators – AHEAD* (Spain), *Kyttaro Enallaktikon Anazitiseon Neaon - KEAN* (Greece), *Positiva Milano* (Italy) and *Mano Europa* (Lithuania). The final version of the questionnaire was finished in March of 2023. The quantitative research was conducted in March-July 2023. 110 respondents participated in the survey. These respondents were participants of the project “Strengthening social cohesion and capacity of local, refugee and migrant young people by creating STEM/STEAM areas”.

The results obtained during the research were processed by the Statistical Package for the Social Sciences (SPSS) program. Description statistics as analytical process helps researchers to illustrate and sum up an observation. Moreover, this statistical technique is chosen by researchers because it helps researchers in establishing rationale that is associated with quantification. This statistical measurement is a preliminary phase of the quantitative research (Ali, 2020). Independent Samples Test, Levene's Test for Equality of Variances, t-test for Equality of Means were using for testing the first hypothesis and ANOVA for testing the second hypothesis.

## Results of Empirical Research

Respondents distribution by age was sufficiently even: 46,36 percent of male and 53,64 percent of female. The age distribution is shown in Table 1.

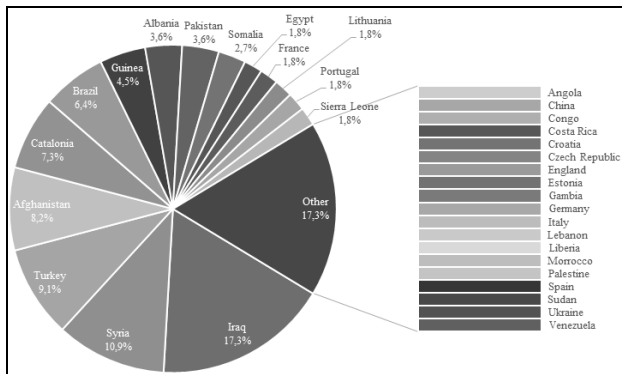
Distribution by age is presented in Table 1. The biggest part of respondents was 15-23 years old.

**Table 1.** Distribution of respondents by age

Age of respondents	Percent
under 15 years	6.4
15-18 years	38.2
19-23 years	21.8
24-27 years	5.5
28-31 years	15.5
over 31 years	12.7
Total	100.0

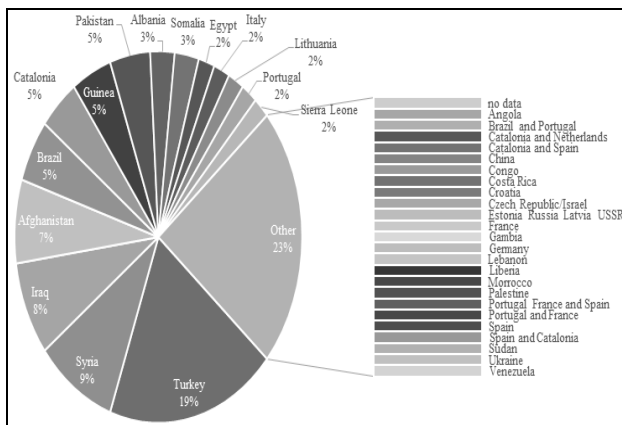
Source: Compiled by authors based on research findings

The largest groups of respondents by country of origin were from Asia: Iraq (17,3 percent), Syria (11 percent), Turkey (9,1 percent) and Afghanistan (8,2 percent). The results presented in Figure 3.



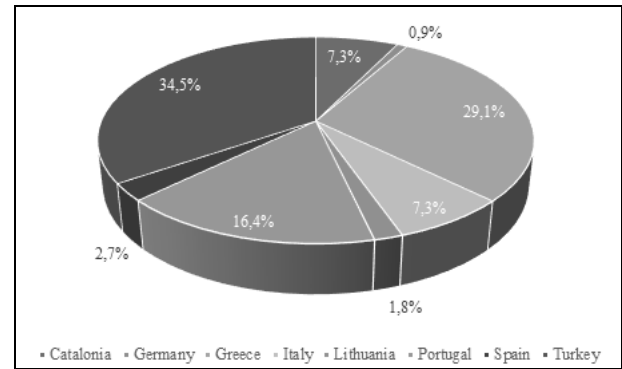
**Fig. 3.** Distribution of respondents by country of origin  
*Source:* Compiled by authors based on research findings

The largest groups of respondents by country of relatives (parents, grandparents) were from Asia too: Turkey (19,1 percent), Syria (9,1 percent), Iraq (8,2 percent) and Afghanistan (7,3 percent). The results presented in Figure 4.



**Fig. 4.** Distribution of respondents by country of relatives (parents, grandparents)  
*Source:* Compiled by authors based on research findings

The largest groups of respondents by country of residence were from Turkey (34,5 percent), Greece (29,1 percent) and Portugal (16,4 percent). The results presented in Figure 5.



**Fig. 5.** Distribution of respondents by country of residence  
*Source:* Compiled by authors based on research findings

Descriptive statistics of survey statements are presented in Appendix 1.

The evaluation of the statements presented in the survey is presented in Table 2. Each statement is assigned a number, which is used to test the proposed hypotheses in further analysis.

In particular, respondents strongly disagree (52,7 percent) or disagree (29,1 percent) with statement, that „I avoid to become friends with people from other ethnic/diverse cultural group(s)“. Also 47,3 percent of respondents strongly disagree and 30,9 percent disagree, that „I avoid activities with individuals from other ethnic/diverse cultural group(s)“. Most of the respondents respectively strongly disagree or disagree with statements, that „I generally do not feel comfortable being around members of other ethnic/diverse cultural groups“ (76,3 percent), „I often feel bad that I belong to the ethnic/diverse cultural group“ (74,5 percent), I feel uncomfortable to associate with people from other ethnic/diverse cultural group(s) (72,7 percent) or „it turns me off to associate with people from other ethnic/diverse cultural group(s)“ (70 percent). 71,8 percent of respondents state, that „I usually do not feel comfortable around members of my own ethnic/diverse cultural group“ and „I feel unable to involve myself in activities with members of the other ethnic/diverse cultural group(s)“. Respectively 68,2 percent and 65,4 percent of respondents strongly disagree or disagree that „I often feel confused about which ethnic/diverse cultural group I should identify myself with“ and „I do not spend much time with members of other ethnic/diverse cultural group(s)“. But only a little more than half of the respondents, respectively 57,2 percent and 56,3 percent, state that „I feel very “confused” about my sense of ethnic membership“ and „I often feel “left out” when others around me talk about ethnic/diverse cultural identity issues“ (Table 2).

**Table 2.** Evaluation of the statements

Statement for evaluation in the survey	Evaluation of statements (percent)				
	strongly disagree	disagree	neither agree nor disagree	agree	strongly agree
1. The cultural traditions of my ethnic/diverse cultural group absolutely express me	5,4	10	25,5	37,3	21,8
2. It turns me off to associate with people from other ethnic/diverse cultural group(s)	42,7	27,3	10,9	9,1	10
3. I often feel bad that I belong to the ethnic/diverse cultural group	42,7	31,8	10	8,2	7,3
4. I usually go by the values of the overall culture where I live	5,5	14,5	20	46,4	13,6
5. The values of my ethnic/diverse cultural groups are important for my judgment about what I have to do	5,4	15,5	23,6	40	15,5
6. I avoid to become friends with people from other ethnic/diverse cultural group(s)	52,7	29,1	8,2	5,5	4,5
7. I often feel lost about who I am as an ethnic/diverse cultural being	33,6	33,6	18,2	9,1	5,5
8. It is important for me to internalize the overall cultural values of country that I live	5,5	13,6	26,4	31,8	22,7
9. I feel uncomfortable to associate with people from other ethnic/diverse cultural group(s)	43,6	29,1	14,5	4,6	8,2
10. I feel very "confused" about my sense of ethnic membership	24,5	32,7	20,9	15,5	6,4
11. I generally identify strongly with the overall culture of country that I live	8,2	14,6	33,6	30,9	12,7
12. I avoid activities with individuals from other ethnic/diverse cultural group(s)	47,3	30,9	4,5	8,2	9,1
13. I often feel confused about which ethnic/diverse cultural group I should identify myself with	36,4	31,8	17,3	8,2	6,3
14. In general, belonging to my ethnic/diverse cultural group is an important part of my self-image	4,6	12,7	18,2	41,8	22,7
15. I generally do not feel comfortable being around members of other ethnic/diverse cultural groups	43,6	32,7	8,2	8,2	7,3
16. I often feel "left out" when others around me talk about ethnic/diverse cultural identity issues	24,5	31,8	18,2	16,4	9,1
17. It is important to me to identify closely with the overall culture of country that I live	6,3	8,2	30	35,5	20
18. The culture of country that I live absolutely expresses me	8,2	10,9	31,8	35,5	13,6
19. The values of my ethnic/diverse cultural groups determine my life	10,9	30	24,5	24,6	10
20. I do not spend much time with members of other ethnic/diverse cultural group(s)	31,8	33,6	17,3	14,6	2,7
21. I usually do not feel comfortable around members of my own ethnic/diverse cultural group	32,7	39,1	11,8	10	6,4
22. I like keeping the traditions of the heritage of my ethnic/diverse cultural group	4,5	4,5	29,1	35,5	26,4
23. It is important for me to be accepted by the overall culture where I live	7,3	5,4	19,1	42,7	25,5
24. I feel unable to involve myself in activities with members of the other ethnic/diverse cultural group(s)	39,1	32,7	17,3	5,4	5,5

Source: Compiled by authors based on SPSS results

As Table 2 shows, the biggest part of respondents strongly agree or agree, that „it is important for me to be accepted by the overall culture where I live“ (68,2 percent), but „I like keeping the traditions of the heritage of my ethnic/diverse cultural group“ (61,9 percent). 67,2 percent of respondents strongly disagree or disagree, that „I often feel lost about who I am as an ethnic/diverse cultural being“. 64,5 percent of respondents confirm by strongly agreeing (22,7 percent) and agreeing (41,8 percent), that „in general, belonging to my ethnic/diverse cultural group is an important part of my self-image“. 60 percent of respondents strongly agree or agree, that „I usually go by the values of the overall culture where I live“. 59,1 percent of respondents strongly agree or agree, that „The cultural traditions of my ethnic/diverse cultural group absolutely express me“. More than half, that is 55,5 percent strongly agree or agree, that „the values of my ethnic/diverse cultural groups are important for my judgment about what I have to do“ and „it is important to me to identify closely with the overall culture of country that I live“ and 54,5 percent of respondents state, that „it is important for me to internalize the overall cultural values of country that I live“. Almost half of respondents (49,1 percent) strongly agree and agree that „the culture of country that I live absolutely expresses me“. But an even smaller proportion of respondents (43,6 percent) strongly agree or agree that „I generally identify strongly with the overall culture of

country that I live“ and even a third of respondents' state, that they neither agree nor disagree. The most ambiguous was the statement that „the values of my ethnic/diverse cultural groups determine my life“: 40,9 percent of respondents strongly disagree or disagree, but 34,6 percent of respondents strongly agree or agree.

Analysing the results, the following hypotheses were tested:

H1: There are differences of opinion between men and women.

H2: There are differences of opinion between respondents grouped by age.

Testing the hypothesis H1, that there are differences of opinion between men and women, results are presenting in Table 3.

**Table 3.** Results for testing hypothesis H1

The number of the evaluated statement		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
1	Equal variances assumed	.323	.571	.971	108	.334	.205	.211	-.213	.623
	Equal variances not assumed			.982	107.990	.328	.205	.208	-.208	.618
2	Equal variances assumed	1.943	.166	-.664	108	.508	-.170	.256	-.678	.338
	Equal variances not assumed			-.674	107.495	.502	-.170	.252	-.671	.330
3	Equal variances assumed	.184	.669	-1.437	108	.154	-.337	.235	-.802	.128
	Equal variances not assumed			-1.450	107.955	.150	-.337	.232	-.798	.124
4	Equal variances assumed	12.820	.001	-.431	108	.667	-.089	.206	-.497	.319
	Equal variances not assumed			-.443	101.777	.658	-.089	.200	-.486	.308
5	Equal variances assumed	12.609	.001	-1.811	108	.073	-.376	.208	-.787	.036
	Equal variances not assumed			-1.862	102.084	.066	-.376	.202	-.776	.025
6	<b>Equal variances assumed</b>	<b>16.645</b>	<b>.000</b>	<b>-3.510</b>	<b>108</b>	<b>.001</b>	<b>-.702</b>	<b>.200</b>	<b>-1.098</b>	<b>-.306</b>
	<b>Equal variances not assumed</b>			<b>-3.383</b>	<b>77.192</b>	<b>.001</b>	<b>-.702</b>	<b>.207</b>	<b>-1.115</b>	<b>-.289</b>
7	Equal variances assumed	.871	.353	-1.876	108	.063	-.412	.220	-.847	.023
	Equal variances not assumed			-1.871	104.554	.064	-.412	.220	-.848	.025
8	Equal variances assumed	5.708	.019	-.350	108	.727	-.077	.220	-.514	.359
	Equal variances not assumed			-.357	106.669	.722	-.077	.216	-.506	.351
9	Equal variances assumed	1.016	.316	-.726	108	.469	-.171	.236	-.638	.296
	Equal variances not assumed			-.733	107.937	.465	-.171	.233	-.634	.292
10	Equal variances assumed	6.384	.013	1.058	108	.292	.243	.230	-.212	.698
	Equal variances not assumed			1.077	106.856	.284	.243	.225	-.204	.690
11	Equal variances assumed	10.408	.002	-1.384	108	.169	-.293	.212	-.713	.127
	Equal variances not assumed			-1.431	97.850	.156	-.293	.205	-.700	.113
12	<b>Equal variances assumed</b>	<b>3.117</b>	<b>.080</b>	<b>-2.659</b>	<b>108</b>	<b>.009</b>	<b>-.641</b>	<b>.241</b>	<b>-1.119</b>	<b>-.163</b>
	<b>Equal variances not assumed</b>			<b>-2.627</b>	<b>98.622</b>	<b>.010</b>	<b>-.641</b>	<b>.244</b>	<b>-1.125</b>	<b>-.157</b>
13	Equal variances assumed	3.861	.052	-1.558	108	.122	-.353	.227	-.802	.096
	Equal variances not assumed			-1.596	104.084	.113	-.353	.221	-.791	.085
14	Equal variances assumed	1.584	.211	.584	108	.561	.124	.212	-.296	.543
	Equal variances not assumed			.594	107.183	.554	.124	.208	-.289	.536
15	Equal variances assumed	3.293	.072	-1.028	108	.306	-.242	.235	-.708	.224
	Equal variances not assumed			-1.046	107.080	.298	-.242	.231	-.700	.216
16	Equal variances assumed	15.867	.000	.651	108	.516	.159	.245	-.326	.644
	Equal variances not assumed			.669	102.750	.505	.159	.238	-.313	.631
17	<b>Equal variances assumed</b>	<b>3.188</b>	<b>.077</b>	<b>-1.974</b>	<b>108</b>	<b>.051</b>	<b>-.409</b>	<b>.207</b>	<b>-.819</b>	<b>.002</b>
	<b>Equal variances not assumed</b>			<b>-2.006</b>	<b>107.425</b>	<b>.047</b>	<b>-.409</b>	<b>.204</b>	<b>-.813</b>	<b>-.005</b>
18	Equal variances assumed	12.113	.001	-1.199	108	.233	-.253	.211	-.671	.165
	Equal variances not assumed			-1.239	98.500	.218	-.253	.204	-.658	.152
19	Equal variances assumed	6.814	.010	-1.923	108	.057	-.428	.223	-.869	.013
	Equal variances not assumed			-1.965	105.505	.052	-.428	.218	-.860	.004
20	Equal variances assumed	1.369	.245	-1.085	108	.280	-.234	.216	-.662	.194
	Equal variances not assumed			-1.092	107.658	.277	-.234	.215	-.660	.191
21	Equal variances assumed	2.251	.136	-.926	108	.357	-.209	.226	-.658	.239
	Equal variances not assumed			-.944	106.459	.347	-.209	.222	-.649	.230
22	Equal variances assumed	7.198	.008	-.544	108	.587	-.109	.200	-.506	.288
	Equal variances not assumed			-.559	102.805	.577	-.109	.195	-.496	.278
23	Equal variances assumed	10.046	.002	-1.446	108	.151	-.309	.214	-.732	.115
	Equal variances not assumed			-1.482	104.052	.141	-.309	.208	-.722	.104
24	Equal variances assumed	.041	.840	-1.222	108	.224	-.264	.216	-.692	.164
	Equal variances not assumed			-1.224	106.423	.224	-.264	.216	-.691	.163

Source: Compiled by authors based on SPSS results

Although there are differences of opinion between men and women, following the application of the t-test for Equality of Means, we found statistically significant differences in only 3 statements (Table 4):

- ✓ I avoid becoming friends with people from other ethnic/diverse cultural group(s)<sup>a</sup>;
- ✓ I avoid activities with individuals from other ethnic/diverse cultural group(s);
- ✓ It is important to me to identify closely with the overall culture of the country that I live in.

As can be seen in the table above, only for the 3 statements, the sig value is less than 0.05.

Testing the hypothesis H2, that there are differences of opinion between respondents grouped by age, results are presenting in Appendix 2.

There are statistically significant differences between the opinions of respondents grouped by age on the following statements (Table 5):

- I avoid becoming friends with people from other ethnic/diverse cultural group(s);
- I avoid activities with individuals from other

ethnic/diverse cultural group(s);

➤ I often feel confused about which ethnic/diverse cultural group I should identify myself with;

➤ In general, belonging to my ethnic/diverse cultural group is an important part of my self-image;

➤ I do not spend much time with members of other ethnic/diverse cultural group(s);

➤ It is important for me to be accepted by the overall culture where I live;

➤ I feel unable to involve myself in activities with members of the other ethnic/diverse cultural group(s).

## Conclusions

Migration has been a part of human experience from the earliest days of civilization. There are over 25 million refugees worldwide, around half are children, and the majority (84%) are hosted in low- and middle-income countries. More than 90% of migrations in the world have taken place for employment purpose; migrants move either alone or with their families, also, as a prime causes of movements, can be defined geographical conditions, civil war, hunger, epidemic diseases, population growth, insufficient resources.

The European Union (EU) faces challenges that effects its persistence, including the revival of national populism in many EU members and studies have shown that individuals with immigration histories identify less strongly with Europe, such aspect must be taken into account, because the citizens and their identities are vital for European cohesion. Successful integration benefits both migrants and destination societies, but there are various triggers, which can effect affect the relations toward emigrants, like the pandemic or convivial attitude toward emigrants.

The survey shows that the biggest part of respondents (81,8 percent) does not avoid becoming friends with people from other ethnic/diverse cultural group(s) or 78,2 percent of respondents do not avoid activities with individuals from other ethnic/diverse cultural group(s). Both hypotheses that age and gender influence the difference in respondents' opinions were confirmed.

During the project “Strengthening social cohesion and capacity of local, refugee and migrant young people by creating STEM/STEAM areas” was an aspiration to increase the social cohesion and strengthen the resilience of young participants, consisting of immigrants, refugees and local groups, by revealing their skills in STEM/STEAM (Science, Robotic Technology, Art, Drama-theatre, Transform-Design-Play and Sports) and including them in social areas. The project put forward successful social cohesion practices like seminars and workshops to resource comprehensive social policies and to contribute to international literature. Workshops implemented during the project have contributed to raise awareness about multiple aspects of identity and the intersectionality of criteria that may lead to situations of privilege or discrimination in diverse hosting communities.

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#### Appendix 1. Descriptive statistics of statements in the survey

Statement in the survey	N	Minimum	Maximum	Mean	Std. Deviation
The cultural traditions of my ethnic/diverse cultural group absolutely express me	110	1	5	3.60	1.102
It turns me off to associate with people from other ethnic/diverse cultural group(s)	110	1	5	2.16	1.338
I often feel bad that I belong to the ethnic/diverse cultural group	110	1	5	2.05	1.233
I usually go by the values of the overall culture where I live	110	1	5	3.48	1.073
The values of my ethnic/diverse cultural groups are important for my judgment about what I have to do	110	1	5	3.45	1.097
I avoid becoming friends with people from other ethnic/diverse cultural group(s)	110	1	5	1.80	1.099
I often feel lost about who I am as an ethnic/diverse cultural being	110	1	5	2.19	1.161
It is important for me to internalize the overall cultural values of country that I live	110	1	5	3.53	1.147
I feel uncomfortable to associate with people from other ethnic/diverse cultural group(s)	110	1	5	2.05	1.230
I feel very "confused" about my sense of ethnic membership	110	1	5	2.46	1.202
I generally identify strongly with the overall culture of country that I live	110	1	5	3.25	1.112
I avoid activities with individuals from other ethnic/diverse cultural group(s)	110	1	5	2.01	1.296
I often feel confused about which ethnic/diverse cultural group I should identify myself with	110	1	5	2.16	1.193
In general, belonging to my ethnic/diverse cultural group is an important part of my self-image	110	1	5	3.65	1.104
I generally do not feel comfortable being around members of other ethnic/diverse cultural groups	110	1	5	2.03	1.230
I often feel "left out" when others around me talk about ethnic/diverse cultural identity issues	110	1	5	2.54	1.276
It is important to me to identify closely with the overall culture of country that I live	110	1	5	3.55	1.097
The culture of country that I live absolutely expresses me	110	1	5	3.35	1.105
The values of my ethnic/diverse cultural groups determine my life	110	1	5	2.93	1.179
I do not spend much time with members of other ethnic/diverse cultural group(s)	110	1	5	2.23	1.131
I usually do not feel comfortable around members of my own ethnic/diverse cultural group	110	1	5	2.18	1.182
I like keeping the traditions of the heritage of my ethnic/diverse cultural group	110	1	5	3.75	1.044
It is important for me to be accepted by the overall culture where I live	110	1	5	3.74	1.123
I feel unable to involve myself in activities with members of the other ethnic/diverse cultural group(s)	110	1	5	2.05	1.132
Valid N (listwise)	110				

Source: Compiled by authors based on SPSS results

**Appendix 2. Results for testing hypothesis H2**

ANOVA						
The number of the evaluated statement		Sum of Squares	df	Mean Square	F	Sig.
1	Between Groups	7.675	5	1.535	1.280	.278
	Within Groups	124.725	104	1.199		
	Total	132.400	109			
2	Between Groups	15.406	5	3.081	1.784	.123
	Within Groups	179.648	104	1.727		
	Total	195.055	109			
3	Between Groups	11.101	5	2.220	1.494	.198
	Within Groups	154.572	104	1.486		
	Total	165.673	109			
4	Between Groups	1.047	5	.209	.175	.971
	Within Groups	124.416	104	1.196		
	Total	125.464	109			
5	Between Groups	3.858	5	.772	.630	.677
	Within Groups	127.315	104	1.224		
	Total	131.173	109			
6	Between Groups	<b>24.149</b>	<b>5</b>	<b>4.830</b>	<b>4.675</b>	<b>.001</b>
	Within Groups	<b>107.451</b>	<b>104</b>	<b>1.033</b>		
	Total	<b>131.600</b>	<b>109</b>			
7	Between Groups	12.925	5	2.585	2.005	.084
	Within Groups	134.066	104	1.289		
	Total	146.991	109			
8	Between Groups	8.330	5	1.666	1.283	.277
	Within Groups	135.089	104	1.299		
	Total	143.418	109			
9	Between Groups	8.526	5	1.705	1.135	.347
	Within Groups	156.247	104	1.502		
	Total	164.773	109			
10	Between Groups	5.790	5	1.158	.795	.556
	Within Groups	151.565	104	1.457		
	Total	157.355	109			
11	Between Groups	1.301	5	.260	.203	.961
	Within Groups	133.572	104	1.284		
	Total	134.873	109			
12	Between Groups	<b>24.722</b>	<b>5</b>	<b>4.944</b>	<b>3.249</b>	<b>.009</b>
	Within Groups	<b>158.269</b>	<b>104</b>	<b>1.522</b>		
	Total	<b>182.991</b>	<b>109</b>			
13	Between Groups	<b>19.245</b>	<b>5</b>	<b>3.849</b>	<b>2.947</b>	<b>.016</b>
	Within Groups	<b>135.810</b>	<b>104</b>	<b>1.306</b>		
	Total	<b>155.055</b>	<b>109</b>			
14	Between Groups	<b>15.961</b>	<b>5</b>	<b>3.192</b>	<b>2.840</b>	<b>.019</b>
	Within Groups	<b>116.912</b>	<b>104</b>	<b>1.124</b>		
	Total	<b>132.873</b>	<b>109</b>			
15	Between Groups	14.251	5	2.850	1.967	.090
	Within Groups	150.667	104	1.449		
	Total	164.918	109			
16	Between Groups	18.945	5	3.789	2.488	.036
	Within Groups	158.409	104	1.523		
	Total	177.355	109			
17	Between Groups	12.466	5	2.493	2.182	.062
	Within Groups	118.807	104	1.142		
	Total	131.273	109			
18	Between Groups	11.184	5	2.237	1.907	.099
	Within Groups	121.989	104	1.173		
	Total	133.173	109			
19	Between Groups	5.530	5	1.106	.788	.560
	Within Groups	145.888	104	1.403		
	Total	151.418	109			
20	Between Groups	<b>25.111</b>	<b>5</b>	<b>5.022</b>	<b>4.573</b>	<b>.001</b>
	Within Groups	<b>114.208</b>	<b>104</b>	<b>1.098</b>		
	Total	<b>139.318</b>	<b>109</b>			
21	Between Groups	7.926	5	1.585	1.141	.343
	Within Groups	144.437	104	1.389		
	Total	152.364	109			
22	Between Groups	7.893	5	1.579	1.479	.203
	Within Groups	110.979	104	1.067		
	Total	118.873	109			
23	Between Groups	<b>14.611</b>	<b>5</b>	<b>2.922</b>	<b>2.476</b>	<b>.037</b>
	Within Groups	<b>122.744</b>	<b>104</b>	<b>1.180</b>		
	Total	<b>137.355</b>	<b>109</b>			
24	Between Groups	<b>26.769</b>	<b>5</b>	<b>5.354</b>	<b>4.932</b>	<b>.000</b>
	Within Groups	<b>112.903</b>	<b>104</b>	<b>1.086</b>		
	Total	139.673	109			

Source: Compiled by authors based on SPSS results

**Kristina Puleikiene**, Doctor of Social Sciences, Lithuania Business College. Field of scientific research: trends in changes in the economic situation of countries, systematic studies of the financial situation of companies. Working position: Deputy Director for Quality and Studies, assoc. professor of Economics Department, member of the study evaluation commission of the Study Quality Evaluation Center. Address: Turgaus str. 21., Klaipėda, LT-91249. E-mail: [kristina.puleikiene@ltvk.lt](mailto:kristina.puleikiene@ltvk.lt); ORCID: 0009-0005-9410-8091.

**Simona Grigaliuniene**, Doctor of Technology Sciences, Lithuania Business University of Applied Sciences. Field of Scientific research: composite materials, printing and packaging technologies, digital processes. Working as a Head of technology department. Expert in Agency for Science, Innovation and Technology (MITA), Expert for study field evaluation in IT and Material Sciences for AIKA (Latvia) and SKVC (Lithuania). Address: Turgaus str. 21., Klaipėda, LT-91249. E-mail: [simona.grigaliuniene@ltvk.lt](mailto:simona.grigaliuniene@ltvk.lt); ORCID: 0009-0009-5423-9600.

**Samanta Straupaite-Simonavice**, PhD candidate in Educology, Head of International Relations and Projects Department and assistant at Lithuania Business College. Research area – digitalization and sustainability in ecological citizenship. The author has already published 4 articles about youth and Erasmus+ students. Address: Turgaus str. 21, Klaipėda, Lithuania, phone: +370 46 314 320, E-mail: [samanta.straupaitė@ltvk.lt](mailto:samanta.straupaitė@ltvk.lt); ORCID: 0009-0008-9317-1322.

**Mihaela State**, Faculty of Economics, Administration and Business, Ștefan cel Mare University of Suceava, Romania, Ph.D. in Cybernetics and Economic Statistics. Areas of interest: statistics, economics, marketing data analysis, sales forecasting, business communication, entrepreneurship. More than 20 years of experience in higher education, trainer of entrepreneurial skills, involvement in several European projects in the field of entrepreneurship. E-mail: [mihaela.state@usm.ro](mailto:mihaela.state@usm.ro)





## **DOMESTIC VIOLENCE: THE PERSPECTIVE OF POLICE OFFICERS**

**Renata Sliaziene, Egidijus Nedzinskas**

*Lithuania Business College*

### **Abstract**

Domestic violence is a multifaceted issue within today's society. Acts of violence perpetrated against individuals constitute a blatant infringement upon human rights. The majority of such instances are directed at women and children. The legal regulation of domestic violence is defined in Lithuanian and international legal acts. However, shortcomings within the legal framework concerning domestic violence hindered the effectiveness of police assistance to victims. It is of utmost significance to highlight that the new Law on Protection from Domestic Violence came into effect on July 1, 2023. This legislation has introduced a novel legal mechanism in the form of a Domestic Violence Protection Order. The legal aspect of domestic violence is examined in the scientific literature; however, it lacks analysis of the personal positions of police officers who are the first to go to the crime scene after receiving a domestic violence call. Thus, the aim of the article is to reveal the peculiarities of legal regulation of domestic violence and empirically investigate the insights from the perspective of police officers. In order to achieve this goal, the analysis of scientific literature and legal acts were used for defining the concept of domestic violence and the peculiarities of legal regulation. A written survey was conducted for the empirical investigation of police officers' insights about domestic violence; the collected data were processed using quantitative analysis methods. The analysis has shown that domestic violence is understood as all intentional physical, mental, economic, sexual and other actions of the abuser towards the victim, if these actions violate the victim's constitutional rights and freedoms, and cause economic, physical, mental or moral damage to the victim. Police officers must respond immediately to a call of domestic violence and be the first to arrive at the crime scene. The newly adopted 15-day order restraining the abuser from the victim is a very important tool for solving the problems of domestic violence. However, as the experience of foreign countries shows, even after the adoption of appropriate laws to solve this problem, there are psychological and organizational obstacles in providing qualified assistance to victims of domestic violence. After conducting a survey of police officers, it was found that in most cases the reasons of domestic violence are alcoholism, drug addiction, unemployment and poverty. Most frequently the age of abusers is between 31-40 years; in most cases violence occurs in families after living together from 1 to 12 years. The victims of violence are mostly women. When preventing domestic violence, first of all, continuous prevention is necessary. Police officers lack psychological and practical knowledge the most when solving these issues. Police officers are not capable of solving these problems alone, the involvement of the prosecutor's office, courts, psychologists, and social workers is also needed here.

**KEYWORDS:** Domestic Violence, Police Officers, Domestic Violence Protection Order, Human Rights.

### **Introduction**

Domestic violence is a multifaceted issue encompassing not only legal aspects but also psychological and social complexities within society. Prompt response to reports of domestic violence is imperative for law enforcement officers, who are typically the first to arrive at the scene. However, shortcomings within the legal framework concerning domestic violence hinder the effectiveness of police assistance to victims. According to the State Data Agency of Lithuania, in the year 2022, Lithuania documented 5,872 domestic violence-related crimes, reflecting a 1.2 percent increase compared to the figures in 2021. The targets of these acts of violence were predominantly women and underage children.

It is crucial to highlight that despite the ongoing occurrence of domestic violence, a significant step was taken on July 1, 2023, with the enforcement of the Law on Protection from Domestic Violence in Lithuania. This legislation introduced a novel legal provision: a protective order against domestic violence. Under this order, the perpetrator is legally bound to immediately vacate the shared residence on a temporary basis. Anticipated, this measure holds the potential to enhance the assistance available to individuals enduring violence within close relationships.

The Protective Order from Violence aims to swiftly safeguard victims by removing the perpetrator from their immediate environment. Nonetheless, drawing from the experiences of other nations (Kerman, Betrus, 2018), it is evident that even with the enactment of pertinent laws to address this issue, challenges of psychological and organizational nature may still arise.

Domestic violence is regulated in international legal acts: United Nations General Assembly resolutions: 1993 December 20 No. A/RES/48/104 Declaration on the Elimination of Violence Against Women (United Nations General Assembly Resolution A/RES/48/104 (1993), 2 February 1998 No. A/RES/ 52/86 Resolution on the Prevention of Crime and the elimination of criminal justice instruments of violence against women (United Nations General Assembly Resolution A/RES/52/86 (1998) "On crime prevention and the elimination of criminal justice instruments of violence against women"), in 2003 December 22 No. In Resolution A/RES/58/147 on the elimination of violence against women in the family (United Nations General Assembly Resolution A/RES/58/147 (2003) "On the elimination of violence against women in the family"), 2006 February 2 No. P6 (2006)0038 in the European Parliament Resolution on current and future actions to combat violence against women (European Parliament Resolution, "On current and future actions to combat violence against women" P6 (2006)0038). These and other international documents

establish the generally accepted norm that domestic violence is a violation of human rights.

The legal aspect of domestic violence is examined in the scientific literature. Acius and Kranauskas (2022) analysed the dynamics of domestic violence, they also aimed to emphasise how the Law of Republic of Lithuania on Protection from Domestic Violence adopted in 2011 enabled to raise a relatively marginalized phenomenon to the level of an actual social problem. Jakštie (2018) delved deeper into the concept of a family member in criminal cases due to domestic violence, she analysed the validity of court practice. Other researchers analysed domestic violence in different aspects: violence against women (Margaret F. Brinig, 2012), children (Ema Katz, 2015), men (Marianne Hester, 2012), elderly people (Cailin Crockett, Bonnie Brandl & Firoza chic Dabby, 2015). Researchers also investigated the forms, types, trends (Anne-Stuart Bell, Martha Dinwiddie & Sherry Hamby, 2018), consequences (Gina Dillon, et al., 2013) of violence, also personality traits of the abuser (Marry Ann curry, et al., 2009).

However, the scientific literature lacks analysis of the personal positions of police officers who are the first to go to the crime scene after receiving a domestic violence call. It is not clear what specific situations police officers face, whether they are capable to solve the issues of domestic violence alone, what knowledge and skills they lack the most. Therefore, this article investigates domestic violence from the perspective of police officers.

*Methods of the research.* The analysis of scientific literature and legal acts were used for defining the concept of domestic violence and the peculiarities of legal regulation. A written survey was conducted for the empirical investigation of police officers' insights about domestic violence; the collected data were processed using quantitative analysis methods.

## Theoretical background

Acts of violence perpetrated against individuals constitute a blatant infringement upon human rights. The majority of such instances are directed at women and children. Women subjected to violence often refrain from openly discussing their experiences. It is imperative to underscore the intricacy and delicacy inherent in the issue of domestic violence, as such violence against women invariably influences their economic standing, impacting both their educational opportunities and their positioning within the labour market (Adams, Greeson, Kennedy, Tolman, 2013). Even if the woman is determined to end her relationship with an abusive husband, she faces problems of residence, custody of children, broken social ties, social pressure, and emotional difficulties due to breaking up with a husband who abused her (Michailovič, 2012).

Based on statistics, it is disheartening to note that nearly every second Lithuanian woman, and every third European woman, undergoes physical, psychological, sexual, or economic violence within their immediate surroundings. A significant portion of familial violence is perpetuated by men, as evident from statistics that implicate them in around nine out of ten reported cases. The roots of domestic violence can be traced back to

societal traditions and entrenched stereotypes that unfortunately perpetuate the misguided notion of the victim bearing responsibility for the violence they suffer. Regrettably, this stance overlooks the fact that the repercussions of domestic violence extend beyond the individual, affecting the entire family unit. A home environment deprived of safety, a normal upbringing for children, and diminished family income are some of the consequences. When a mother falls victim to abuse, her children inevitably experience the echoes of psychological harm. It's crucial to understand that when a woman is subjected to violence, it's not just her own loss but also a loss for society in terms of a fully engaged individual, a dedicated employee, and a valued family member.

The United Nations Declaration on the Elimination of Violence against Women (United Nations General Assembly Resolution A/RES/48/104 (1993) and Recommendation of the Committee of Ministers of the Council of Europe Rec (2005) 5 (Recommendation of the Committee of Ministers of the Council of Europe Rec (2005) formulated definition: Violence against women is understood as any act of violence committed on the basis of gender, which harms or may harm the physical, sexual or mental health of a woman or causes her suffering, as well as threats to commit such acts, as well as deprivation of liberty both in public and Domestic violence includes physical and mental aggression, emotional and mental abuse, rape and sexual abuse, incest, rape of spouses, permanent or casual partners and cohabitants, honour crimes, female genital mutilation and sexual mutilation, and other traditions harmful to women such as forced marriage.

In 2006 At the end of 2006, Lithuania approved the first State Strategy for Reducing Violence Against Women (by Resolution No. 1020 of the Government of the Republic of Lithuania of October 17, 2006 (Valstybės žinios, 2006, No. 112-4273). In the State Strategy for Reducing Violence against Women, violence against women in the family is defined as all intentional physical, mental, economic, sexual actions of one family member - usually a man against another family member - usually a woman, if these actions violate her constitutional rights and freedoms as a citizen and person and cause her economic, physical, mental or moral damage.

Of the European Parliament in 2009 November 26 the resolution on the elimination of violence against women says that violence against women is also violence against children. It affects their psychological state throughout women's lives; violence against women, mothers directly or indirectly affect their children and has long-term negative effects on their emotional and mental health, and can lead to a cycle of violence and abuse that is passed down from generation to generation. Therefore, member states are called upon to ensure both the prevention of such crimes and the proper, adequate fight against them.

In 2013 Lithuania has joined the 2011 Council of Europe Convention "On the prevention and elimination of violence against women and domestic violence". Article 12 of this convention refers to the need to take measures to promote the implementation of changes in social and cultural stereotypes of women and men, in order to eliminate attitudes, customs, traditions and all

other practices based on the idea of the inferior position of women or stereotypical roles of women and men.

In 2012 October 25 Directive 2012/29EU of the European Parliament and of the Council was approved, which establishes the minimum standards for the rights, support and protection of crime victims. The directive emphasizes that victims of crime should be recognized as victims and should be treated with respect, sensitivity and professionalism without discrimination on any basis. All contacts with competent authorities involved in the criminal process and with all services that liaise with victims, such as victim support or restorative justice services, should take into account the victims' personal situation and immediate needs, age, gender, potential disability and maturity, with full respect for their physical, mental and moral integrity. Victims of crime should be protected from secondary and repeated victimization, intimidation and retaliation, and should be provided with adequate support. The directive emphasizes that intimate partner violence is a large and often hidden social problem that can be the cause of permanent psychological and physical trauma with serious consequences, because the abuse is committed by a person whom the victim should trust. Therefore, victims of intimate partner violence may need special protective measures.

Women experience this type of violence disproportionately, and the situation can be much worse if the woman is economically or socially dependent on the perpetrator, or her right to live in a particular place depends on him. Persons who are particularly vulnerable should be provided with specialist support and legal protection. Specialist support services should be based on an integrated and targeted approach. In applying it, they should take into account the special needs of victims, the severity of the harm caused by the crime, as well as the relationships between victims, offenders, children and their wider social environment. The main task of these services and their staff should be to inform victims of the rights set out in this Directive so that they can make decisions in a supportive environment where they are treated with dignity, respect and sensitivity. Another task is to provide support for the victim to recover faster from the damage suffered. The types of support that such specialist support services should provide may include the provision of shelter and safe accommodation, the provision of emergency medical support, referral for medical and forensic examination to collect evidence in cases of rape or sexual abuse, short and long-term psychological counselling, trauma support, legal advice and special services for children as direct or indirect victims.

26/05/2011 the Law of the Republic of Lithuania on protection against domestic violence no. XI-1425, indicates that domestic violence is a violation of human rights and freedoms. This law comprehensively outlines the scope of domestic violence, delineates the entitlements and obligations of parties involved in domestic violence situations, establishes protocols for preventive measures and initiatives, enforces provisions for aiding victims of domestic violence, and prescribes the application of protective measures for those who have endured such violence. The law explicitly defines

violence as the deliberate infliction of physical, psychological, sexual, economic, or other forms of harm upon an individual, resulting in physical, material, or non-material detriment. The perpetrator, in this context, is an individual who commits acts of violence within an intimate setting.

The concept of domestic violence aligns closely across both international legal documents and the Law on Protection from Domestic Violence of the Republic of Lithuania. Predominant categories of violence within the private sphere encompass psychological, physical, and sexual dimensions. Of these, psychological violence is the most prevalent within familial contexts and can subsequently escalate into physical or sexual violence. Notably, international documents also acknowledge the existence of economic violence.

Violence inflicted upon individuals within the confines of their families encompasses behaviours such as deliberate destruction of personal property, vandalism, monetary extortion, disruptive behaviour, as well as acts of animal cruelty including injuring or killing pets (Žemaitienė, Baniienė, et al., 2022).

Various countries employ slightly nuanced definitions of domestic violence; nonetheless, a broad consensus identifies it as encompassing controlling, coercive, and intimidating behaviours, as well as direct violence directed towards current or former intimate partners or family members. The scope of domestic violence typically focuses on interactions involving individuals under the age of 16, while violence against children is often examined as a distinct yet interconnected issue.

Within society, a prevailing notion holds that domestic violence is predominantly associated with antisocial, less cultured, and uneducated individuals, criminals, or those grappling with severe mental health concerns. However, this perception contrasts with the reality, as domestic violence permeates diverse segments of society, spanning from marginalized families to more privileged echelons such as the nobility. Evidently, violence is intricately linked to individual psychological challenges, deficient emotional regulation, inadequate conflict resolution skills, learned behavioural patterns, communication dynamics between victims and perpetrators, as well as the adoption of values that rationalize violent behaviour.

Legally, violence is classified as a criminal offense, warranting intervention and punishable through judicial sanctions. Nonetheless, when viewed from a psychological perspective, domestic violence assumes a complex and paradoxical nature. Gaining insight into its underlying dynamics is crucial for formulating effective strategies to prevent, address, and extend support to those affected by it. Without this deeper comprehension, our ability to implement appropriate measures remains compromised.

In conclusion, it is unequivocal that any manifestation of domestic violence ranks among the most pressing societal challenges. The definition of domestic violence holds striking similarities across both international legal frameworks and within Lithuania. Domestic violence, by its nature, constitutes an enduring pattern of aggression where the victim, often a woman, shares a household with the aggressor.

Instances of violence encountered by women typically remain concealed. Even if a woman is resolute in severing ties with an abusive partner, she grapples with issues spanning residency, childcare, fractured social networks, societal pressures, and emotional turmoil stemming from ending a relationship marked by abuse. Consequently, women who have endured domestic violence often find themselves marginalized from society.

The repercussions of violence against women extend to their health, with severe implications. The recognition of domestic violence as a significant global issue underscores the urgency of its prevention, particularly in safeguarding women. Notably, familial or closely confined violence is an unfortunate reality across European Union countries, transcending legal systems and contexts.

### **Actions of Police Officers in a response to a report of domestic violence**

Police officers must respond immediately to a report of domestic violence. The main legal act, which provides for the sequence of actions, was approved by the General Commissioner of Police on the 20<sup>th</sup> of June, 2023 by order no. 5-V-506, "Regarding the response of police officers to reports of domestic violence and the approval of the decision on the adoption of a protection order against domestic violence, its execution and control procedure description".

The new Law on Protection from Domestic Violence came into effect on July 1, 2023. This legislation has introduced a novel legal mechanism in the form of a domestic violence protection order. This order constitutes a preventative measure designed to safeguard individuals vulnerable to domestic violence. Under this provision, an adult who is at risk of domestic violence is mandated to temporarily vacate their shared residence if they cohabit with a person in jeopardy. Moreover, the order stipulates refraining from visiting the residence of the at-risk individual, maintaining a certain distance, refraining from communication, and abstaining from seeking contact with both the endangered adult and any children residing with them.

It is likely that this adopted amendment will change the existing problems of domestic violence, at least temporarily protecting the victims so that the abuser cannot approach them, since only about 20% reports to the police about possible violence in families are investigated according to the rules of the criminal procedure and a pre-trial investigation is started, in other cases about 80%. such reports stop the pre-trial investigation, thus preventing the perpetrator from being punished.

A protection against violence order will be issued for a period of 15 days by a police officer who receives a report of possible domestic violence and, following a risk assessment, determines the risk of domestic violence. The criteria for assessing the risk of violence in the intimate environment shall be determined by the Minister of Internal Affairs of the Republic of Lithuania. The police officer makes the decision to issue a protection against violence warrant or not to issue a protection against

violence warrant immediately, no later than within 12 hours of receiving a report of possible domestic violence.

The main conditions of such a warrant are as follows:

a) the abuser must move out of the place of residence if he lives with a person at risk of domestic violence, regardless of who owns the home;

b) not visit the residence of a person at risk of domestic violence, regardless of whether domestic violence danger the person making the move lives or does not live there together with a person at risk of domestic violence;

c) 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 violence protection order;

d) not to communicate with or seek contact with a person at risk of domestic violence.

The primary objective is to ensure comprehensive protection for every individual, encompassing children, against the scourge of domestic violence. Given its societal repercussions classified as matters of public significance, the core aim is to establish the necessary legal foundations for swift responses to domestic violence threats. This involves the implementation of preventative measures within the intimate sphere and offering specialized, holistic support to individuals at risk of violence within this context, as well as those who have already endured such brutality.

Integral to this effort is delineating the responsibilities and authority of institutions and entities engaged in preventing and addressing intimate partner violence. By introducing these amendments to the law on protection against domestic violence, a crucial and potent shift is anticipated. This alteration is poised to yield favourable outcomes, significantly enhancing victim protection by separating them from their abusers.

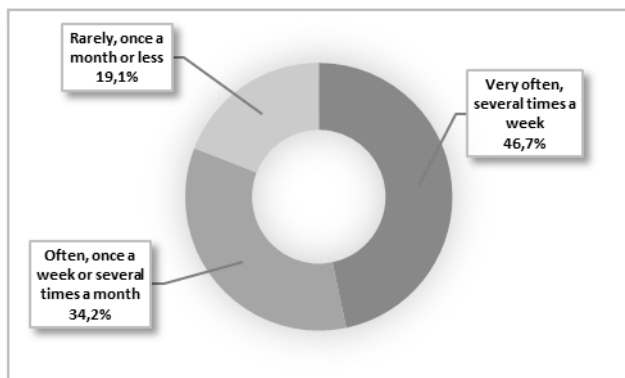
### **Research results**

The research was conducted in 2022 by interviewing police officers about the domestic violence. Police officers working in various Lithuanian territorial police commissariats were interviewed by a written survey. The survey questions were formulated in order to assess the purpose of the research - to investigate empirically insights about domestic violence from the perspective of police officers. The questionnaire was addressed to the target audience, i.e., police officers who may be exposed to domestic violence in their daily work, and the survey was sent to the respondents by e-mail.

The principles of research ethics were followed. All respondents participated in the study voluntarily: the respondents knew who was conducting the study and what was the aim of this study; knowing this, they agreed to participate in the study. The purpose of the research was presented to the respondents. The respondents were also informed about where and for what purposes the results obtained during the research will be used. The respondents were assured of their anonymity.

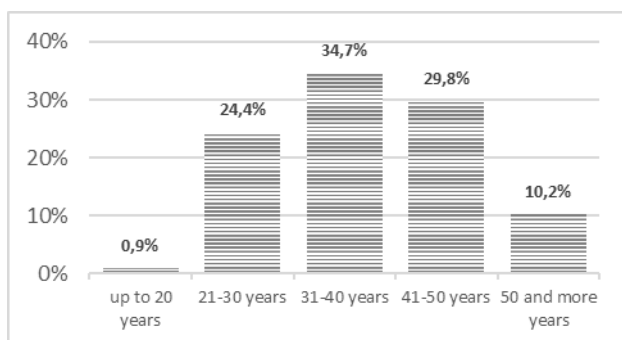
89 police officers participated in the study and answered the questionnaires. The study revealed that 46.7% of the respondents deal with the cases of domestic

violence in their work very often, i.e., several times a week. 34.2% of respondents - deal with domestic violence often, i.e., once a week or several times a month; and 19.1% of respondents rarely deal with the cases of domestic violence.



**Fig. 1.** The frequency when police officers deal with the cases of domestic violence

The research revealed that police officers are usually called to families where violence occurs after spouses or cohabitants have lived together from 1 to 12 years (62% of cases). Quite often (29% of cases) they are called to families when spouses or cohabitants live together from 13 to 25 years, and in rare cases (9% of cases) when the family lives together more than 25 years. A similar trend is also reflected in the investigation of the age of abusers.



**Fig. 2.** The age of the person who commits domestic violence

The investigation has shown that among persons under the age of 20, abusers are extremely rare; domestic violence usually occurs when the perpetrator is between 31 and 40 years old. The victims of domestic violence are mostly women.

The police officers who participated in the study indicated the main causes of domestic violence. 62% of respondents stressed out alcoholism and drug addiction as the main reason. A person who drinks or uses drugs acquires immoral, antisocial traits, and his value orientation declines. After returning home, he usually makes noise, uses swear words, scares others, hits and destroys things, fights, that is, uses mental and physical violence. 38% of respondents highlighted unemployment and poverty as the main reason. A person without a job for a long time is angry with the whole world and with all humanity. Blames others but himself for not having a job. Such a person often abuses family members because they

are around. Unemployment, lack of finances are prerequisites for poverty. It's hard to feel like a full-fledged person when a person is poor, when he can't find or keep a job, it increases and strengthens the feeling of shame and, accordingly, increases the likelihood of violence.

Police officers were asked how domestic violence could be prevented. 43% of police officers as a key tool indicated the need for continuous implementation of prevention programs; 37% of police officers indicated that this could be achieved through harsher punishments.

96% of police officers indicated that they alone are not capable of solving the problems of domestic violence. Police officers also emphasized the lack of psychological knowledge (32%) and practical knowledge (21%). Thus, training, seminars and methodological recommendations should be periodically organized for police officers.

As domestic violence is not a private matter, but a social problem, it is necessary to unite the efforts of the police, prosecutor's office, courts, psychologists, and social workers. Training, seminars and methodological recommendations should also be periodically organized for police officers.

## Conclusions

The legal regulation of domestic violence is defined in Lithuanian and international legal acts. Domestic violence is understood as all intentional physical, mental, economic, sexual and other actions of the abuser towards the victim, if these actions violate the victim's constitutional rights and freedoms, and cause economic, physical, mental or moral damage to the victim. Violence against women is one of the highest problems, both in legal and psychological and social aspects.

Police officers must respond immediately to a call of domestic violence and be the first to arrive at the crime scene. However, the shortcomings of the legal system in the field of domestic violence prevent police officers from effectively helping victims. From the 1<sup>st</sup> of July, 2023, the Law on Protection from Domestic Violence entered into force, which introduced a new legal regulation - Domestic Violence Protection Order. The newly adopted 15-day order restraining the abuser from the victim is a very important tool for solving the problems of domestic violence. However, as the experience of foreign countries shows, even after the adoption of appropriate laws to solve this problem, there are psychological and organizational obstacles in providing qualified assistance to victims of domestic violence.

After conducting a survey of police officers, it was found that in most cases the reasons of domestic violence are alcoholism, drug addiction, unemployment and poverty. Most frequently the age of abusers is between 31-40 years; in most cases violence occurs in families after living together from 1 to 12 years. The victims of violence are mostly women. When preventing domestic violence, first of all, continuous prevention is necessary. Police officers lack psychological and practical knowledge the most when solving these issues. They are not capable of solving these problems alone, the

involvement of the prosecutor's office, courts, psychologists, and social workers is also needed here.

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**Renata Sliaziene**, associate Professor of Law, Head of Department of Law, Lithuania Business College. Scientific research areas in Law (01S). She published 5 scientific articles. Tel. +37065653964. Email [renata.sliaziene@ltvk.lt](mailto:renata.sliaziene@ltvk.lt), Orcid ID: 0000-0002-1630-0863.

**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](mailto:egidijus.nedzinskas@ltvk.lt), Orcid ID: 0009-0000-7495-450X



## **ECOLOGICAL TRAITS AND ORGANIC PRODUCTS CONSUMPTION BEHAVIOR OF OLDER ADOLESCENTS**

**Samanta Straupaite-Simonavice<sup>1</sup>, Robert Jeyakumar Nathan<sup>2</sup>**

<sup>1</sup>*Lithuania Business College, Klaipėda University,* <sup>2</sup>*Multimedia University, Malaysia*

### **Abstract**

This research determines and measures factors affecting the consumption of organic products among older adolescents in Lithuania. Previous studies discuss factors were grouped into personal and functional factors according to their impact on the attitude of ecologically conscious older adolescents. Personal factors are explained as the user's personal experience, internal qualities, and personality traits. The study showed that consumers' positive attitude towards organic products is shaped by consumers' personal motivation and available ecological knowledge. Consumers' ecological knowledge is also considered to be one of the essential factors in shaping the positive attitude of ecologically conscious consumers towards organic products. As society faces ecological challenges and searches for solutions to the problem, environmental friendliness and ecologically conscious consumers are increasingly emphasized. Consumers are encouraged to change their attitude towards organic products and to change their purchasing behaviour. However, it is noticeable that emphasizing ecological problems and increasing the assortment of organic products does not encourage consumers to change their consumption habits and purchasing behaviour, therefore, in order to understand what motivates consumers to use organic products, researchers began to analyse the factors that determine the consumption of organic products. Based on recent literature review in this area, three main factors were identified for detailed analysis in this research, which includes ecological awareness, ecological concern, and social norms of older adolescence in Lithuania. Based on the literature review discussion, this research formulates the following objectives and hypotheses for empirical analysis. Using a survey research methodology, data were collected from adolescence across Lithuania and 421 samples were finalized for analysis upon data cleaning and validation. Data was analysed using SPSS software for descriptive analysis and hypothesis testing. Result reveal that both ecological awareness and ecological concerns of older adolescents in Lithuania are strong predictors of their intention to purchase organic products. While personal norms though had some association in descriptive analysis with purchase behaviour, did not show statistical significance in impacting organic products purchase intention. Therefore, the concept of ecologically conscious adolescents consists of the consumer's ecological awareness, whereby the consumer evaluates his/her needs, behaviour and its impact on the environment when purchasing products. Based on this finding it can be stated that there is an influence of the attitudes of ecologically conscious consumers on their intention to buy organic products. Therefore, future researchers may focus more on understanding factors that contribute and promote the development of ecologically conscious consumers in the country. Also it is possible to look into consumer attitudes, how they are formed and what factors lead to the formation of positive consumer attitudes.

**KEY WORDS:** Ecological awareness, ecological behaviour, sustainability.

### **Introduction**

In the last few decades, ecological sustainability, ecologically conscious and ecological attitude have become increasingly popular topics in the scientific literature (Štraupaitė, 2023; Çuhadar and Rudnak, 2022; Brochado et al., 2017; Dobson, 2010). As society faces ecological challenges and searches for solutions to the problem, environmental friendliness and ecologically conscious consumers are increasingly emphasized (Judson, 2015; Goncalves et al., 2015; MacLeod, 2021; Ferdig, 2004). Consumers are encouraged to change their attitude towards organic products and to change their purchasing behaviour (Pinto, et al., 2017). However, it is noticeable that emphasizing ecological problems and increasing the assortment of organic products does not encourage consumers to change their consumption habits and purchasing behaviour, therefore, in order to understand what motivates consumers to use organic products, researchers began to analyse the factors that determine the consumption of organic products (Onel, 2017; Chawla and Cushing, 2007). Research has shown that factors determining organic consumption shape consumer attitudes towards organic products (Bittar, 2017; Wei et al., 2018; Pata and Caglar, 2021) and the attitudes of environmentally conscious consumers influence purchase intention (Robinson, 2006; Trivedi et al., 2017; Cameron, 2022), which can directly influence

purchase behaviour (Martins et al., 2017, Pata and Caglar, 2021). In order to reveal what has a greater impact on the purchasing behaviour of an ecologically conscious consumer, a study was conducted to analyse the relationships between factors that may influence the formation of consumer attitudes, purchase intention and purchasing behaviour.

### **Literature review**

Bigoin et al. (2018) in a scientific study conducted that the attitudes and purchasing behaviour of ecologically conscious consumers are stimulated by different factors, but one of the most important factors that can determine the choice of ecological products is ecological packaging. Product packaging designers must educate consumers about their benefits and thus change consumer behaviour, in the case of green packaging (Mudacumura et al., 2006). Eco-friendly packaging encourages consumers to behave green and choose green products and creates the attitude that green-conscious consumer behaviour and green products can be common everyday goods (Goncalves et al., 2015; Naz, 2019).

Tan et al. (2016) examined the factors that can form a positive attitude of consumers towards organic products, organic consumption and purchasing behaviour. The study showed that consumers' positive attitude towards organic products is shaped by consumers' personal

motivation and available ecological knowledge. According to the authors (Kennedy, 2011; Gareiou et al., 2021; Drimili et al., 2020), the consumer's motivation comes from his connection with nature, ethical norms and beliefs that his behaviour can improve the ecological problems that have arisen. Consumers' ecological knowledge is also considered to be one of the essential factors in shaping the positive attitude of ecologically conscious consumers towards organic products (Drimili et al., 2020). Paul et al. (2015) in a research study reached similar conclusions as Tan et al. (2016) According to the authors, if consumers have formed a positive attitude towards organic products, it is likely that their intention to buy and purchasing behaviour will also be positive towards organic products.

To determine the relationship between purchase intention and purchase behaviour, researchers (Paul et al., 2015; Lorenz et al., 2018) explain using Fishbein and Ajzen's (Kotchen and Reiling, 2000) theory of Planned Behaviour. According to the authors (Lorenz et al., 2018; Dadvand et al., 2015), consumers who do not act impulsively and are guided by their positive subjective notions, knowledge and attitude will behave ecologically. The theory of planned behaviour shows that an individual's attitude, subjective norms and behavioural control influence primarily not the behaviour, but the intention to be-have.

Dewberry and Jackson's (2017) research results confirmed that the Theory of Planned Behaviour shows an individual's interest and potential future behaviour influenced by an individual's positive or negative attitude toward an object, which primarily affects the purchase intention of environmentally conscious consumers. In summary, it can be stated that the analysis of scientific literature sources has highlighted the following problematic area of research: although there is a lot of research on the attitude, intention to buy and purchasing behaviour of environmentally conscious consumers, there is a lack of in depth study of the consumer attitude, how it is formed, what factors determine the formation of a positive consumer attitude, how it determines the intention to buy organic products and purchasing behaviour (Colding and Barthel, 2017; Wilson, 2018). Research results also show different determinants of the consumption of organic products. It should be noted that it does not take into account at which stage of the organic consumption or purchasing behaviour the consumer loses interest in the organic product (Commoner, 2020; Ahmed et al., 2022). Previous studies have limitations including specific product categories, cultures, limited types of users were examined, which limits the use of the results. Hence this study seeks to clearly reveal what ecological factors determines the older adolescences' behaviour of purchasing organic products, by determining the attitude of environmentally conscious consumers.

## Research Objectives and Hypotheses

Based on the literature review discussion as above, this research formulates the following objectives and hypotheses for empirical analysis.

1. To assess the effect of older adolescents' ecological awareness and ecological concerns in determining their consumption of organic products.

2. To determine the effect of older adolescents' personal norms in determining their consumption of organic products.

### Hypothesis of the research

H1: Ecological awareness has positive association with consumption of organic products.

H2: Ecological concerns has positive association with consumption of organic products.

H3: Personal norms has positive association with consumption of organic products.

## Methodology

The purpose of the study is to determine the ecological traits of older adolescents in Lithuania and its association to the intention to purchase organic products. The links between attitude towards organic products and purchase behaviour are mostly emphasized, although it is believed that there are cases where a positive attitude towards organic products can have a greater effect on intention to buy organic products than on purchase behaviour. In order to determine the effect of the attitude of ecologically conscious consumers on the intention to purchase behaviour, a quantitative research method using a survey, was chosen. The survey method was chosen as the most widely used research method, which is more structured compared to the qualitative research method and has stricter sample calculation requirements that can ensure more accurate results. Via the survey 421 older adolescents participated in the study as respondents from all over the Lithuania. The finalized data was analysed using Statistical Package for the Social Sciences (SPSS) version 21 for descriptive analysis and hypotheses testing.

## Result and Discussion

The Cronbach Alpha measures the reliability and consistency of a Likert scale of the questionnaire. Table 1 illustrates the reliability statistics of all the factors affecting the purchase intention of organic food. The Cronbach's Alpha for all factors are above 0.8, therefore reliable for further statistical analysis.

**Table 1.** Result of Reliability Analysis

<b>Factors</b>	<b>Cronbach's Alpha</b>
Ecological Awareness	0.995
Ecological Concerns	0.992
Personal Norms	0.994
Purchase Intention	0.989

Subsequently, descriptive statistical analysis was carried out to the research factors. As we can see in fig. 1, the first factor consists of all the factors of ecological awareness and social norms, plus one personal values



variable and one personal norms variable. The personal values statement was “I follow the concept of sustainable consumption on a daily basis” (sorting, buying organic products, avoiding plastic bags), the respondent was able to associate sustainable consumption with ecological consciousness more than with his personal values. The personal norms statement was: “The organic products purchased by me have an impact on the preservation of the environment”, which was likely to be interpreted by the respondents as a factor of ecological consciousness, as it refers to the perception of purchasing organic products. By analysing older adolescents’ awareness, it is possible to see that they consider themselves an environmentally conscious consumer. Also, when they purchase products, they evaluate their environmental impact. Social norms and eco-awareness may also have seemed similar concepts to the consumer, as social norms also refer to awareness, but from the perspective of social groups.

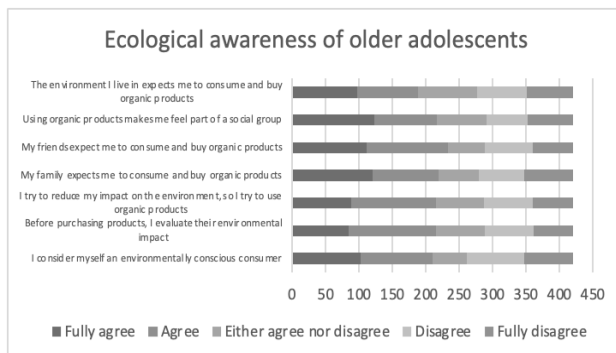


Fig. 1. Ecological awareness of older adolescents

The second factor consists of all the factors of ecological concern and two personality traits (fig. 2). The latter factors are likely to be attributed to ecological concern because the respondents interpreted the following statements: ‘I trust products bearing the organic logo’; ‘I feel socially responsible when I consume organic products’ as ecological concern factors rather than personality traits’. Analysing the ecological concerns of older adolescents, it has shown that the most important that older adolescents are interested ecological problems and the consumption of organic products, and they are concerned about the environmental pollution caused by plastic packaging and concerned about environmental pollution in the world. Analysis shows that ecological concern factor is also a part of ecological awareness.

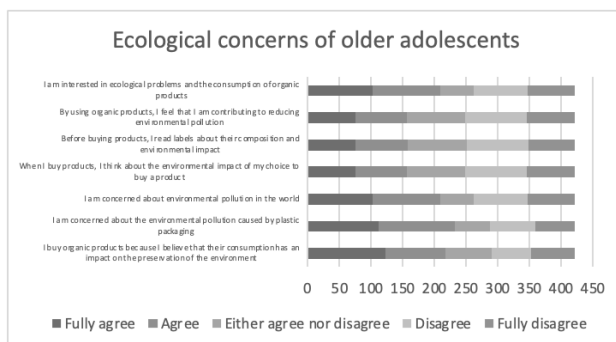


Fig. 2. Ecological concerns of older adolescents

The third factor consists of all the personal norms factors and the two personal values that respondents were asked to state: ‘I care about reducing pollution’ and ‘I value organic and healthy products more than others’ (fig. 3). It is likely that the respondents did not see a difference between the personal norms statements and the personality trait statements mentioned above when answering the questions. By analysing the results, it is possible to interpret that older adolescents feel socially responsible when using organic products. Older adolescents also trust food products marked with the EU organic production logo and associate them as having high quality and reliable.

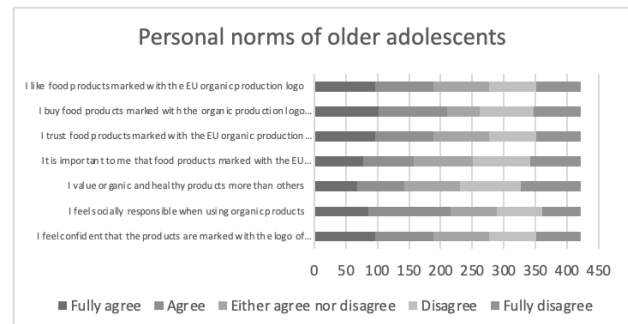


Fig. 3. Personal norms of older adolescents

Subsequently a Multiple Linear Regression (MLR) analysis was carried out in SPSS and the result is displayed as below in Table 2 and Table 3.

Table 2. Result of ANOVA from MLR

	Sum of	Mean		
	Sq.	df	Square	F
<b>Regression</b>	799.27	3	266.426	74583
<b>Residual</b>	1.490	417	.004	
<b>Total</b>	800.76	420		

Table 3: Result of Coefficients from MLR

	B	Std. Error	Std. Coeff. Beta	t	Sig.
<b>Const.</b>	.006	.007		.759	.449
<b>EA</b>	.550	.016	.558	34.913	<.001
<b>EC</b>	.452	.018	.451	25.401	<.001
<b>PN</b>	-.006	.020	-.006	-.323	.747

The results reveal a high R Square value of 0.9 and as table 2 shows, significant Anova test indicating model fit. Table 3 shows that both Ecological Awareness and Ecological concerns are significant predictors of purchase of organic products by Lithuanian older adolescents. Hence H1 and H2 are supported in this study. However, H3 (Personal Norms) is not statistically significant in impact toward purchase intention, hence H3 is not supported.

To sum up the result analysis, the first factor consists of ecological awareness measurement items and social norms. The second factor consists of ecological concerns measurement items and one item on ecological awareness. The third factor consists of personality traits, personal values and personal norms.

The data analysis show that the respondents did not distinguish between ecological awareness and social norms from the given statements, and it can be said that the social norms introduced in the Lithuanian population are equivalent to ecological awareness. Personality traits and values were equated by respondents with personal norms. Only one item of ecological awareness was identified by the respondents and was not mixed with other items, and only one item of ecological awareness was included in this group, which was identified as a variable of ecological concern. According to the MLR analysis, both Ecological Awareness and Ecological Concerns of respondents are found to be highly significant in predicting their purchase behaviour, while personal norm is not substantiated in this study as a determinant of purchase intention.

## Conclusion

An analysis of the concepts of ecologically aware consumers presented in the scientific literature suggests that the concept of eco-conscious consumers is not homogeneous and consists of several key factors influencing eco-conscious consumer behaviour (Agienko et al. 2017; Karatas, 2015). First of all, the concept of ecologically conscious adolescents consists of the consumer's ecological awareness, whereby the consumer evaluates his/her needs, behaviour and its impact on the environment when purchasing products. The concept of ecologically aware adolescents is also based on the consumer's intrinsic motivation, which explains the consumer's tendency to switch from conventional behaviour to eco-conscious purchasing behaviour. Thus, it can be argued that the concept of ecologically aware adolescents is not homogeneous but consists of the characteristics of an eco-conscious consumer, eco-awareness, intrinsic motivation and the theory of planned behaviour.

The attitudes of ecologically aware adolescents are influenced by personal factors (eco-concerns, eco-consciousness, social and personal norms, personal values, personality traits) and functional factors (influence of social groups, price of eco-products, packaging of eco-products, eco-awareness) (Mayer and Frantz, 2014). It also reveals that the attitudes of environmentally conscious consumers influence purchasing behaviour and that intention to buy influences purchasing behaviour. This empirical study shows that functional factors have a greater impact on the attitudes of environmentally conscious adolescents towards organic food products than personal factors. Based on the findings of the study, it is recommended to develop deeper understanding of what constitutes ecological awareness and ecological concerns of the society, which could stimulate the consumption of organic products.

## Limitation of Study

The limitation of this study is that the data is limited to Lithuanian older adolescents. A broader picture of organic purchasing behaviour could have been obtained by surveying different age groups and neighbouring countries. In order to make the results more representative, it would be possible to survey respondents in other foreign countries which are more advanced in the consumption of organic products. In this way, it would be possible to assess the impact of the attitudes of ecologically aware consumers on their intention to buy and their purchasing behaviour on the Lithuanian market and on markets in other neighbouring countries, especially Baltic countries. The results could be compared to assess how the attitudes of ecologically aware consumers in different countries affect their organic products purchasing behaviour.

## Further research

Further studies may look at other variables that may influence aspects of ecological behaviour. Given the importance of the issue, different socio-economic factors can be taken into account in addition to cultural factors. Further research could look into consumer attitudes, how they are formed, what factors lead to the formation of positive consumer attitudes, how they determine the intention to buy organic products.

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**Samanta Straupaite-Simonavice**, PhD candidate in Educology, Head of International Relations and Projects Department and assistant at Lithuania Business College. Research area – digitalization and sustainability in ecological citizenship. The author has already published 4 articles about youth and Erasmus+ students. Address: Turgaus str. 21, Klaipėda, Lithuania, phone:+370 46 314 320, E-mail: samanta.straupaitė@ltvk.lt , ORCID ID: 0009-0008-9317-1322

**Robert Jeyakumar Nathan**, PhD., is attached to Multimedia University, Malaysia. Was former visiting professor with the Faculty of Economics, University of South Bohemia in Czech Republic. He teaches and conducts research on Management, Marketing, Digitalization, Startup and Innovation, Research Methodology and Leadership. He is a certified Design Thinking Trainer, by Stanford University Design School. He has published various peer reviewed academic articles in journals, conferences and book chapters. Prior to joining academia, he worked for Siemens Semiconductor, a semiconductor manufacturing firm based in Munich, Germany. Robert participates in the Standing Committee for Copyright and Related Rights (SCCR) with the World Intellectual Property Organization (WIPO). Address: Faculty of Business, Multimedia University, Melaka, 75450 Malaysia. Email: [robert.jeyakumar@mmu.edu.my](mailto:robert.jeyakumar@mmu.edu.my), ORCID ID: 0000-0002-0897-0015



## THE CIRCULAR ECONOMY TRANSITION IN THE EUROPEAN UNION

**Samson Gbolahan Oyeranmi, Valentinas Navickas**

*Kaunas University of Technology*

### Abstract

The objective of this research project is to conduct a systematic review of the transition toward a circular economy within the European Union. The issue of unsustainability in the current global society is widely acknowledged within the European Union. This is attributed to the unequal distribution of benefits and costs related to resource utilization among member states of the European Union. The circular economy is acknowledged for its ability to efficiently address social and environmental issues. The transition from the existing linear economic model to a circular one has recently garnered increased attention from notable multinational corporations and influential stakeholders in attendance at the World Economic Forum. The establishment of circular economy models is crucial for promoting and enhancing the adoption of the circular economy. This research paper delves into the benefits of adopting a circular economy model in the context of industry, economy, and waste management. The development of design strategies for the circular economy is guided by a conceptual framework, and recommendations are subsequently provided in accordance with this framework.

**KEYWORDS:** circular economy, linear economy, circular economy model, waste recycling, waste management, European Union.

### Introduction

The circular economy theory delineates a conceptual framework for global economic systems that prioritize developmental and restorative objectives (Feiferytė and Navickas, 2016; Yamoah et al., 2022). This is a synthesis of multiple concepts that have been integrated to re-conceptualize the discourse surrounding resource utilization and waste management (Gbolahan, 2022; Di et al., 2022). The objective is to devise strategies that eliminate waste and negative externalities, safeguard and enhance natural resources, facilitate the circulation of goods, components, and materials at their optimal level of utility and value (Sohal and De Vass, 2022; Münster et al., 2022).

A circular economy is a sustainable economic model that involves the management of finite stocks and renewable flows (Testa et al., 2022). This model aims to establish a continuous cycle of positive development that safeguards and enhances natural capital, optimizes resource yields, and mitigates system risks (Meath et al., 2022; Wuni, 2022). This could lead to the resolution of complex issues like the extinction of species, climate change, the depletion of natural resources, water stress, population growth, conflicts over natural resources and energy, geopolitical disputes, human rights violations, and economic instability (Jesus et al., 2022; Münster et al., 2022).

The circular economy model employs optimal resources, methodologies, commercial tactics, and commodities to minimize waste (Chioatto et al., 2022). Removing the idea of end-of-life in favor of restoration, switching to sustainable energy sources, ceasing to use dangerous chemicals that impede reusability, and switching to renewable energy are all ways to achieve this goal (Blomsma et al., 2022; Khan et al., 2022). The realization of the potential of a circular economy, as aforementioned, is contingent upon a systemic

transformation in the design of goods, services, systems, and infrastructure (Hettiarachchi et al., 2022). The success of designing for a circular economy is contingent upon the incorporation of diverse closed-loop system design methodologies (Seetharaman et al., 2022; Tan et al., 2022).

In recent years, there has been a notable evolution in the general framework surrounding the transition toward a circular economy, both within the European Union and on a global scale (Charef et al., 2022). The COVID-19 pandemic has revealed the susceptibility of the worldwide economic framework to numerous hazards, particularly those related to the security of supply chains for diverse products and resources (Chioatto et al., 2022; Charef et al., 2022). The ongoing conflict in Ukraine has led to significant increases in the prices of crucial commodities such as food, gasoline, and fertilizer, primarily due to the dominant market positions of Russia and Ukraine in these sectors (Chioatto et al., 2022; Böhmecke-Schwafert et al., 2022). Moreover, this has brought to light certain inadequacies in the global economic framework, resulting in a widespread predicament concerning the expenses associated with sustenance (Van et al., 2022; Eurostat, 2020). Inflation has exhibited a global upward trend since the onset of 2021. The Euro area's annual inflation rate escalated to 8.9% in July 2022, representing an increase from the 8.6% recorded in June 2022 (Awan and Sroufe, 2022). Similarly, in the European Union, consumer prices experienced a 9.6% surge in June 2022 relative to the corresponding period in the previous year (Awan and Sroufe, 2022; Giorgi et al., 2022).

The European Union's endeavors to foster the circular economy are progressively recognizing the contemporary global milieu (Melchor-Martínez et al., 2022; Yamoah et al., 2022). The benefits of transitioning to a circular economy have been acknowledged by policymakers for a considerable period of time due to their potential positive impact on the environment, resource efficiency, and

climate (Altamira-Algarra et al., 2022). Furthermore, certain contemporary endeavors have acknowledged the potential of circularity in the aftermath of the COVID-19 pandemic, as evidenced by the revised European Union Industrial Strategy and the Sustainable Products Initiative (Johansen et al., 2022; Gbolahan, 2023). Additionally, circularity has been recognized as a means of enhancing the European Union's resource and economic resilience, as exemplified by the proposed Batteries Regulation and the European Union Textiles Strategy (Ellen MacArthur Foundation, 2020; Nguyen-Tien et al., 2022). Hence, it can be inferred that the shifting global scenario is exerting an impact on the inclination toward transitioning to a circular economy via cohesive and comprehensive policy interventions (Chioatto et al., 2022; Awan and Sroufe, 2022).

## Literature Review

The circular economy is a production and consumption model that emphasizes the importance of reusing, refurbishing, recycling, and repairing pre-existing materials and goods (Di et al., 2022; Hettiarachchi et al., 2022). The objective is to tackle worldwide concerns such as climate change, depletion of biodiversity, generation of waste, and contamination (Sohal and De Vass, 2022; Feiferytė and Navickas, 2016). The model is based on three fundamental principles: the eradication of pollution and waste by means of design, the conservation of products and resources, and the restoration of natural systems (Charef et al., 2022; Khan et al., 2022). The act of recycling serves to optimize the economic viability of a product's constituent parts upon reaching the end of their useful lifespan (Poponi et al., 2022). This diverges from the traditional linear economic paradigm, which is predicated on a linear sequence of extraction, production, consumption, and disposal (Böhmecke-Schwafert et al., 2022; Nguyen-Tien et al., 2022).

The model also incorporates the concept of deliberate degradation (Feiferytė and Navickas, 2016). The implementation of material reuse and recycling practices can contribute to the mitigation of biodiversity loss, the reduction of natural resource consumption, and the mitigation of landscape and habitat degradation (Eurostat, 2020; Poponi et al., 2022). The implementation of a circular economy model leads to a reduction in the overall quantity of annual greenhouse gas emissions, resource consumption, and negative environmental impacts (Blomsma et al., 2022; Böhmecke-Schwafert et al., 2022). Therefore, it is imperative to prioritize the development of goods that are designed with sustainability in mind, as this can significantly mitigate the ecological footprint of the product (Di et al., 2022). The implementation of durable goods that can be repaired, upgraded, and repurposed has the potential to mitigate waste (Giorgi et al., 2022). The issue of packaging waste is on the rise, as the average European generates approximately 180 kilograms of such waste per year (Seetharaman et al., 2022; Münster et al., 2022).

The utilization of primary resources is on the rise (Testa et al., 2022). However, the availability of fundamental constituents is limited (Poponi et al., 2022).

The European Union exhibited a trade imbalance of €30.5 billion in 2021 due to its reliance on imported raw commodities, which account for roughly half of its total consumption (Wuni, 2022). In March 2020, the European Commission revealed the circular economy action plan, which aimed to enhance consumer empowerment, encourage ecologically sustainable product design, and decrease waste (Sohal and De Vass, 2022; Khan et al., 2022). Industries characterized by high resource consumption are being targeted, including but not limited to devices and computer technology, polymers, textiles, and construction (Chioatto et al., 2022; Tan et al., 2022).

In February 2021, the European Parliament approved a directive pertaining to the most recent circular economy action plan (Blomsma et al., 2022; Di et al., 2022). The directive advocates for further measures to be implemented in order to achieve a carbon-neutral, ecologically sustainable, non-toxic, and fully circular economy by 2050 (Khan et al., 2022; Wuni, 2022). In March 2022, the Commission introduced a series of measures aimed at expediting the transition toward a circular economy (Yamoah et al., 2022). These measures encompassed the promotion of environmentally sustainable products, equipping consumers with the necessary tools to facilitate the ecological transition, revising legislation pertaining to building products, and formulating a strategy for ecological textiles (Sohal and De Vass, 2022; Blomsma et al., 2022). The European Union put forth a proposal regarding packaging regulations in November 2022 (Di et al., 2022). The proposal recommends a transition to bio-based, biodegradable, and recyclable plastics in order to mitigate packaging waste and enhance package design (Feiferytė and Navickas, 2016). The proposal also emphasizes the importance of clear labeling to promote the recycling and reuse of materials, Figure 1.

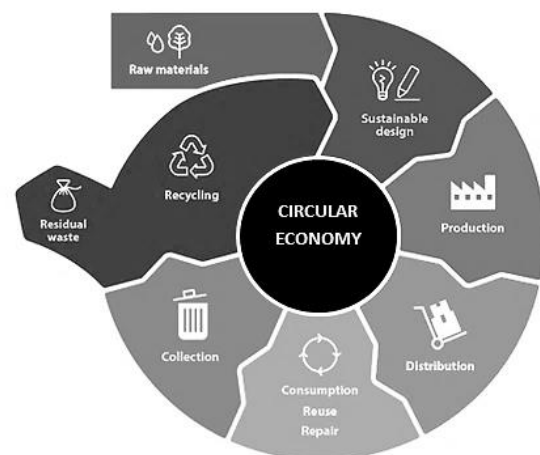


Fig. 1. The circular economy model

## Methodology

The Ellen MacArthur Foundation has proposed three fundamental principles to facilitate the transition toward a circular economy:

The first principle emphasizes the importance of preserving and enhancing natural capital through the management of finite resources and the regulation of renewable resource flows (Ellen MacArthur Foundation, 2020; Tan et al., 2022). This requires the careful selection of appropriate technologies and procedures that optimize the utilization of renewable and high-performing resources (Ellen MacArthur Foundation, 2020; Van et al., 2022).

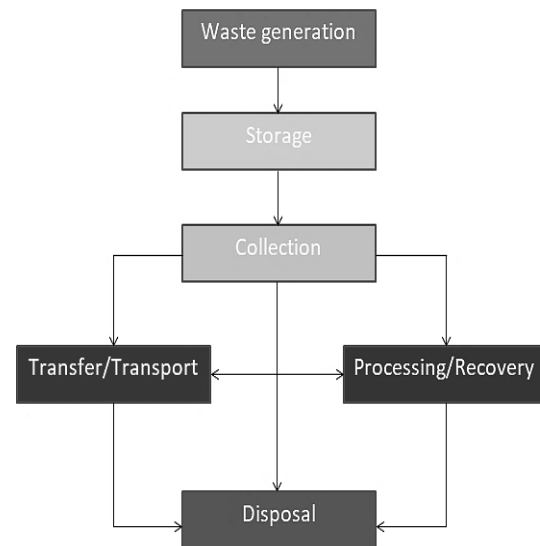
The second principle emphasizes the optimization of resource yields through the circulation of products, components, and materials in both technical and biological cycles (Ellen MacArthur Foundation, 2020; Seetharaman et al., 2022). This involves designing for remanufacturing, refurbishing, and recycling to ensure that technical components and materials remain in circulation within the economy, thereby preserving their embedded energy and other value (Melchor-Martínez et al., 2022; Gbolahan, 2023). The term also pertains to the promotion of the safe reintroduction of biological nutrients into the biosphere, thereby rendering them useful as feedstock for a subsequent cycle (Ellen MacArthur Foundation, 2020; Münster et al., 2022).

The third principle emphasizes the importance of enhancing system effectiveness by identifying and eliminating adverse externalities (Charef et al., 2022). This involves mitigating harm to human well-being, including but not limited to food, transportation, housing, education, health, and leisure. Additionally, it entails managing externalities such as land use, air, water, and noise pollution, as well as the release of hazardous substances and climate change (Gbolahan, 2023; Tan et al., 2022).

The Ellen MacArthur Foundation has established four distinct modes of value creation based on the aforementioned principles. The four cycling strategies under consideration are: smaller and faster cycling with reduced energy and resource consumption; extended cycling duration; cascaded utilization; and pure regenerative cycling (Ellen MacArthur Foundation, 2020; Seetharaman et al., 2022).

## Results

Renewable energy sources include waste, but their potential remains largely unrealized (Wuni, 2022). The process of waste management encompasses five fundamental phases, namely generation, reduction, collection, recycling, and disposal (Münster et al., 2022; Awan and Sroufe, 2022). One of the primary goals of waste management is to optimize the five stages involved in the process in order to implement the most efficient and cost-effective practices that are in line with the socio-technological and environmental limitations that are imposed, Figure 2 (Blomsma et al., 2022; Feiferytė and Navickas, 2016).



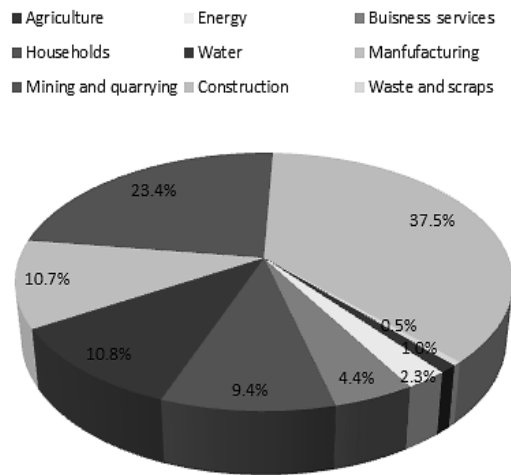
**Fig. 2.** Functional elements of Waste Management

The European Union witnessed a total waste production of 2,153 million tonnes in the year 2020, which encompassed all economic activities and households (Di et al., 2022, Eurostat, 2020). This translates to 4,813 kg per capita, Table 1.

According to data from 2020 in Figure 3, the construction sector made up 37.5% of the total contribution in the European Union, with mining and quarrying following at 23.4% (Hettiarachchi et al., 2022; Eurostat, 2020). Other sectors that contributed significantly included waste and water services at 10.8%, manufacturing at 10.7%, and households at 9.4%. The remaining 8.2% was attributed to waste generated from other economic activities, with services accounting for 4.4% and energy for 2.3%.

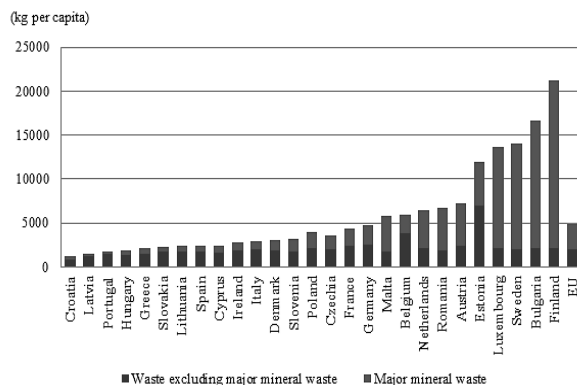
**Table 1.** Waste generation by economic activities and household, 2020 (% share of total waste)

	Manufacturing	Mining and quarrying	Energy	Waste/water	Construction and demolition	Households	Other economic activities
European Union	10.7	23.4	2.3	10.8	37.5	9.4	5.9
Belgium	20.9	0.0	1.5	31.4	30.5	7.8	7.9
Bulgaria	4.2	81.8	5.2	2.9	1.6	2.0	2.3
Czech Republic	12.1	0.3	1.1	15.5	42.9	15.9	12.2
Denmark	6.4	0.1	3.9	7.3	54.8	18.0	10.3
Germany	13.7	1.3	2.0	12.0	56.3	9.6	5.1
Estonia	24.6	15.2	36.0	4.6	9.8	3.4	7.4
Ireland	22.4	9.4	1.0	12.6	32.8	12.0	10.1
Greece	12.9	31.1	5.2	11.1	19.7	15.6	5.4
Spain	12.4	2.3	0.8	20.8	30.8	21.3	11.3
France	6.0	0.1	0.3	8.1	68.5	10.8	6.3
Croatia	7.3	11.6	1.1	16.3	23.8	20.2	19.3
Italy	15.2	0.8	0.9	24.6	37.9	16.6	4.1
Cyprus	9.3	6.9	0.1	6.3	50.2	17.0	9.8
Latvia	17.0	0.0	4.1	33.7	9.7	22.6	12.9
Lithuania	32.7	1.0	2.3	18.4	8.3	20.9	16.3
Luxembourg	6.3	1.1	0.3	3.3	82.1	2.2	4.2
Hungary	15.8	0.8	11.2	9.8	27.1	29.1	6.1
Malta	1.0	1.3	0.0	2.9	82.7	6.3	3.3
Netherlands	10.6	0.1	0.4	7.4	65.4	7.4	8.7
Austria	7.3	0.1	0.6	3.3	76.3	6.7	5.2
Poland	16.1	36.6	6.6	13.4	13.0	7.8	6.6
Portugal	17.8	0.1	1.3	22.9	10.7	31.8	15.4
Romania	4.6	84.3	3.1	2.0	0.9	3.0	2.2
Slovenia	17.9	0.1	12.1	3.8	6.3	8.4	31.4
Slovakia	24.0	1.6	5.5	8.9	9.0	18.5	32.5
Finland	8.2	75.1	0.8	1.0	11.8	2.1	1.0
Sweden	3.1	76.3	1.2	4.3	9.3	3.1	2.3



**Fig. 3.** Waste products generated by commercial and household activities

The waste generated from mining and quarrying, as well as construction and demolition activities, is largely categorized as major mineral waste (Eurostat, 2020). Figure 4 provides an analysis that differentiates major mineral waste from other types of waste. The major mineral waste constituted a significant proportion of the total waste generated in the European Union in 2020, accounting for approximately 64%, or 3.1 metric tons per inhabitant (Seetharaman et al., 2022; Eurostat, 2020). The distribution of primary mineral waste in the overall waste produced exhibited significant variation across member states of the European Union (Altamira-Algarra et al., 2022; Eurostat, 2020). This variation may be indicative, to some extent, of distinct economic frameworks. The European Union Member States with significant mining and quarrying activities, such as Finland, Sweden, and Bulgaria, as well as those with substantial construction and demolition activities, such as Luxembourg, generally had higher proportions of major mineral waste (Eurostat, 2020). In these countries, major mineral waste constituted between 84% and 89% of the total waste generated (Eurostat, 2020).

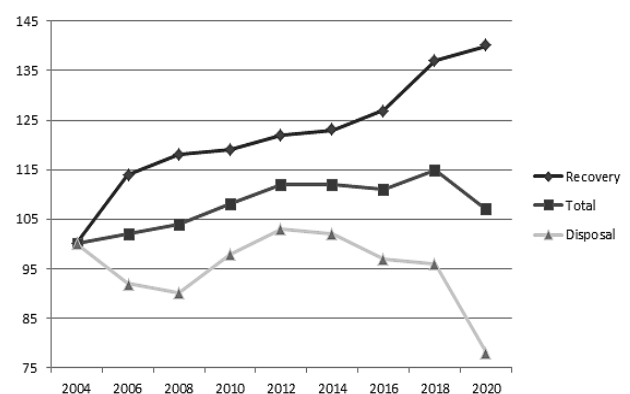


**Fig. 4.** Waste generated in the European Union States, 2020

The European Union processed approximately 1.971 billion metric tons of waste in 2020 (Eurostat, 2020). The aforementioned does not encompass waste that has been exported but rather pertains to the management of waste that has been imported into the European Union (Poponi et al., 2022). Consequently, the quantities that have been reported cannot be compared directly with those pertaining to waste generation (Ellen MacArthur Foundation, 2020).

The amount of waste that was recycled, utilized for backfilling, or incinerated with energy recovery witnessed a growth of 29.4% from 870 million metric tons in 2004 to 1,164 million metric tons in 2020, Figure 5. Consequently, the proportion of such waste recovery in overall waste treatment increased from 45.9% in 2004 to 59.1% in 2020 (Eurostat, 2020). The amount of waste that was disposed of experienced a reduction from 1,027 million metric tons in 2004 to 806 million metric tons in 2020, indicating a decrease of 21.3%. The proportion of waste disposal in the overall waste management process experienced a decline from 54.1% in 2004 to 40.9% in 2020 (Testa et al., 2022; Eurostat, 2020).

According to the aforementioned information, in the European Union during the year 2020, a majority of the waste (59.1%) underwent recovery operations, which included recycling (39.9% of the total treated waste), backfilling (12.7%), or energy recovery (6.5%) (Eurostat, 2020). The residual 40.9% was subjected to landfilling (32.2%), incineration without energy recovery (0.5%), or alternative disposal methods (8.2%) (Eurostat, 2020). Noticeable variations were evident among the European Union Member States with respect to their utilization of diverse treatment modalities. As exemplified, certain Member States have exhibited notably elevated rates of recycling (namely Italy, Belgium, Slovakia, and Latvia), while others have predominantly relied on landfills as a means of waste treatment (such as Romania, Bulgaria, Finland, Sweden, and Greece).



**Fig. 5.** Graphical illustration of waste treatment in the European Union, 2004-2020

## Discussions

The European Union has been implementing active measures within the framework of the circular economy since 2014, with pertinent elements having been present in European Union regulations as far back as the 1970s



(Tan et al., 2022; Johansen et al., 2022). This includes guidelines pertaining to waste management, evaluation of the influence of certain public and private initiatives on the environment, repurposing of decommissioned automobiles and previously owned electrical and electronic devices, the Sixth Environment Action Program, the Thematic Strategy on the Sustainable Use of Natural Resources, and the Roadmap to a Resource Efficient Europe (Chioatto et al., 2022; Ellen MacArthur Foundation, 2020). The European Union Action Plan for the Circular Economy is regarded as the primary document for closing the loop and outlines proposed actions to be implemented in the European Union in the near future [20, 11]. The European Union has implemented several noteworthy documents pertaining to circular economy, such as Regulation (EU) 2018/848, Directive (EU) 2018/849, Directive (EU) 2018/850, Directive (EU) 2018/851, and Directive (EU) 2018/852. The European Commission has released a monitoring framework pertaining to the circular economy and has approved a document titled "A New Circular Economy Action Plan" (Blomsma et al., 2022; Florez et al., 2022).

The proposed theme is "Enhancing Europe's Competitiveness through Improved Cleanliness" (Hettiarachchi et al., 2022; Melchor-Martínez et al., 2022). The process of monitoring the implementation of circular economy goals and actions at all levels, namely micro, meso, and macro, is challenging due to the absence of a universally accepted set of indicators or a singular indicator, as well as the diverse range of indicators that may arise from varying interpretations of the concept of circular economy among stakeholders (Münster et al., 2022; Johansen et al., 2022). Several European Union member states have developed their own unique sets of indicators, resulting in challenges when attempting to compare the impact of circular economy-related initiatives across nations (Chioatto et al., 2022; Ellen MacArthur Foundation, 2020). The topic of selecting indicators for the purpose of conducting a comprehensive evaluation is a matter of ongoing discourse (Wuni, 2022; Blomsma et al., 2022). The primary focus lies on measuring the progress of the transition toward a circular economy and the effectiveness of implementing its objectives (Hettiarachchi et al., 2022). Additionally, there is a distinction made between circular economy assessment indicators and those used for linear economies (Khan et al., 2022; Awan and Sroufe, 2022). Another area of interest is establishing a benchmark for monitoring progress in implementing circular economy practices as well as evaluating the efficiency of measuring circular economy execution at the national, regional, or local level (Wuni, 2022).

The European Commission recognized the significance of having a dependable set of indicators to evaluate advancements toward a more circular economy and the efficacy of European Union and national-level actions (Florez et al., 2022). Consequently, the Commission initiated efforts to establish a monitoring framework for the circular economy, which was officially adopted in 2018 (Awan and Sroufe, 2022; Johansen et al., 2022). The proposal put forth by the European Commission pertains to the measurement of

advancements made in the implementation of the circular economy within the European Union and its constituent member states (Eurostat, 2020; Melchor-Martínez et al., 2022). The framework comprises a collection of metrics that consider the fundamental components of the circular economy (Di et al., 2022). Its purpose is to evaluate the advancement of initiatives that strive for a transition to a circular economy throughout the entire life cycle of natural resources, products, and services, as well as in the domains of innovation and competitiveness (Chioatto et al., 2022).

The aforementioned indicators are categorized into four distinct areas of circular economy policy that pertain exclusively to manufacturing and consumption, waste management, secondary raw materials, competitiveness, and innovation, as well as priority areas that are incorporated in the European Union action plan for the circular economy (Awan and Sroufe, 2022; Charef et al., 2022). The majority of the metrics encompassed in the European Union monitoring framework center on waste, as per the European Economic and Social Committee's assertion that waste-related data is robust, coherent, and commensurable. Nevertheless, it is imperative that any forthcoming surveillance endeavors transcend the realm of waste management and recycling (Gbolahan, 2023; Böhmecke-Schwafert et al., 2022).

In accordance with the Circular Economy Action Plan, the European Green Deal, and the Annual Sustainable Growth Strategy 2020, the Commission intends to revise the framework for monitoring the circular economy and enhance the monitoring of national plans and measures that are designed to expedite the transition to a circular economy (Seetharaman et al., 2022; Johansen et al., 2022). The proposed circular economy indicators aim to consider the pre-existing target domains as well as the interconnections among circularity, climatic neutrality, and the objective of attaining zero emissions (Gbolahan, 2022; Khan et al., 2022). It is postulated that metrics pertaining to resource utilization, encompassing both consumption and material footprint, will be formulated (Hettiarachchi et al., 2022; Melchor-Martínez et al., 2022). It is postulated that the initiatives executed within the framework of "Horizon Europe" and the utilization of Copernicus data will have a positive impact on the enhancement of circularity metrics, which are currently not accounted for in official statistical records, across multiple domains (Sohal and De Vass, 2022; Tan et al., 2022).

The present report's examination of the circular economy initiatives within the European Union reveals that the circular economy's notion has undergone a transformation at the European Union level (Testa et al., 2022). The current discourse has shifted its emphasis from solely managing waste to encompassing a broader range of priorities situated higher up in the waste hierarchy, Figure 6. This includes prioritizing the reduction and reuse of products (Münster et al., 2022; Johansen et al., 2022). Thus far, the current approach fails to sufficiently acknowledge the significance of reducing resource consumption in absolute terms as a means to fully achieve the transition toward a circular economy in the European Union (Wuni, 2022; Jesus et al., 2022).



**Fig. 6.** Domestic solid management waste hierarchy

## Conclusion

The adoption of a circular economy is an inevitable course of action due to the prevailing social and economic conditions of the European Union member states and the status of the natural environment (Jesus et al., 2022; Awan and Sroufe, 2022). Member states have been mandated to undertake the necessary procedures to transition their economies toward a circular model (Ellen MacArthur Foundation, 2020; Poponi et al., 2022). It is important to monitor the advancement of the transition toward the circular economy and the effectiveness of the implementation of circular economy objectives across different levels (macro, meso, and micro). Guidelines for developing indicators to assess the circular economy at different levels can be found in reports, strategies, and documents of international institutions, as well as in various scholarly publications. The objective of this paper is to analyze the European Union nations based on their progress toward achieving a circular economy.

This research paper analysis serves as an initial step toward future research in the field of the subject matter discussed in the article. This includes conducting a comprehensive examination of measures aimed at transitioning from a linear economy to a circular economy in European Union member states, as well as exploring the effects of such a transformation on economic growth, social and economic development within individual European Union countries.

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**Samson Gbolahan Oyeranmi**, Master's degree graduate of Management at Pitirim Sorokin Syktyvkar State University (Russia). Email: [oyeranmitimi@gmail.com](mailto:oyeranmitimi@gmail.com); Author of 4 publications (published articles on economics, food insecurity, health, waste and energy-generating system in the European Union). He participated in various scientific research activities; now he is a doctoral degree candidate at Kaunas University of Technology (Lithuania). Fields of scientific interest: economic growth, business digitalization, industrial competitiveness, foreign investments sharing economy, tourism economics.

**Valentinas Navickas**, Doctor of social sciences (economics), professor at Kaunas University of Technology (Lithuania). Email: [valentinas.navickas@ktu.lt](mailto:valentinas.navickas@ktu.lt); Author of more than 400 scientific publications (including monographies published in Czech Republic in 2013 and Slovak Republic in 2016, 2018) and scientific articles. Prepared 8 doctors of social science; now he is the research adviser of 3 persons maintaining a doctor's thesis of social (economics) science. Fields of scientific interest: development economics, competitiveness, economic growth, sharing economy, tourism economics. ORCID ID: <https://orcid.org/0000-0002-7210-4410>





## **REGIONAL ORGANIZATIONAL PARTNERSHIP IN HEALTH TOURISM**

**Sarunas Banevicius, Regina Narkiene**

*Lithuania Business College*

### **Abstract**

The mechanism of organizational partnership is a complex process. In the scientific literature, there are factors that can influence the existence of an effective organizational partnership. These factors are usually associated with power relations established between stakeholders; not finding a common vision; different and sometimes competing interests; lack of dialogue and leadership and different communication styles and culture etc. The authors formulate the purpose of the research - to identify opportunities for improving regional partnership in the health tourism industry during the expert evaluation.

The authors of the article assume that regional partnership management is initiated by applying and creating various instruments. The role of the state in initiating regional cooperation (e.g. in the health tourism industry, using the available resources of each region to create health and wellness services) and the importance of the regional management of the region itself, in organizing cooperation and networking, identifying and involving significant actors, is emphasized. In order to determine the effectiveness of regional cooperation, efforts towards the goal of movement, and the allocation of resources, it is useful to carry out evaluations.

**KEYWORDS:** regional management, organizational partnership, health tourism, inter-organizational effectiveness.

### **Introduction**

In the basis of the economic transformation and competitiveness development program, 12 fundamental problems are identified, which hinder the development of the Lithuanian economy. One of these identified problems is the unused tourism potential of Lithuania (EIM, 2022). In 2020 The data presented in the overview of tourism trends and policies conducted by the OECD show that the share of tourism in Lithuania's GDP in 2018 reached only 3.1% and was lower than the average of OECD member countries (4.4%) and other Baltic countries (in Latvia this figure reached 4.5%, in Estonia - even 5.4%). Although the growth of the number of tourists arriving in Lithuania was the fastest among the mentioned countries (+8.2%), considering Estonia's smaller area and population, in fact 15% less of them came to Lithuania than to Estonia. The conclusion is that the tourism sector in Lithuania is much less efficient and does not use its potential (OECD, 2020). Therefore, it is appropriate to create and develop health tourism.

The organizational partnership of service sector participants is one of the conditions that ensures the economic development of European regions. When setting the goal of increasing the attractiveness of regions (at national and international levels), rational decisions must be made - to modernize public infrastructure, promote intersectoral cooperation, carry out international projects and seek business cooperation and the export of tourism value by developing a culture of cooperation and organizational partnership. With the help of a set of resources, objects and initiatives, various forms of partnership become the reason for the creation of new economic and social value, the economic viability of business organizations increases, and opportunities arise for the dissemination and marketing of tourism products. Regionalization is

focused on reducing the social and economic differences of the country's regions in the short term and ensuring the even and sustainable development of the regions and the entire country in the long term. In this way, the aim is to ensure the sustainable development of the regions. The research paper explores the problem of how to ensure effective regional organizational partnership in the health tourism industry.

One of the emerging types of tourism is accessible tourism, including a very complex service area (Zsarnoczky, 2018). The complexity of the service sector forms a multi-level hierarchical system in which communication takes place through vertical and horizontal connections. Thus, coordination of management, use and mobilization of resources, effective centralization and decentralization of functions are the biggest challenges in improving the tourism service sector and health tourism. Service is an activity and a result at the same time, it is a more or less intangible activity, which usually manifests itself when the user interacts with service-providing objects, material and physical resources or delivery systems that ensure the satisfaction of the user's needs.

### **Theoretical Background of the Study**

The concept of regions is often analyzed in the works of scientists (Kilijonienė and Bruneckienė, 2011; Bruneckienė and Krušinskas, 2011; Česonis, 2012; Kraft and Wolf, 2018; Rehfeld and Judith Terstriep, 2019; Calero and Turner, 2020; Willi et al. 2020; Moodie and et al., 2021; et al.). J.

According to Bruneckienė and A. Kilijonienė (2011), the concept of region refers to a territorial unit that differs from other units according to the selected

evaluation criteria. A. Šneiderienė and V. Juščius (2015) note that a certain geographical area can be divided into regions on the basis of one chosen criterion. Possible evaluation criteria include the following: level of economic development, economic growth rates, territorial structure of the economy, population density, population growth, level of production specialization, technological progress, competitiveness, socially responsible business activities, etc. Perhaps the broadest and clearest definition of the region is provided by J. Bruneckienė and R. Krušinskas (2011). According to these scientists, a region can be defined as a component of a larger economic-social space, which differs from other surrounding territories in terms of economic, social, demographic, cultural-historical, natural, political or infrastructure systems related to material and informational connections. Thus, the region is understood as an integral part of the state, smaller than the state itself, which consists of a certain number of regions. Such an approach, according to these authors, allows the region to be treated as a complex, open and living socio-economic system in a larger space.

Z. Atkočiūnienė et al., (2010) state that regions are formed historically, naturally influencing natural and economic conditions, but the region should not be associated only with the territory, it is necessary to take into account the specificity of the individual region. D. Vidickienė and R. Melnikienė (2008) emphasize that the importance of the choice of methodology when classifying regions has recently been emphasized. Thus, it is important not only to define the regions, but also to classify them by choosing the appropriate methodology. According to P. Tuominen et al., (2006), the boundaries of a region may be clearly defined or there may be no clear demarcation of boundaries.

J. Bruneckienė and R. Krušinskas (2011); J. Bruneckienė and O. Palekienė (2012) indicated the main reasons for regional differences: natural-climatic living and business conditions; available natural resources, their quality and directions of use; regional status and geographical location; production structure, innovation implementation time; agglomeration; level of technological development; demographic differences; business terms; political and institutional, social and cultural factors (Gedminaitė-Raudonė, 2012).

A region is a spatial social system consisting of closely integrated subsystems of public management, economy, community, culture, operating in built and natural environments, which are characterized by homogeneity, coherence and specificity within the system; this system usually performs political and/or administrative functions of state management at the subnational level (Sinkienė and Grumadaitė, 2014).

The EU Nomenclature of Territorial Statistical Units (NUTS) classifies regions at five levels: NUTS I - usually the entire country, but in some cases there may be smaller territorial entities related to the federal system of these countries (3-7 million); NUTS II - relatively large regions (800 thousand - 3 million); NUTS III - intermediate level between region and

municipality (150-800 thousand); NUTS IV - municipality; NUTS V - territorial units smaller than municipalities (eldership) (European Parliament and Council Regulation No. 1059/2003).

Basically, the concept of region and its diversity was analyzed by G. Burbulytė (2005), who came to the conclusion that in economics the term region is used and understood quite loosely, it is applied to various territorial units. They are distinguished by the fact that such regions do not have strictly defined boundaries, often they even overlap. A more specific concept of region is applied in regional economics, where a region is usually understood as a sub-national territorial unit. Concepts of the region used in domestic (public) and international politics differ. In domestic policy, regions are usually perceived as strictly defined sub-national (legal) territorial units, to which regional policy is applied as part of the state's economic policy, therefore, regional research conducted in domestic policy has a lot in common with regional economics.

The "White Book" of Lithuanian regional policy (2017) defines a region as a territory that is characterized by geographical, social and economic integrity or management principles that distinguish it from other territories. By applying different definition criteria, different types of regions can be named. In the White Paper, the concept of region is used to designate regions allocated to public administration, with its characteristic institutions, functions and budget (administrative regions), natural systems of economic development, movement of workers, interaction between urban and rural areas (functional regions) and used for the preparation of harmonized statistics and development planning regions (statistical regions).

In summary, it can be stated that various Lithuanian and foreign scientists define the concept of region in different ways. It should be noted that although each regional researcher defines the concept of region in a different way, in order to highlight something of his own, three characteristics common to all definitions of regions are always followed: territory, specialization, economic relations (Česonis, 2012).

Region content can be exposed through the control layer. As stated by J. Sinkienė and K. Grumadaitė (2014), the regional level of state governance, as a modern part of the multi-level governance system, is characteristic of many European states. Regions are the main targets of governments' efforts to promote growth, raise the level of well-being and reduce inequalities. The responsibility for the development of public transport, infrastructure, tourism and culture is increasingly being transferred to the regions, and the role of the regions in the context of the country's economic development is being strengthened.

J. Sinkienė and K. Grumadaitė (2014) present regions as a smart social system (Fig. 1) and suggest to consider such a "social system which, while maintaining relations with the environment, is able to see in it critical signs or their system, which are quickly and reacts resourcefully, adapting to this environment with adequate solutions and using it to achieve its goals".

Subsystems of the region as a social spatial system: community, economy and public management, which interact with each other in a specific cultural environment, one of the expressions of which is the built environment necessary for the successful development of the system, in order to achieve the common goal of the community members of the region - a high quality of life.

A smart regional model can also be seen as a tripartite cooperation (English triple helix), which consists of 3 essential components - universities; industries (business actors) and governments (public policy actors) (Li et al., 2020). According to this model, regional development processes are determined not only by mutual coordination between universities and industry, industry and government, and government and university pairs, but also by three-way/constituent interactions and cooperation. Extensive and intensive cooperation helps to create a more favorable environment for entrepreneurship, culture, health, etc. an environment consisting of academic institutions and research centers, business organizations, alliances of financial intermediaries and public sector organizations, etc. These organizations also jointly create an entrepreneurial ecosystem that encourages the discovery and implementation of regional development opportunities, creates a rich knowledge/competence environment, promotes innovative activities and facilitates the commercialization of innovative products, which ultimately promotes the growth of prosperity and the creation of new directions in the region (Capello and Lenzi 2016; Gordon Gordon and Champion, 2021).

S. Papagiannidis et al. (2009) note that high-tech organizations benefit greatly from being located near universities, as such geographic proximity guarantees access to important new resources, including highly skilled workers and proprietary technologies, which are essential for their survival and growth. Universities can also directly contribute to the growth of regional entrepreneurship by establishing university-invested or university-managed new organizations (Boardman, 2009). The public sector also plays an important role in this tripartite cooperation in developing innovation and entrepreneurship policies, providing direct assistance through financial instruments or tax incentives to priority sectors or organizations in a specific field, creating intermediate organizations such as risk incubators, high-tech zones and science parks to foster favorable macro environment (Neil et al., 2014).

C. Jesus and M. Franco (2016); T. Costa and M.J. Research conducted by Lima (2018) reveals that stakeholders understand the importance of cooperation to achieve synergy, ensuring the development of regions, at the same time the development of tourism, contributing to the satisfaction of tourists/patients' expectations, as well as economic growth and the creation of social benefits for local communities. By cooperating, organizations reduce the cost of actions in the market, prepare a common strategy, achieving greater efficiency and development.

Y. Willi et al. (2020) when examining the constituent parts of the content of regions included a relevant focus - the regional development agency (regional institution), whose purpose is to develop a culture of cooperation, to ensure the coordination of development and organizational partnership processes. As noted by B. Kraft and S. Wolf (2018), it is important that the regional development authority has the skills and experience to prepare an integrated strategy involving all interested parties. It is also important to maintain a culture of organizational partnership in order to ensure that the priorities and tasks identified in the integrated strategy are effectively implemented. This will form good practices for local public and private sector organizations.

Analyzing aspects of organizational partnership theory, as noted by R.W. McQuaid (2000) and M. Goodarzi et al., (2015), the first question to be answered is – what is the aim of the partnership? This includes strategic goal setting. Other aspects of partnership theory include: identification of key actors in a partnership supported by mutual trust, commitment and benefits; partnership structure and operational mechanism, identifying who is responsible for planning, organizing, directing, controlling, as well as all written and unwritten, formal and informal agreements that will be used to manage the partnership process; allocation of responsibility; communication systems, open access of all partnership members to information exchange; the compatibility of the organizational culture, when the goal is to understand the different cultures of all members of the partnership; development, implementation and evaluation of a common strategy. The partnership mechanism must be based on equality, mutual benefit and accountability. R. Karsokienė and A. Giedraitis (2021) notes the integral cooperation can be seen as a mobile, flexible and organized activity.

Analyzing the scientific literature, various descriptions of the concept of organizational partnership are found (do an analysis) (Table 1).

**Table 1.** Concept of organizational partnership

Author, year	The concept of organizational partnership
McCrystal & Godfrey, 2001	The sharing of common activities, power, obligations, resources, and responsibilities by two or more business units.
Harnesk, 2004	A holistic approach that includes systems thinking and manifests itself in modern management. A partnership is created by trying to achieve a win-win in activities with suppliers, clients of the company or other interested organizations.
Wallace, 2004	The convergence of two or more separate business units for a common purpose.
Tipler, 2005	A relationship that is created out of mutual interest, so that both parties involved will benefit from the agreement and fulfill joint obligations.
Min & etc., 2005	Several organizations are creating a common performance management culture in order to achieve common results and goals that would bring benefits to the parties bound by the partnership relationship.
Petrauskienė & Raipa, 2007	Joint activity with and for the benefit of society, not leading it "from above".
Lambert, 2008	The relationship between various business units is based on openness, togetherness, trust, sharing of benefits and risks in an effort to increase business efficiency.
Legal Information Institute, 2008	A union of business units based on mutually acceptable benefits and sharing of profits or losses among themselves.
Franco & Estevã, 2010	A relationship that involves: sharing power, work, support, and information with others for common goals or mutual benefit. Partnerships are recognized as a form of collaboration that is important in promoting long-term strategic thinking.
Prosevičienė, 2010	This form of inter-organizational interaction manifests itself as an intensive form of inter-organizational interaction aimed at implementing various programs and solving problems. It is based on participation and open communication between members, as this is how information is shared and partners are supported in joint pre-planned activities, the results of which are constantly analyzed and evaluated.
Schuppert, 2011	A form of horizontal consultative cooperation in management networks.
Štaraitė, 2017	A self-organized, non-hierarchical alliance in which interested persons from one or more levels of management, business areas or the local community pursue common goals, have common duties, rights and responsibilities, exchange information, share resources, skills, experience and risks, develop competences and qualifications.

Summarizing the concepts of organizational partnership, it is possible to present common features/characteristics that reflect organizational partnership and the areas examined by the authors: it is a relationship based on cooperation (Griesienė, 2014); these are relations established by agreement (contract); activities managed by multiple business units; relationships that are based on a common goal; joint activities aimed at obtaining mutual benefit; a process that causes one to engage in a joint activity; relationships based on shared risk sharing; a relationship that forces the sharing of benefits, profits or losses. As one of the essential characteristics, the author singles out that it is a form of inter-organizational interaction focused on a long-term perspective. This long-term organizational partnership is based on a shared (equal power) management culture that includes a holistic approach to joint operations.

Applying the analyzed insights related to the concept of partnership in the context of health tourism, it can be stated that partnership in the health tourism industry is an inter-organizational relationship based on cooperation, formalized by agreements (contracts), based on mutual trust and equal decision-making power, and forcing all participating parties to be involved in creating a common operational strategy, focusing on the achievement of common goals, sharing profits, losses and risks. Strategic planning on national and regional levels should cover policy of tourism

development, structural plan, standard of sites, institutional factors and all the other elements necessary for the further promotion and management (Kadagidze and Piranashvili, 2016). The health tourism industry has to be able to adapt to a continuously changing environment, where the sudden economic and social changes can modify the whole scheme overnight (Zsarnoczky, 2018).

## Methodology

Expert evaluation is understood as a generalized opinion of a group of experts, which is obtained by applying the knowledge, experience and intuition of specialists - experts. The expert evaluation method is a procedure that allows you to harmonize the opinions of individual experts and make a joint decision. Expert assessment is usually applied in the study of some problem, process or phenomenon, when special knowledge and abilities are needed, and the results of the study are presented in motivated conclusions or recommendations (Augustinaitis et al., 2009).

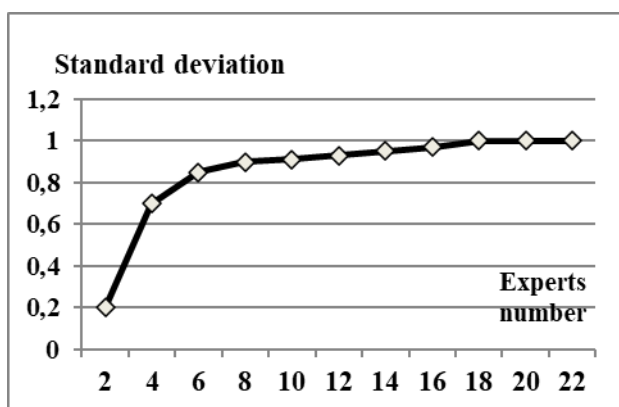
During the research, an expert assessment is carried out in Lithuania. During this stage of the research, 12 experts were selected (Table 2), who provided answers to the expert evaluation questionnaire.



**Table 2.** List of informants for expert assessment

Expert code	Characteristics justifying the expert's competence
E_LTU_1	"X" cluster executive director.
E_LTU_2	"X" association manager.
E_LTU_3	"X" cluster executive director.
E_LTU_4	"X" association manager.
E_LTU_5	Klaipėda University professor.
E_LTU_6	Šiauliai University professor.
E_LTU_7	Professor of the Lithuanian Sports University.
E_LTU_8	Vilnius University professor.
E_LTU_9	"X" municipal tourism board chairman.
E_LTU_10	"X" municipal tourism information center manager.
E_LTU_11	"X" municipality vice-mayor in charge of tourism.
E_LTU_12	"X" municipality administration director.

**Determining the number of experts.** Determining the acceptable number of experts is guided by the methodological assumptions formulated in classical test theory, which states that the reliability of aggregated decisions and the number of decision-makers (in this case, experts) are connected by a fast-disappearing nonlinear relationship (Figure 1). It has been proven that the accuracy of the decisions and assessments of a small group of experts is not inferior to the accuracy of the decisions and assessments of a large group of experts (Libby, 1978 cited in Baležentis and Žalimaitė, 2011) in aggregated expert assessment modules with equal weights. In the study, the expert evaluation is carried out with the involvement of 12 experts, so we can consider the number of research experts and the obtained results to be reasonable and valid.



**Fig. 1.** The dependence of the standard deviation of expert assessments on the number of experts, compiled according to, A. Baležentis and M. Žalimaitė, 2011

The following criteria were applied when selecting research experts:

- Available competence in the field of health tourism (work experience; qualification).
- Degree of participation in solving health tourism problems.

- Impartiality to the investigation.
- Existing connection with the researched topic and scientific problem.

## Results

During the expert assessment, the aim was to identify the fundamental problems of Lithuanian health tourism, the effectiveness of regional management principles in the context of organizational partnership and the structure of the mechanism as an organizational regional partnership. In accordance with this consistency, the results of the study are presented.

Analyzing the problems of health tourism, the experts distinguished that the following are the main obstacles to the development of health tourism as one of the branches of the tourism industry in Lithuania:

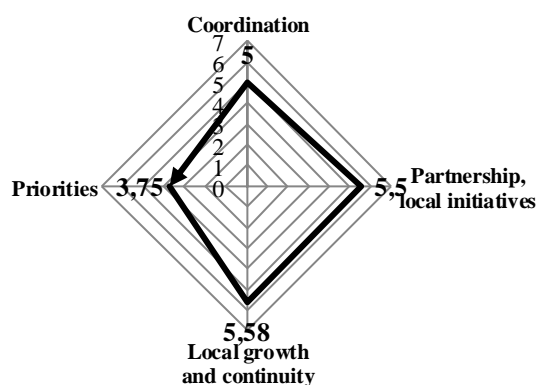
1. There is no clear and unified health tourism platform (11 experts noted).

2. The public health care sector is insufficiently adapted to foreign patients (10 experts noted).

3. Undeveloped partnership opportunities, a more individual approach to financial accountability and profit-making prevails (9 experts noted).

4. There is no properly developed quality of medical services, as well as a system for monitoring and evaluating results (8 experts noted).

When forming the regional organizational partnership mechanism in the health tourism management system, it is appropriate to evaluate the effectiveness of regional management principles. According to the expert assessment, it was determined that the most effective principle of health tourism regional management is considered to be local growth and continuity, while the weakest link is the setting of priorities and their refinement (Figure 2).



**Fig.2.** Effectiveness of regional policy principles

**Coordination.** The success of regional policy implementation directly depends on the coordination of the activities of various interested state and municipal institutions — first of all, when planning investments from public sources.

**Partnership, local initiatives.** Real sustainable development is carried out at the regional and local levels.

**Local growth and continuity.** These interrelated principles show that the most important goal of regional policy is to contribute to the development and

development of business in the areas in order to create a sufficiently strong economic potential in each region.

Priorities. Only pre-selected areas specified in the National Socio-Economic Development Plan will be supported, in which they are included in planning the future development of the national economy and regional economy.

When assessing the regional management structure of the organizational partnership, experts make the following proposals, first of all: attraction of EU structural funds and business investments for development; create a common regional health tourism strategy covering all regions of Lithuania; to prepare a standard for the provision of health tourism services in order to ensure the availability and quality of services; development of partnership and communication between state medical institutions and private medical institutions. Second, to form a new regional organizational partnership structure that would ensure the following functions: work coordination of all system participants; interaction with facilitators, intermediaries, suppliers, dispatchers; marketing; legal support; regulation of financial flows and mutual settlements; control process (service expertise); interaction with external and internal participants of the health tourism segment.

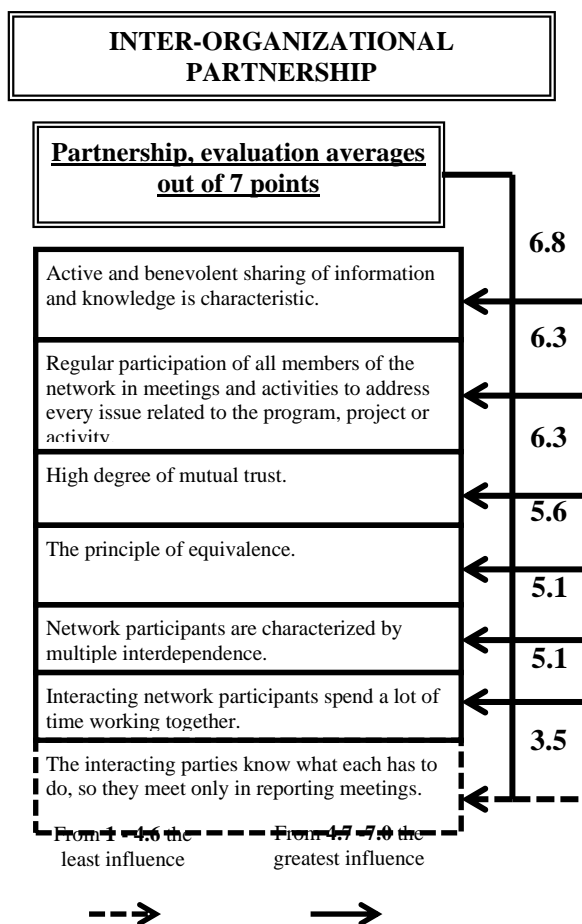


Fig. 3. Features of inter-organizational partnership

According to experts, it is important to reveal the influence of the features of organizational interaction on achieving the result of cooperation. Developing partnership relationships is an important foundation for creating and maintaining mutual effectiveness. In the created structure, the influence of partnership features is marked from the smallest to the largest, according to the goals, network management, risk management and partnership.

According to the goal of inter-organizational interaction, the most influential feature is the result created by the joint efforts of all interacting parties (Figure 3). In order to ensure the effectiveness of network management, the greatest influence is: active and benevolent sharing of information and knowledge, which is highly dependent on the degree of mutual trust and active participation of network members in meetings and activities. Risk management is dependent on the involvement of participants in the process; adherence to a common unified strategy and shared risk among network participants. Mutual partnership is based on: sharing responsibility by consensus; equal decision-making power.

In conclusion, it can be said that the regional organizational partnership in the health tourism industry will be successfully developed when all interested and interacting parties actively and willingly share information and knowledge, which is highly dependent on the degree of mutual trust and the active participation of network members in meetings and activities. Risk management is also an important aspect dependent on the involvement of participants in the process; adherence to a common unified strategy and shared risk among network participants. Mutual partnership is based on: sharing responsibility by consensus; equal decision-making power.

## Conclusions

Regional partnership management is a theoretical concept used to emphasize the coordination of regional development processes and self-regulation of stakeholders that arise in complex situations requiring the cooperation of state and non-state actors; these stakeholders represent the state and non-state spheres and have different backgrounds, interests and agendas.

Features describing the concept of organizational partnership: relationships based on cooperation; relations are established by contracts; activities are managed by several different business entities; relationships that are based on a common goal and relationships that are based on the sharing of common risks.

It has been established that effective partnerships between health tourism organizations are ensured by the following factors: trust and commitment; mutual responsibility; attention to process; a clear decision-making process; sharing of problems to be solved.

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**Sarunas Banevicius** is a assoc. prof. at Lithuania Business College and Head of Tourism and Communication Department. He graduated PhD of Social Sciences, (Management) in 2021. <https://orcid.org/0000-0002-5942-9966> Research interests: Health tourism management system, organizational partnership, innovation process. Address: Turgaus g. 21, LT-91249, Klaipėda. Phone: +37063039532. E-mail: [sarunas.banevicius@ltvk.lt](mailto:sarunas.banevicius@ltvk.lt)

**Regina Narkiene** is assoc. prof. at Lithuania Business College and Head of management department. Research interests: regional development and sustainable development, management of innovation systems, consumer behavior. <https://orcid.org/0009-0000-2238-6336> Address: Turgaus g. 21, LT-91249, Klaipėda. Phone: +37067617752. E-mail: [regina.narkiene@ltvk.lt](mailto:regina.narkiene@ltvk.lt)



## **THE RELATIONSHIP BETWEEN TORRENTING AND STREAMING SERVICES**

**Bence Miskoff, Tibor László Csegődi**

*Hungarian University of Agricultural and Life Sciences, Szent István Campus, Gödöllő, Hungary*

### **Abstract**

The basic question of this research is for what reason and in what proportion Hungarian users choose torrenting, streaming, or possibly both methods to access online content. An important question is also what advantages and disadvantages are attributed to different content access options, but the research also provides information regarding consumption services related to different content (films, series, music and games). On the one hand, the research presents the relationship between torrent and streaming services in the Hungarian online marketplace, as well as a general survey of the market reorganization between torrent users and streaming service users. According to the traditional procedure, after the secondary research, the survey continued with qualitative and then quantitative research, mainly in relation to persons between the ages of 18-30. During the qualitative research, the interviews were conducted one by one. The questionnaire contained two types of questions, one focused on those who chose the streaming service, and the other on those who chose torrenting. The quantitative research was done using the Google system. The main topics of the questions focused on the consumption of different contents and the assessment of advantages and disadvantages. The research revealed that the respondents in Hungary consider streaming services to be overpriced, and in this context, they are not satisfied with the price of the service and, in this context, with the range. The majority of respondents do not use streaming services for music. HBO Go is the most used online service for watching movies and series, presumably because of its distribution linked to the TV service. In the gaming industry, Steam's service enjoys outstanding support among consumers, but it can be observed that new entrants can easily gain a lot of recognition in this sector. The respondents see torrenting as a kind of guarantee before buying, as they can try the given product, on the basis of which they can decide whether the purchase is worth it for them. This research provides a kind of basis in the future, so that the streaming service market can more easily adapt to Hungarian market conditions through other research, so that the needs of domestic consumers can be served more easily.

**KEYWORDS:** torrenting, streaming services, online content service, consumer preferences.

### **Introduction**

Online shopping is gaining more and more ground in the world. Entertainment products such as movies, music, and games are now very easily accessible via the Internet, but of course alternative access to products can also be observed in this market segment. Torrenting is a particular type of illegal downloading. It is peculiar, because on the one hand it is technologically good, because it is suitable for moving large files (large amounts of data), on the other hand, it is bad, because it can be used to distribute copyrighted content illegally. In and of itself, the above, as well as the novelty of the topic and its potential, provide enough motivation for the creation of a study. The main goal of this thesis is to present the relationship between torrent and streaming services in the Hungarian online market, and to examine the development of general consumption habits on these platforms with a non-representative survey. The survey primarily examines the consumption habits of the 18- to 30-year-old age group, as this age group uses these services the most (Habók, 2017). One of the objectives of the thesis is therefore to provide insight into the film, music, and game industries (in the case of the latter, streaming is not yet fully available, but due to the size of the sector and its online sales, it is necessary to take it into account), which are the most popular service providers on the Hungarian market. The thesis also wants to present what the interviewees consider advantageous or disadvantageous when shopping online or torrenting. One of the assumptions of the research is that consumers

of online content - especially domestic ones - are price sensitive, but at the same time, the COVID closures increased the interest and demand for online content, especially in the young age group. However, all of this allows us to preliminarily conclude that this topic - in addition to being rather foreign to some age groups - is also very immature, and that it is still taking shape within the framework today. It is very difficult to predict future trends, but the study will also attempt to do so.

### **Literature review**

The torrenting is when, with the help of a so-called client program, parts of the digitally cut software or content are downloaded to the given machine from the fastest access source. The bandwidth of the server is of decisive importance for downloads, so the files are transmitted in pieces, with the help of one or more machines. The more machines that share the pieces of the file, the faster the download. Uploading, re-uploading or sharing copyrighted files is considered a crime in our country (Ibolya, 2011/2). The environment can have a significant incentive effect on a person's piracy habits, even if the person is morally neutral about piracy. Such an effect can be, for example, the desire to belong to a reference group. It is also necessary to consider the extent to which the given person estimates the value of the given product, the chance of being exposed, and the extent of the given punishment (Doktor, 2016). In recent years, more and more people are choosing streaming services instead of downloading movies, music, and games "for free". During streaming, the data of the given content,

film, and music are transmitted in compressed form and in packets via the Internet to the user's media device, thereby enabling immediate viewing and consumption of the given content. Previously, the given content could only be viewed, files could only be opened when the entire data set was transferred to the user's computer. Streaming services allow users unlimited browsing of their offerings for a fixed monthly fee, just like in the case of cable television. The disadvantage of streaming services compared to torrenting is that torrenting is "free" and has a larger offer than individual service sites. Streaming services, on the other hand, can compensate for this disadvantage with convenient, simple use, and with the fact that the "system" can also recommend other programs to the consumer, considering consumption habits.

In the traditional television service, the programs and advertisements are compiled according to a predetermined schedule, connecting the producer with the consumer and the advertising agencies. Streaming services are a distribution channel that specializes in the attention of individual consumers and does not just segment consumers as a large group. In addition, manufacturers can reach consumers directly, and the scope of advertising opportunities also expands in this area. The latter services can be classified into four main business models:

- Corporate subscription networks that also have their own programs (this includes, for example, Netflix, HBO, or Amazon). These providers can make themselves independent from the bigger brands due to their own productions, but the translation into different languages is slow.

- Service providers supported by "corporate" advertising finance their operations from advertising (Spotify's "freemium" service can also be classified here as an example). For these providers, it is a big challenge for providers to stay competitive with linear television service in terms of quality in terms of choice. They don't have the influence of a traditional television service and they don't have the social influence that YouTube has.

- The third type is the "multi-channel" network, such as the previously mentioned YouTube. Such services have many creators and viewers can also support individual content producers, but these providers "shop themselves" to different content producers.

- The last type includes independent, i.e., "indie" service providers. The financing of these is the most difficult since content producers only earn income from consumer subsidies. "Indie" services can be very diverse, or subscription-based, but their activity can even be based on crowdfunding. These services are easy to start, but as easily as they can start, they can disappear just as quickly due to financing problems (Jean, 2015).

With the spread of the Internet and the service options available on this platform, it is now possible to respond flexibly and across national borders to emerging needs. Although the start of the streaming service encountered obstacles at first, as the data transmission speed was lower than the playback speed, the monthly fee was still affordable, the service could be tried out for free, the offer could be viewed by the consumer at any time, so that there was no need to adapt to the service provider. As

a result of such services, the number of cable television subscriptions in the USA began to decline in the 2000s. Noticing this decline, the television companies introduced the OTT, i.e. "Over The Top" media system, which, in addition to the traditional cable TV service, offers the consumer the opportunity to, for example, rent movies within the video library of the given service provider. Multichannel television program distribution providers, i.e. MVPDs ("multichannel video programming distributor"), which already transmit the content of their channels on the Internet, and in addition, the given program can only be viewed at a given moment. The advantage of MVPDs over traditional cable television services is that consumers are not forced to choose between pre-assembled channel packages but can choose which channels to subscribe to according to their own needs. In parallel with MVPD, service providers that are only available on the Internet have spread, these service providers allow access to only one channel or the channels of a company group, such as HBO Go. (Pintér et al., 2016) In a 2016 research survey carried out by Internet researcher eNET in Hungary, it was found that 86.4% of Hungarian Internet users watch some video content on the Internet, and 33% of Internet users use torrenting once a month. The three most important requirements for the given service were revealed: the programs must have Hungarian dubbing or subtitles; the service must have a wide range of programs and be free of advertising. Before the launch of Netflix in Hungary in 2016, several service providers already competed on the streaming market. Those surveyed mostly used the service of RTL Most, followed by HBO and Digi Online, lagging behind to a large extent. When Netflix entered the market in 2016, according to the research, its awareness was already 28.5%. This relatively high degree of recognition was achieved without the service being supported by any advertising campaign (Pintér et al., 2016).

At the beginning of the technological evolution of the music industry, radio was designed to serve the needs of the masses, unlike the service model of today's mediums, and it targeted little or no individual consumers. In 1981, the first television channel presenting music was launched under the name of MTV, with the appearance of which, in the 1980s, music marketing and music video production became a separate business. At the same time, after the cassette era, digitization began with the spread of the CD. Since the 2000s, the number of CD sales has continuously decreased, and although radio is still an important factor, the industry has moved to the Internet to a certain extent, as radio channels that can be listened to on the Internet and application-based services have appeared (Rooij, 2016). As the music industry went online, piracy also modernized. The British Phonographic According to an Industry survey conducted in 2012, 60% of music downloads are done illegally. This ratio represents approximately 345 million music tracks in the first half of 2012 alone (Taylor, 2013). In addition, the files were quickly and cheaply transferred to the individual devices, so the publishers' suffered damages in several ways. The first file sharing service that caused serious problems for the music industry was "Napster". By December 1999, this service already had one million

users in half a year. The essence of the model was that it was enough for a user to buy the given album, which he then uploaded to this site, thus opening the possibility for other members to access the music without paying for it. Of course, there were also problems with the later streaming services, for example, Spotify repeatedly did not pay the royalties to the artists, who thus suffered a loss of income in the same way as if they had just downloaded their tracks. The business model of Spotify (and other similar services such as Grooves-hark, Pandora, Deezer) is the "freemium" model. In addition to the free version, there is also a paid version of the service, which allows access for a monthly fee, but in return, the service is free of advertisements. In addition to the maintenance of the service, royalties are also paid from the income of both the "freemium" and the paid service. The new form of service, streaming, can improve the status of the music industry compared to torrenting, if interests are clarified between content producers, distributors and consumers (Rooij, 2016).

In the online space, we can also talk about openly available torrent sites (such as The Pirate Bay, or Kickass Torrents), which can be accessed by anyone without registration, although users have switched to closed, invite-only networks to protect themselves and their computers. There are networks that have been formed locally, on a linguistic basis, according to a theme or a combination of these. An example of this is Ncore, which requires users to upload content for others as support after downloading. In the case of torrenting, the power of fresh public films is strongly decisive in a part of the offer, but at the same time, according to a 2011 research, online black markets are more of a gap-filling nature than a substitute. Furthermore, it was also revealed that the films belonging to the strata genres appear as a kind of archive on the file-sharing sites, so the torrent site forms a kind of transition between video rental and online movie watching. It can also be observed that since torrent sites contain several genres, individual consumers have the opportunity to start experimenting and can look into other film genres as well (Bodó et al., 2011). Free file sharing procedures have forced service providers to appear online at all. The Recording Industry Based on a 2014 survey by the Association of America, it appears that between 2004 and 2010, a 34% drop in revenues was observed in the music industry. In fact, we cannot even speak of a decline since the income was invested in technological change. One of the positive benefits of this is that the consumer no longer needs to buy tracks from the album that he does not like, thereby reducing the chance that the consumer will choose the pirated version (Doktor, 2016). Torrent sites can also serve as an archive for certain products, and the downloaded product can also serve as a kind of product sample, which can also have an incentive effect by making the consumer buy the given product. Of course, in the case of larger, more famous performers, the effect is smaller, since their own reputation also has a sufficient stimulating effect on consumers. Free access mainly helps smaller, still emerging creators, but it is only functional in relation to the music industry, as the connected services are able to make up for the loss of income from downloads. In 2011, Apple tried to tap into this market opportunity. The monthly iTunes Match

service has been launched, which for 25 euros per year searches for the tracks on the given data carrier and, upon user request, replaces the files with a good, high-quality version from the iTunes range (Bizó, 2013). In the game industry, even demo versions available for free can cause problems in selling the given product. If the demo of the given product is not only stimulating, but also satisfies the customer's needs, then he will no longer need to buy the product, so the situation is the same as if he had just downloaded the final program (Doktor, 2016).

Video games first appeared in the late 1940s, but today, due to rapid technological advances, copyright protection in this industry must not only apply to the specific product. It is necessary to protect certain parts of the given product separately, for example, in addition to the software, the line of code that maps the graphics process (also known as the graphics engine) or, in the case of multiplayer mode, the program that filters out cheats. Nowadays, the game industry also relies heavily on online distribution (Bachell et al., 2014). The first prominent online service is Valve It was Steam owned by Corporation, launched in 2004. Steam included the retail distribution of games, Digital Rights Management, created an opportunity for freelance developers and consumers to connect, and created a social platform for gamers. At first, Steam received a negative reception, as running the program required a continuous online connection and took resources away from the computer's performance, but since 2004, following Steam, several game publishing companies have created their own distribution networks (Moore, 2009). The protection procedures used to filter out pirated versions often bothered even those consumers who bought the software in the original version. In this regard, we can mention the client software of Electronic Arts Origin, which, after getting onto the computer, began to examine the hard drives of the computer as a kind of spy virus (Usher, 2019). In the gaming industry, there have been several attempts to create a kind of cloud-based solution. The most successful attempts at the moment (nowadays) are "Stadia" published by Google and Nvidia corporation launched by "Nvidia GeForce Now". Google "Stadia" was released in November 2019, the service is available for free or as a monthly fee (\$9.99/month), which allows users to access new game software every month at a discounted price (usually a 50% discount). Games can be purchased at full price for free users. "Stadia" is currently available in a limited way in only 14 countries. Google's service works as a separate gaming platform, like the Xbox or Playstation gaming platforms (stadia.google.com, 2019). Stadia's competitor, Nvidia GeForce The development of "Now" began in 2015. In order to use the service, it is necessary to install Nvidia on the computer GeForce Now program, through which the user can connect to the Nvidia server in order to run the given game software. The service is limited to running games only, game software cannot be purchased through this service. The user must have a Steam, Uplay, or Epic Games Store account and purchase the game software on these platforms to be able to play them through GeForce Now. GeForce Now will be available in two ways, for "Free" users the use of the service is limited to one hour of playing time, for "Founders" (who

pay \$5.49 per month for the service) the service offers the opportunity, to run the given software for a longer period. When the time expires, the workflow can be restarted immediately in both cases, but the "Founders" have priority during logins in terms of using free machines (nvidia.com, 2019).

In Hungary, approximately 1.7 million people used some kind of torrent service. The amount of damage caused by downloads can reach the level of the infringement amount even by downloading some movies for business purposes. The license fee can be a minimum of eight hundred dollars per film, in the case of music tracks, the royalty table of the Association of Hungarian Sound Recording Publishers is the guideline. In the case of software, the retail price of the product is considered the guiding principle (Parti et al. 2014). Not all users of file exchange programs and torrenters can be considered criminals. According to the law in Hungary, downloading and copying of films, series, music and games and other products protected by copyright is allowed without payment of a fee or the permission of the author, if this downloading or copying is not done for the purpose of earning income. On the other hand, during uploading ("seeding"), the person who previously downloaded already commits a crime. At the same time, the basis of torrent technology is that downloading is accompanied by uploading, and the user can prevent this by using the download software or the computer's firewall. Reloading does not take place even if there is no other downloader of that content. In Hungary, the main targets of the authorities are various groups that commit violations worth several million forints, and the attention of the National Investigation Agency is primarily focused on paid torrent sites (Ibolya, 2011/2). According to a research from 2004-2008, during this period, in the European Union, the income of the music industry decreased by 26%, but the decrease continued from 2008 to 2011 (Pez, 2014). Because of such effects, several European countries have introduced strict regulations. In France, the agency responsible for the protection of copyright and the supervision of works distributed on the Internet, HADOPI (Haute autorité pour la diffusion des oeuvres et la protection des droits sur Internet) began to monitor private individuals' downloads of copyrighted products. If a person illegally downloads content, they will receive a warning twice, first by e-mail and then by registered post, the third time the user will either receive a fine ranging from 1,500 to 3,000 Euros or their internet access will be suspended with the help of the internet service provider (maximum one year). During the suspension, the user may not enter a contract with another internet service provider. Although Internet access is not restricted by law in the United Kingdom, if the service provider discovers that the user is committing an illegal act, it can collect data about the user after the three warnings and forward this data to the right holder. It is a condition that less than one month must pass between two notifications. Although these two regulations have enough power to deter users from illegal activities, it can be seen that they may violate human rights due to the limitation of information (Kovács, 2010).

## Methodology

The research presents the relationship between torrent and streaming services in the Hungarian online marketplace and proves the market reorganization between torrent users and streaming service users. The research tried to find an explanation for what might be the motivation of torrenters and those who choose streaming services. The research was primarily focused on assessing the relevant consumer patterns of the age groups between 18 and 30 years old, after the secondary research, qualitative and then quantitative research followed. During the qualitative research, subjects with different educational qualifications and different incomes answered the questions, while the quantitative research was made with the help of a Google questionnaire, the completion of which was voluntary. Before starting the research, the following hypotheses could be formulated:

1/Hypothesis A: Many people use torrenting to access copyrighted content in Hungary.

Hypothesis 1/B: Users of torrent programs are sufficiently aware of the characteristics of torrenting.

Hypothesis 2: In addition to using streaming services, most respondents also use torrenting.

Hypothesis 3: In terms of movies and series, the respondents mostly choose Netflix and HBO Go.

Hypothesis 4: When listening to music, people do not primarily access the content through streaming providers.

Hypothesis 5: Torrenters mostly download music.

Hypothesis 6: Before purchasing software, consumers consider it a safe solution to download the given software.

Hypothesis 7: Consumers perceive streaming services as overpriced.

Hypothesis 8: Consumers are disturbed by advertisements in streaming services.

Hypothesis 9: In the shrinking market of streaming services, consumers would be willing to pay more if they could consume the services of several competing providers in one package.

During the qualitative research, the questions were formulated in two ways. The introductory questions tried to ensure that the given person was sufficiently prepared to answer. Another purpose of the filter question was to find out whether the respondent prefers torrenting or streaming services when consuming content. Based on this, the qualitative research continued based on the question. The screening question was followed by questions designed to assess the factors motivating the choice of the given method. After the motivation questions, the purpose of the questions to explore the advantages and disadvantages was to develop a general picture of the different methods, and to know what content consumers consume and where. At the end of the interview, the closing questions and the demographic questions were asked. The *raison d'être* of the closing questions was that it revealed what tools could be used to guide torrenters towards streaming, and how users of streaming services could improve the quality of the service. It is necessary to say in advance that both in 2019 (that is, before the COVID'19 closures) and in 2021, a questionnaire survey of approximately 200 people took



place. This was due to the premise that the COVID'19 shutdowns significantly affected consumer preferences for content services. Google Stadia and Nvidia Geforce Now services were not included in the 2019 questionnaires, as Google Stadia was not available in Hungary, and Nvidia Geforce Now was still in the development phase at the time of the first research.

## Results, conclusions

Based on the 2019 survey, it can be established that more than three-quarters of the respondents accessed the content through torrenting. Based on this, hypothesis 1/A is acceptable, according to which many people use torrenting to access content in Hungary. Those who choose torrenting are mostly familiar with this method of accessing content to a sufficient extent, which means that hypothesis 1/B can also be considered accepted. From the answers, it can be observed that there is a higher proportion of those who do not fully understand the nature of torrenting than those who use this method. It can be concluded that most of the respondents also use streaming services, so hypothesis 2 is acceptable. Some people also use torrenting as a kind of preliminary test before buying the product, thereby reducing the risk of investing the financial resources involved in using a streaming service. However, this is not true for movies or series. It can also be stated that HBO Go is the most chosen content provider for movies and series among those choosing the streaming service, Netflix is the second most chosen content provider with a 7% choice rate, while Amazon's movie and series service is present with 1% of the on the market. Based on the data, hypothesis 3 can be considered acceptable to a certain extent. In 2019, many respondents did not use a streaming service for listening to music. It follows that hypothesis 4 must be accepted. The choice of low streaming access to music can be explained by the fact that the songs do not have such an ideological value for consumers that they choose the paid solution. In the case of games, the majority of respondents do not use online services. It can be assumed that you are either not interested in consuming this content, or you are accessing it from another source, torrenting. Steam can still be considered an outstanding phenomenon on the market, since its release in 2004, it has been able to retain the most users in a unique way. Electronic Arts Origin and Ubisoft \_ Uplay's service has a significant presence in the market, but lags behind Steam. Steam 's biggest advantage over other service providers is that it sells the products of several different game publishing companies and creates an opportunity for " indie ", i.e., freelance game developers, to sell their products. The new entrant is Epic Games with its release last year, Store was able to reach 10% of those surveyed, presumably due to its good marketing activities, according to which previously released big-budget games were sold for free from time to time. Torrenting was used to the greatest extent by those surveyed to obtain movies. With this result, hypothesis 5 must be rejected. Users tend to download other programs or books to an insignificant extent. The answers to the questionnaire show that almost half of the respondents are not willing to pay for online services, but they were

mostly willing to spend HUF 2-4,000 per month on streaming services. Presumably, those who are willing to spend more are willing to pay for more different types of services or for more services operating in the same sector. The respondents consider streaming services to be overpriced in proportion to their offer, most of the respondents considered this to be a problem, while advertisements were considered disturbing, and the fact that the monthly fee for the service must be paid, even if the given service is maintenance, was considered a problem is under in the given period. Most respondents agree that torrenting is a safer solution before purchasing the program. It can be assumed that the respondents had trust problems with online shopping, so hypothesis 6 is acceptable. Most respondents agreed with the statement that the price of streaming services and the value they provide are not equal, therefore hypothesis 7 is also acceptable. After carrying out a correlation test (with a Chi-square test at a 95% confidence level), it can be stated that, according to consumers, there is a correlation between the overpricing of services and the level of torrenting. The vast majority of respondents strongly agree with the statement that there are too many ads on streaming services that are distracting to consumers. Based on this, hypothesis 8 is acceptable. Another significant result is that many respondents would not be willing to purchase several services in one package if this would entail a certain price increase. Among the respondents who would be willing to buy several streaming services in one package, most would be willing to pay a maximum of 20% more than the price of one service. Based on these, hypothesis 9 must be partially rejected. The average age of the respondents was around 27 years old, which corresponds to the criteria of the research. In terms of education, most respondents had a high school diploma, OKJ (National Qualification Registry) vocational qualification or university bachelor's degree. Regarding the monthly income per person, the average income of the respondents was HUF 122,000, and the standard deviation of the average income was HUF 72,000.

Based on the 2021 survey, it can be stated that more than half of the respondents have already used torrent services to access content, hypothesis 1/A of the previous research is still acceptable. The majority of the respondents were divided on which sites they use for torrenting, based on which hypothesis 1/B is also acceptable. It can be seen from the additional answers that more than half of the respondents use a streaming service. Based on the survey, it can be observed: in addition to the fact that since 2019, streaming services have become even more widespread and these services have become slightly more expensive, some torrenters found it more convenient to subscribe, and for some of those who also use streaming, the service fees have become too expensive. Hypothesis 2 can no longer be considered acceptable in the 2021 research. Hypothesis 3, according to which respondents choose Netflix and HBO Go the most in terms of movies and series, can still be considered acceptable. Many respondents still do not use streaming services to listen to music, so hypothesis 4 must be accepted again. Those interviewed continue to use torrenting to obtain movies to the greatest extent.

With this result, hypothesis 5 must be rejected again. Almost half of the respondents are not willing to pay for online services, and it can also be seen that there are similarly large numbers who are willing to pay HUF 2,000-4,000 for online services. The disadvantages of torrenting were mostly cited by the interviewees as the download time, as well as the fact that there are cases where the files are damaged, or perhaps there are no or few "seeders". Users of streaming services most often objected to the presence of advertisements, and to the fact that if they do not have time to use the given service, the respondents consider the subscription to be a waste of money. The majority of those surveyed agree that torrenting is a safer solution before purchasing the program, but for 2021, opinions are more divided compared to the average. Based on this, hypothesis 6 can be considered acceptable again. Most people still agree that the price of streaming services is not equal to the value they provide, and in 2021 the number of people who strongly agree with this statement increased. For this reason, hypothesis 7 is acceptable. Correlation analysis was repeatedly conducted on the opinion of the overpriced streaming services and on the way the respondents choose to access the contents, with a Chi-square test at a 95% confidence level. It can be stated that, according to consumers, there is a correlation between the overpricing of services and the level of torrenting. Hypothesis 8 can be accepted, which is primarily a problem for users of the freemium service model since advertisements are most present in this operating model. It can still be observed that half of the respondents would not be willing to buy more services in one package if this would entail a certain price increase. Of the respondents - who would be willing to buy several streaming services in one package - they would mostly be willing to pay 20% or 50% more than the price of one service. Based on these, hypothesis 9 must be partially rejected. See Table 1 for a summary. The average age of the respondents was 23 years. Like the previous research, the respondents mostly have a high school diploma, OKJ vocational qualification or university bachelor's degree. Regarding the monthly income per person, the average income of the respondents was HUF 93,000. The lower average income can be explained by the lower average age.

**1. table:** Acceptability of the research hypotheses based on the results of the questionnaire research.

Hypothesis number	Hypothesis	Evaluation (2019)	Evaluation (2021)
1/A	Many people use torrenting to access content in Hungary.	accepted	accepted
1/B	of torrent programs are sufficiently familiar with the procedure and are aware of the concept of torrenting.	accepted	accepted
2	streaming services, the majority of respondents also use torrenting	accepted	denied
3	In terms of films and series, the respondents mostly choose Netflix and HBO Go.	accepted	accepted
4	In the case of listening to music, people do not primarily access content through streaming providers.	accepted	accepted
5	Torrenters mostly download music.	denied	denied
6	Before purchasing software, consumers consider it a safe solution to download the given software.	accepted	accepted
7	Consumers perceive streaming services as overpriced.	accepted	accepted
8	Consumers are bothered by ads on streaming services.	accepted	accepted
9	the shrinking market of streaming services, consumers would be willing to pay more if they could consume the services of several competing providers in one package.	denied	denied

Source: own editing

Torrenting has a right to exist amid Hungarian conditions. Positive effects such as the product sample effect and the easy spread of content, and thus a greater degree of advertising, can help the purchase of the given product. It can be observed that the fragmentation of the market in Hungary has a similar effect as in the USA (Hersko, 2019), so once again, consumers are not willing to pay monthly fees to several service providers, preferring to obtain content through torrenting (Feldman, 2019). A slight decline in torrenting can be observed in the period between 2019-2021, but considering the low risk associated with torrenting and the fact that streaming services have become slightly more expensive, this change is insignificant. Movies and series are the most consumed content among users of both torrenting and streaming services. In the case of listening to music tracks, consumers use the streaming service less, since the music tracks do not have such an ideological value for consumers that they choose the paid solution, and torrenting represents a lower risk for them. From the point of view of the gaming industry, users continue to try out software by torrenting before making purchases. In the online market of the gaming industry, it is observed that more and more participants are entering. Due to these phenomena and the prices of newer products appearing in the game industry, there is a risk that torrenting may continue to grow.

The respondents considered the prices of streaming services to be too expensive in proportion to the range of services offered by the respective service providers. If the offer of the given service provider were to expand, it could mean a greater degree of acceptance, but in addition to the expansion of the offer, it would be a good solution if several service providers were connected. HBO Go's sales solution, that is, the sale of TV and online service in a package, can provide a comfortable transition for consumers to switch to streaming providers. It's hard to suggest changes from the perspective of the music and gaming industry, but Nvidia GeForce Now has promising potential, and Steam and platforms that copy Steam are handling the situation well. Of course, the tightening of official regulations could also reduce torrenting, as the current rules in our country are quite permissive.

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**Bence Miskoff** (1994-2021) was a full-time student at the Hungarian University of Agriculture and Life Sciences (formerly Szent István University) majoring in commerce and marketing. As a teacher, I accompanied the gradual birth of this work from 2019 to 2021: it went from a seminar thesis to a scientific student paper, and finally to a thesis. Unfortunately, he was no longer able to defend his thesis and pass his final exam. With an academic article edited from his thesis, I would like to memorialize my excellently talented but tragically short-lived student. The original manuscript closed in mid-October 2021.

**Tibor László Csegődi**, Dr., lawyer-economist (master's degree in regional and environmental economics), assistant lecturer, Department of International Regulation and Economic Law, Szent István Campus Agricultural and Food Economy Institute of the Hungarian University of Agrarian and Life Sciences. He has an absolutorium in Business and Organizational Sciences, and his doctoral thesis is in progress. His research area: rural development, environmental law, climate protection, energy efficiency, building local climate- and energy-conscious communities. H-2100 Gödöllő, Péter Károly u. 1, Hungary, Tel.: +36-30-981-6424, +36-28-522-000/2148, e-mail: [csegodi.tibor.laszlo@uni-mate.hu](mailto:csegodi.tibor.laszlo@uni-mate.hu)

## Evaluation Report of PhD Thesis

### ***“Business Model Innovation in Crisis: a New Reality for Global Entrepreneurship?”***

*Author: Vaun Gupta (Madrid)*

The dissertation presents conceptualization of business models and innovation and the interaction of these two dimensions is highlighted. It can be argued that research on business models has grown exponentially and since the early 2000's and has emerged as a well-recognized unit of analysis across the spectrum of business and management subject disciplines. This is especially important in times of crisis and uncertainty when organizations seek to maintain sustainability. Innovation has become a key source of organizational and economic growth, and over the years academics and practitioners have increasingly sought to better understand the nature, sources and determinants of innovation. Moreover, during a pandemic, every entrepreneur should consider and follow this emergent approach. Business Model is the way to gain a competitive edge over rivals in the industry and improving business performance. The tactical strategy to seize the opportunities provided by the pandemic is innovation-based crisis management. Innovation is thus one great tool to handle the pandemic and survive in turbulent times. Globally, the pandemic provided several opportunities that startups may find interesting. The ability of entrepreneurs to make well-informed business decisions about the business model innovation, for which having access to trustworthy market information is of utmost importance, is a key factor in successful global business model innovation.

Scientific literature reveals that business models and innovation are seen as interconnected concepts, that explains each other. It can be stated, that business models' foundations draw from three major business sub-disciplines—strategy, entrepreneurship, and innovation—whilst new frontiers (e.g., Industry 4.0, Industry 5.0, sustainability, and networks).

Following this paradigmatic inductive logic, this PhD thesis defines a very clear field of analysis. This thesis strives to solve the following problem, “how small and medium-sized businesses (SMEs) in various industries can innovate their business models to adjust to the new realities of the global markets during the COVID-19 pandemic by offering in directions for business model innovation beyond the pandemic and identifying the long-term implications of the results?” Also the author of this dissertation try to find the practical answer "What does it take for small and medium-sized firms to grow in the midst of a global crisis rather than merely survive it?".

This thesis provides a thorough response. The research problem this thesis addresses is pressing, relevant, and of considerable importance to both the research community and industry. The objective of this research is to determine how businesses might innovate and adjust their business models to become more robust to the COVID-19 pandemic and its aftermath. The research approach is appropriate for reaching the research objective, and the research questions and objectives are clearly stated and in line with the overall research problem. The investigation was executed admirably, and the research design is well-organized.

The study's findings and research design show cohesion and unity. The thesis, which was thoughtfully divided into ten chapters, is a compilation of previously published research articles. Background, the research question, how the study was organized, the background of the literature, and research methodology are all introduced in the introductory chapters (Chapter 1 and 2). The research study's findings are highlighted in the following chapters (3 to 9) as published research publications. The final chapter (chapter 10) synthesizes the research study's findings into actionable recommendations. The results are also examined in terms of their generalizability beyond the pandemics. The study uses a mixed-methods methodology that combines a survey, case studies, and professional experience. Both qualitative and quantitative methods are used to analyze the research data, and the results are presented in an organized and understandable way.

The study's findings are excellent and have important ramifications for both practice and research. According to the research, businesses that have modified and altered their business models in response to the pandemic are more robust and have a greater ability to deal with the difficulties presented by the crisis. The report suggests a number of tactics that businesses can use to innovate and modify their business models, including digitalization, collaborations, and innovating existing business practices. The thesis is well-written and significantly advances the topic. The argument is well-structured and simple to understand, and the writing is clear, succinct, and interesting. The study findings are amply supported by the literature and professional experiences in the thorough literature review. The study's findings have ramifications for both academics and business, and the thesis offers helpful guidelines for innovation beyond the pandemic. I can also see the research project resulting to several excellent publications (6 Journal articles, 2 book chapters and 1 book published by Springer).

*This reflection allows me to say that the topic is relevant; it is important nowadays and the author demonstrates contemporary insights and scientific innovation. The methodological basis and conceptual approach of the study is based on avoiding bias and construct in correct manner. I want to emphasize, that the theoretical analysis is appropriate.*

*The doctoral dissertation of Varun Gupta "Business Model Innovation in Crisis: A New Reality for Global Entrepreneurship?" is seen as the broad theoretical and practical analysis, and can be recommended to Varun Gupta grant the Doctor 's degree in Social Sciences.*

Prof. dr. Asta Valackiene,  
at Mykolas Romeris University, Lithuania Business College  
Faculty of Public Governance and Business,  
Institute of Business and Economics  
E-mail: avala@mruni.eu., asta.valackiene@ltvk.lt;  
Address: Ateities st. 20, LT-08303 Vilnius, Lithuania  
Institute of Business and Economics - MRU (mruni.eu)

## 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](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. Allen 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](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=5b1f3c1064f99d8ba757cde1e135bc0>>.

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.***







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