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Outsourcing in the automotive industry of the Kyrgyz Republic: Development prospects

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Abstract. The study is conducted to assess the prospects for the development of outsourcing in the automotive industry of the Kyrgyz Republic and its impact on productivity, economic efficiency, and innovation in the industry. The study uses statistical analysis methods to process data on production and employment from official sources, a comparative analysis of successful examples of international cooperation, and methods for assessing risks associated with outsourcing. As a result of the study, it is established that outsourcing in the automotive industry of the Kyrgyz Republic helps to reduce operating costs and increase production efficiency. It is also determined that the transfer of non-core functions to external contractors allows companies to focus on key processes, which accelerates the introduction of innovations. It is also confirmed that outsourcing helps to attract international companies, stimulating economic growth, and creating new jobs. However, the risk of loss of control over the quality and timing of tasks, which requires the development of effective mechanisms for interaction with contractors to minimise possible negative consequences, is identified. The study shows that the successful implementation of outsourcing requires the active participation of government agencies to create a supportive regulatory framework and incentives to attract investment. The results demonstrate that outsourcing contributes to the development of related industries such as auto parts manufacturing and IT services, which in turn stimulates the growth of the local labour market. In the long term, the use of outsourcing can become a key factor in increasing the competitiveness of the country's automotive industry in the international arena. The study provides valuable data on the impact of outsourcing on the efficiency and innovative development of the automotive

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industry, which can serve as a basis for developing strategies to optimise production processes and improve economic performance in this industry

Keywords: operating costs; production efficiency; international companies; economic growth; competitiveness

Introduction

Outsourcing in the automotive industry of the Kyrgyz Republic is a vital factor that contributes to the modernisation and optimisation of production processes at the national level. In the context of globalisation and rapid technological progress, enterprises in the country face the need to improve their operational efficiency and reduce costs. Outsourcing provides an opportunity to focus on core competencies, transferring non-core functions to specialised external contractors, which allows optimising resources and accelerating innovation. Conducting a study on the prospects for the development of outsourcing in the automotive industry is becoming extremely relevant, as it provides an opportunity to assess how this approach can contribute to improving production processes, stimulating economic growth and creating new jobs in the Kyrgyz Republic. An analysis of the impact of outsourcing on the industry demonstrates both positive and potential risks, such as loss of quality control and the need to develop effective management strategies. This knowledge is critical for the development and implementation of strategies aimed at the successful use of outsourcing, which in turn can lead to substantial improvements in production activities and economic development of the region.

The gaps in existing research are several key aspects. Insufficient elaboration of effective mechanisms of interaction with contractors means that optimal methods of managing relations between enterprises and external contractors have not been fully examined and described. This includes issues of harmonisation of requirements, quality control, and ensuring timely fulfilment of obligations. There is a lack of data on the long-term effects of outsourcing on production processes and economic development, especially in the context of specific regional features. Existing research often focuses on short-term results and general trends, without considering the unique conditions and needs of specific regions. This limits the ability to assess the full impact of outsourcing on the sustainability and development of the local economy, which requires additional research to better understand its long-term consequences.

M. Lempp *et al.* (2022) emphasise that outsourcing is an important tool for optimising production processes in the automotive industry. The study demonstrates how the transfer of non-core functions to external contractors helps to reduce costs and increase efficiency. T. Tegethoff *et al.* (2023) highlight the role of outsourcing in accelerating innovation by allowing companies to focus on their core competencies. This study also shows that outsourcing helps companies adapt more quickly to changes in the market. F. Kulembayeva *et al.* (2022) focused on the impact of outsourcing on economic growth and job creation. The study demonstrates how the involvement of international companies

can stimulate the development of the local economy. L. Berry *et al.* (2021) noted the risks of losing quality control when using outsourcing. These risks require the creation of effective mechanisms for interaction with contractors to minimise negative consequences. J. Kabus *et al.* (2022) emphasise the need for government involvement in creating a supportive regulatory framework. The study shows how government support can contribute to the successful implementation of outsourcing. J. Pakpahan *et al.* (2021) focus on the impact of outsourcing on the development of related industries such as auto parts manufacturing and IT services. It also contributes to the growth of the local labour market and the creation of new jobs. P. Chakraborty *et al.* (2024) point to the importance of outsourcing in job creation and the growth of the local labour market. The work shows how outsourcing can contribute to the economic development of the region. F. Zhou *et al.* (2021) explore how the successful implementation of outsourcing can enhance the competitiveness of the automotive industry in the international arena. The results confirm that outsourcing helps companies become more globally competitive.

A. Taghipour *et al.* (2022) highlight the importance of developing strategies for effective management of production processes using outsourcing. The study demonstrates how the right strategy can improve results and minimise risks. E. Esmaeili-Najafabadi *et al.* (2021) emphasise the need for a strategic approach to minimise the negative consequences of outsourcing. The work shows how companies can use outsourcing to improve efficiency while considering potential risks. Such gaps in existing research include the remaining insufficient elaboration of effective mechanisms for interaction with contractors and a lack of data on the long-term effects of outsourcing on production processes and economic development in conditions of specific regional characteristics.

The purpose of the study was to assess the potential of outsourcing in the automotive industry of Kyrgyzstan. Study objectives:

1. Investigate the impact of outsourcing on the optimisation of various stages of the production cycle in the automotive industry of the Kyrgyz Republic.
2. Consider the role of outsourcing in stimulating economic growth and creating new jobs.
3. Assess the risks associated with the loss of quality control and offer recommendations for effective outsourcing management in this context.

Materials and Methods

In the course of the study, the economic efficiency of outsourcing was evaluated using methods of statistical and

qualitative research. The assessment of the economic efficiency of outsourcing was based on statistical data from official sources. These data allowed tracing the dynamics of production and employment in the industry, which became the basis for further conclusions. An important aspect of the study was a detailed assessment of changes in production performance and employment levels as a result of the introduction of outsourcing practices.

Industry reports prepared by international organisations such as the World Bank (2024a; 2024b; 2024c) and International Finance Corporation (2024) were also reviewed. These reports provided valuable information on the potential for outsourcing development in Kyrgyzstan, in particular, in the automotive industry and related sectors such as logistics and auto parts manufacturing. Focusing on attracting foreign investment was an important aspect of the study, which allowed identifying how international companies could contribute to the development of outsourcing in the country.

The statistics of foreign direct investment, indicators of import and export of auto parts, and cases of successful cooperation with international companies in the automotive industry were examined to determine the impact of outsourcing on attracting international companies. The contributions of these companies to the development of the local automotive industry were assessed, in particular, through modern technologies and management practices. This study also included an examination of how cooperation with international partners improved the quality of services and products and contributed to the development of human capital through the exchange of knowledge and experience.

One of the important aspects of the study was the assessment of the impact of outsourcing on the creation of new jobs. Quantitative methods were used for this purpose, in particular, the processing of statistical data on employment in related sectors, as well as the dynamics of production growth in these areas. This allowed an understanding of how outsourcing has contributed to the expansion of related sectors of the economy, such as the production of auto

parts and the provision of IT services. The study showed that outsourcing not only creates new jobs but also stimulates the professional development of the local population, which is an important factor in improving the overall standard of living.

It also examined the risks associated with outsourcing, in particular, the loss of control over some production processes. For this purpose, cases in which errors or delays on the part of external contractors negatively affected the reputation and operational results of companies, were considered. The eCarsTrade data used helped to identify the necessary measures to develop effective mechanisms for monitoring and evaluating the quality of contractors' work. This study identified the critical reasons influencing the future of cooperation with external suppliers.

In addition, the study focused on the prospects for the development of innovations in the automotive industry through the introduction of outsourcing. Methods were used to investigate trends in the field and consider examples of successful implementations of digital technologies, such as the use of artificial intelligence and the robotisation of production lines to do this. It was shown that innovations related to outsourcing can substantially increase competitiveness and modernise production processes in the industry.

Thus, the integrated approach used in the study allowed not only to assess the positive impact of outsourcing on the development of the industry but also to identify possible problems and propose solutions to overcome them.

Results

Outsourcing, as a strategic tool, has a substantial impact on improving production processes in the automotive industry. This approach allows local automakers and car service companies to focus on their core competencies such as assembly, repair, and maintenance, while non-core tasks are outsourced. As a result of this specialisation, enterprises have the opportunity to improve the efficiency of their operations by focusing on those areas that are their main competitive advantage (Table 1).

Table 1. The influence of international companies in the automotive industry of Kyrgyzstan:
A comparative analysis of indicators before and after the introduction of outsourcing

Indicator	Before the introduction of outsourcing	After the introduction of outsourcing	Change (%)
Order completion time (hours)	48	36	-25%
Manufacturing errors (%)	8%	5%	-37.5%
labour costs (USD)	500.000	350.000	-30%
Equipment downtime (hours)	120	80	-33.3%

Source: compiled by the author based on M. Fana & D. Villani (2021)

One of the main advantages of outsourcing is the reduction of labour costs. Since outsourcing allows transferring tasks to specialised contractors, enterprises can reduce the cost of permanent employees, their training and maintenance. Instead, they can work with external partners who already have the necessary qualifications and experience.

This not only reduces costs but also minimises the need for additional investments in infrastructure and equipment that are required to perform non-core tasks (Kaveh Pishghadam & Esmaeeli, 2023).

Moreover, the involvement of highly qualified specialists through outsourcing helps to accelerate production

processes. Professional contractors with expertise and specialised equipment can complete tasks faster and better than internal employees, whose skills may be limited or not relevant enough for specific tasks. This helps to increase overall production efficiency and reduce transaction time, which in turn improves overall delivery times and customer satisfaction. Transferring non-core functions to external specialists opens up opportunities for innovation. Due to outsourcing, companies get the opportunity to focus on introducing new technologies and improving key business processes. This may include the development of new car models, the introduction of more efficient assembly methods, or the modernisation of existing maintenance systems. In turn, such a focus on innovation can help a company maintain competitiveness and adapt to changes in the market (Gambal *et al.*, 2022).

Outsourcing is an effective tool for optimising production processes and reducing costs in the automotive industry. It helps companies not only reduce operating costs but also speed up operations by focusing on key aspects of their operations. This helps to increase their competitiveness and efficiency. However, for the successful implementation of outsourcing, it is necessary to carefully select partners and build clear control mechanisms, which minimises possible risks. In a competitive market where every company strives to maximise profits and optimise the use of resources, outsourcing provides substantial advantages (Karpenko & Ivannikova, 2023). It helps to substantially reduce costs and improve financial performance, which makes it an important element of strategic management.

In addition, outsourcing reduces infrastructure costs. Instead of having to invest in expensive equipment and maintain complex systems, companies can transfer certain functions to those who already have the necessary resources

and technologies (Donis, 2023). This reduces capital and maintenance costs, freeing up funds that can be directed to more strategic initiatives or investments in the development of core business lines.

Reducing maintenance and production costs is another important advantage of outsourcing. External contractors specialising in specific areas can often perform tasks more efficiently due to their professional competence and accumulated experience. They can use more advanced technologies and techniques, which can improve quality and reduce the cost of production processes. For example, transferring functions related to inventory management or equipment maintenance to specialised companies can lead to more efficient resource management and reduced downtime.

The use of outsourcing allows automotive companies to respond more flexibly to market changes and economic conditions. It provides the opportunity to focus on your core competencies while improving overall economic efficiency. Companies can adapt more quickly to new requirements, optimise costs, and direct the released resources to the development of innovative projects or business expansion. Thus, outsourcing becomes a key tool for achieving economic sustainability and competitiveness in a dynamic and rapidly changing business environment.

Outsourcing is not only a way to optimise internal processes but also a powerful tool for attracting international companies, which opens up new horizons for the economy of the host country. The development of outsourcing in the country can substantially affect the attraction of foreign investors and partners who contribute modern technologies and advanced management methods (Table 2). This process creates favourable conditions for improving the quality of services and products and contributes to the development of human capital.

Table 2. The impact of outsourcing on the host country's economy

Aspect	Description
Optimisation	Outsourcing as a way to improve the company's internal processes
Attraction	Using outsourcing to attract international companies and investors
Modern technologies	Introduction of new technologies and advanced management methods into the economy of the host country
Quality of services	Improving the quality of services and products through international cooperation
Human capital	Promotion of human capital development through training and exchange of experience

Source: compiled by the author based on E.Y. Aguirre-Rodríguez *et al.* (2024)

In the Kyrgyz Republic, international companies entering the market through outsourcing are implementing advanced technologies and innovative methods, which can substantially improve the overall standards of production and quality of service (Creating markets in..., 2021). They have resources and expertise that are often not available to local companies, which allows them to implement more efficient production processes and use modern management tools. This not only improves the quality of the final products but also contributes to higher competitiveness in

the international arena. As a result, local companies can improve their offerings and increase their compliance with international standards, which leads to an increase in export potential and strengthens the country's economic position (Dana *et al.*, 2022).

In addition, the involvement of international companies through outsourcing contributes to the development of human capital in the country. Cooperation with foreign partners provides local specialists with a unique opportunity to share knowledge and experience, which contributes

to professional growth and development. This may include training in new technologies, mastering modern management methods and implementing best practices in work. The development of such skills not only improves the abilities of local workers but also contributes to the formation of a more skilled workforce, which, in turn, can lead to further growth and innovation in the national economy.

The involvement of international companies also contributes to the creation of new jobs and the development of related sectors of the economy. When foreign investors enter the country, they not only open new businesses but also create a need for additional services such as logistics, consulting, and IT support. This can lead to job creation in these areas and stimulate the development of the local labour market. As a result, the economy receives additional sources of income and becomes more resilient to economic fluctuations (Chen & Shen, 2021).

The development of outsourcing and the involvement of international companies is an important factor for

improving the quality of services and products, and the growth of human capital and the economy in general. This process contributes to the modernisation of production processes, the improvement of the professional skills of local workers and the creation of new opportunities for economic growth. In the future, the successful involvement of international partners can become a vital element of the country's strategy for sustainable development and competitiveness in the international arena.

Outsourcing has a substantial impact on the labour market, contributing to the creation of new jobs and stimulating the growth of related sectors of the economy (Chornyi & Chorna, 2017). In the context of globalisation and increasing competition, companies are increasingly turning to outsourcing to optimise their production processes and reduce costs. This, in turn, creates demand for specialised contractors and services, which opens up new opportunities for employment and professional growth (Table 3).

Table 3. Creation of new jobs in related sectors

Parameter	Meaning
Jobs created in factories	2000
Industries that influence job creation	Logistics, transport
The impact of transport infrastructure	Increase in jobs

Source: compiled by the author based on K. Aibashov (2024)

One of the key aspects of outsourcing is its ability to create jobs in specific areas such as the manufacture of auto parts and the provision of IT services. When car companies outsource some of their functions to external contractors, this not only allows them to focus on their core competencies but also contributes to the formation of new jobs for specialists in related industries. Auto parts companies are getting the opportunity to expand their business by hiring more employees to meet the growing demand. Similarly, IT companies providing services to the automotive industry can expand their teams to develop new technologies and solutions (Llopis-Albert *et al.*, 2021).

The development of related sectors of the economy associated with outsourcing opens up new horizons for employment and professional growth of the local population. When automotive companies outsource functions such as logistics, maintenance, or software development, this creates a need for highly qualified professionals who can perform these tasks. This, in turn, stimulates demand for educational programmes and trainings that help local workers acquire the necessary skills and knowledge to work in new fields.

In addition, the growth in the number of jobs in related sectors contributes to the diversification of the economy and the reduction of unemployment. When new enterprises are created and existing ones are developed, this brings additional income to the region's economy, which can lead to an improvement in the living standards of the local population and infrastructure development. For

example, an increase in the number of manufacturing enterprises may lead to the construction of new office and industrial premises, and the improvement of transport and social infrastructure.

Outsourcing can also contribute to the development of local entrepreneurs and small businesses. When large companies transfer parts of their functions to local contractors, this opens up opportunities to create new businesses that may specialise in providing certain services or goods. This can lead to an increase in the number of small and medium-sized enterprises, which play an important role in the economy and create additional jobs, according to D. Reuschke (2021).

Outsourcing is an important factor contributing to the creation of new jobs and the development of related sectors of the economy. It opens up new employment opportunities and professional growth for the local population, promotes economic diversification and supports infrastructure development. Thus, outsourcing plays a vital role in economic development and improving the quality of life in the region.

Outsourcing, despite its many advantages, is not without certain risks associated with the loss of control over production processes. One of the substantial disadvantages of this approach is a decrease in the level of direct control over tasks that are transferred to external contractors. This can lead to various problems that can substantially affect the company's overall operating results and its reputation in the market (Table 4).

Table 4. Risks and their impact on operational performance

Risk	Number of cases (2023)	Number of cases (2024, forecast)	Change (%)
Loss of quality control	10	8	-20%
Delays in completing tasks	15	12	-20%
Mistakes on the part of contractors	8	6	-25%

Source: compiled by the author based on C. Buia *et al.* (2018)

Outsourcing functions to external contractors can create difficulties in quality management and meeting deadlines. For example, if an automotive manufacturing company transfers the assembly of certain components to third parties, it risks facing a situation where the quality of the work performed does not meet its standards. This can happen for various reasons: from insufficient qualifications of the contractor's employees to improper organisation of the workflow. Such situations can lead to defective products, the need for alteration, or even the recall of already sold goods, which negatively affects the reputation of the company.

There is also a risk of delays in completing tasks. External contractors may not always follow established schedules, which leads to delays in the production process. This can disrupt the entire production cycle, causing delays in the delivery of finished products to customers and eventually loss of consumer confidence. This is especially critical in the automotive industry, where delivery times and compliance with quality standards are crucial.

Reducing control can also complicate the process of managing change and innovation. When companies rely on external contractors to perform key tasks, they may find it difficult to integrate new technologies and working methods that contractors may not be ready or able to implement. This can slow down the process of adapting to changes in market conditions and hinder the introduction of innovations (Raz *et al.*, 2021).

It is important to develop and implement effective mechanisms for interaction and control over the work of contractors to mitigate these risks. The conclusion of detailed contracts that include clear requirements for quality and deadlines, regular monitoring of the fulfilment of contract terms and the implementation of quality management systems can help to minimise negative consequences. Establishing transparent communication and mutual expectations also plays a critical role in maintaining a high level of control over outsourcing processes.

While outsourcing offers many benefits related to optimisation and cost reduction, it also carries risks associated with the loss of control over certain aspects of production processes (Gunash *et al.*, 2024). These risks require careful management and a thoughtful approach to the selection of contractors to minimise possible negative consequences and maintain high standards of quality and efficiency of the company.

Outsourcing is a powerful tool for modernisation and innovative development in the automotive industry,

especially in developing countries such as the Kyrgyz Republic. One of the key advantages of outsourcing is its ability to open access to new technologies and modern solutions that can substantially improve production processes and increase the competitiveness of the industry (Chen *et al.*, 2023).

The use of artificial intelligence and robotics is also an important part of innovative development, which can be achieved through outsourcing (Aizenberh, 2024). Robots and intelligent systems can perform routine and complex tasks on production lines with high precision and minimal errors, which improves overall productivity and reduces the human factor in processes. Outsourcing provides access to such high-tech solutions, which in turn contributes to the modernisation of production facilities and the improvement of product quality (Beulen *et al.*, 2022).

The future of outsourcing in the automotive industry of the Kyrgyz Republic is also linked to the possibility of integrating new digital solutions and advanced management methods. The introduction of technologies such as the Internet of Things can allow companies to collect and analyse data on production processes in real-time, which contributes to faster decision-making and improved operational efficiency.

The development of innovations through outsourcing can substantially affect the dynamics of growth and modernisation of the automotive industry. Companies that can effectively integrate new technologies and adapt them to their needs will be able to substantially improve their production performance and become more competitive in both local and international markets (Ramos and Ruiz-Galvez, 2024).

Thus, outsourcing opens up new horizons for innovative development for the automotive industry of the Kyrgyz Republic. Due to access to modern technologies and solutions, outsourcing contributes to the modernisation of production processes, and the introduction of artificial intelligence and robotics, which can eventually lead to a substantial improvement in the efficiency and competitiveness of the industry. The future of outsourcing in this context seems promising and has the potential to substantially influence the transformation of the automotive industry in the country.

Discussion

The study analysed the role of outsourcing in the automotive industry of the Kyrgyz Republic. The results showed that the introduction of outsourcing had a substantial impact on production processes and economic development

in this sector. In particular, it was determined that the transfer of non-core tasks to external contractors allowed automakers to focus on key aspects of their activities, such as car assembly and repair. This contributed to an increase in the overall efficiency of production processes and reduced time spent on completing tasks. This has also been investigated by I. Ezmigna *et al.* (2023), where the results confirmed that outsourcing is a strategy of transferring part of business processes or functions to third-party organisations, which allows companies to focus on their core business and improve overall efficiency. This practice can substantially increase the flexibility and adaptability of a business, reduce costs, and speed up the completion of tasks by attracting specialised resources and technologies. As a result of outsourcing, companies can achieve better results in managing production processes and qualitatively improve their operational performance.

C. Deng *et al.* (2021) also showed that outsourcing tasks can substantially improve the efficiency of business processes, allowing firms to benefit from the expertise of external service providers and technologies. This not only reduces the cost of internal resources but also allows accelerating the process of completing tasks through the use of specialised tools and methods. Outsourcing can help to optimise processes, improve quality, and reduce risks associated with internal operations, thereby ensuring higher productivity and competitiveness of the company.

Notably, the successful implementation of outsourcing requires careful selection of partners and a clear definition of goals and expectations. The wrong choice of an outsourcing partner can lead to problems with the quality of services, insufficient coordination, and an increase in hidden costs. In addition, it is important to ensure proper monitoring and interaction with external suppliers to ensure that their work meets the company's internal standards and requirements. Effective outsourcing also involves regular monitoring of results and readiness to respond promptly to emerging problems.

The results of the analysis showed that outsourcing has substantial potential for economic growth. A comparative analysis of the costs of operating activities before and after the implementation of outsourcing solutions demonstrated a noticeable reduction in the cost of maintaining personnel and infrastructure. These data confirm that outsourcing helps companies effectively manage their resources and optimise operating costs, which is a key factor in the competitive environment of the automotive industry. P. Mtsweni *et al.* (2021) concluded that outsourcing provides companies with the opportunity to reduce overall costs by transferring certain functions to external specialists who can perform these tasks more efficiently and economically. This is due to the fact that outsourcing companies often have more specialised skills and resources, which allows them to optimise processes and reduce labour, equipment, and technology costs (Chorny, 2013). Cost analysis shows that outsourcing can lead to substantial savings in capital investment and operating costs, as companies can avoid

having to maintain their own resources and infrastructure to perform certain functions.

In the study by J. Choi *et al.* (2021), it was determined that outsourcing has a substantial impact on the company's financial results, especially in terms of reducing operating costs. The transfer of business processes to third-party performers allows you to reduce the cost of personnel management, training, and purchase of equipment and technology. These savings often manifest themselves in the form of improved profits and lower overall production and management costs. In addition, outsourcing can provide more predictable and stable costs, since many outsourcing contracts involve fixed payments or clearly defined rates, which allows for better budget planning and improved financial management.

The results obtained confirm an earlier study, showing that outsourcing can substantially reduce operating costs and improve a company's financial performance. Indicators for reducing labour, equipment, and technology costs, and improving the overall level of efficiency, support the conclusion that outsourcing is an effective tool for optimising business processes. These results confirm that companies can substantially improve their financial stability and competitiveness through the proper use of outsourcing and strengthen their market positions through a more flexible and cost-effective approach to resource management.

The study also established that the involvement of international companies has become an important area in the development of outsourcing in Kyrgyzstan. Data on the number of foreign investors and their interaction with local enterprises showed that international companies contribute to improving the quality of products and services. They transfer modern technologies and management methods, which contributes to the development of human capital and improve the general skills of employees in the industry. The paper of M. Könning *et al.* (2021) is notable, stating that international companies play a key role in improving outsourcing quality and technology by providing high standards and advanced solutions that local companies can use to improve their efficiency. These companies often bring new technologies and management methodologies to the market, which improves the quality of services and products. Their experience and resources contribute to the implementation of best practices and innovative approaches in outsourcing processes increasing the overall competitiveness and productivity of both outsourcing companies and their clients.

In turn, A. Nugent & H. Chan (2023) concluded that foreign investors play an important role in technology transfer and skills development in the outsourcing sector, contributing to the training and professional development of local employees. The investment of foreign companies in outsourcing can include not only financial investments but also the transfer of knowledge, technologies, and working methods that help local companies develop and improve their competencies (Trusova *et al.*, 2022). This technology transfer contributes to the development of infrastructure

and the creation of new jobs, as well as strengthens the professional skills of employees, which ultimately leads to an overall improvement in the quality of outsourcing services and strengthening positions in the global market.

These data are consistent with the theses given in the previous section, as they confirm that international companies and foreign investors have a substantial impact on quality and technology in the field of outsourcing. They not only contribute modern technologies and best practices but also to the development of skills and the professional skills of local workers. This, in turn, helps to increase the overall efficiency and competitiveness of the outsourcing sector, supporting the conclusion that international cooperation plays a key role in optimising business processes and improving the quality of services.

Special attention in the study was paid to the impact of outsourcing on the creation of new jobs. The data used indicates an increase in the number of jobs in related sectors, such as auto parts manufacturing and IT services. This confirms that the development of outsourcing has a positive impact on employment, opening up new employment and professional growth opportunities for the local population. R. Collington & M. Mazzucato (2022) also conducted a study, the results of which confirmed that outsourcing can substantially contribute to job creation, especially in the regions where it is being implemented. The transfer of business processes to third-party performers often requires the involvement of new employees to perform various functions, from customer support to specialised technical services. This leads to the creation of new jobs and stimulates economic growth in places where outsourcing is becoming a common practice. In addition, outsourcing can contribute to the development of new industries and businesses, such as IT services and consulting, creating additional opportunities for employment and professional growth.

A. Bramucci *et al.* (2021) also established that outsourcing has a substantial impact on employment not only directly but also in related sectors. When companies outsource certain functions to external contractors, this can lead to an increase in the number of jobs in related fields such as logistics, project management, and technology support. For example, an increase in the volume of outsourcing operations may stimulate the need for additional specialists to manage these processes, which creates jobs in the field of management and maintenance. In addition, the development of the outsourcing market can contribute to an increase in demand for services in related areas, such as training and personnel development, which additionally contributes to overall job creation and economic growth.

Comparing the data obtained in the study, it can be concluded that outsourcing has a substantial impact on job creation and the development of related sectors. The results show that outsourcing functions not only contributes to the creation of new jobs in the main outsourcing sector but also stimulates employment growth in related areas such as logistics, project management, and technology support. This confirms the conclusion that outsourcing can be not

only an effective tool for optimising business processes but also an important factor in supporting economic growth and creating new employment opportunities.

However, the study also identified some risks associated with the loss of control over production processes. Cases where errors or delays on the part of external contractors negatively affected the reputation and operational results of companies emphasise the need for careful selection of partners and monitoring the quality of their work. Effective management of these risks requires the introduction of additional quality control and assurance measures. M. Yazdani *et al.* (2021) concluded that outsourcing can lead to risks of loss of control over key processes and standards, as certain functions or tasks are transferred to external partners. This can make it difficult to manage quality and align work with the company's internal strategies and goals. It is important to establish clear contractual terms and monitoring procedures to ensure compliance with quality standards and timely completion of tasks to minimise these risks. Regular audits and reviews, and clear feedback mechanisms, can help maintain control over outsourcing processes and ensure that work is performed in accordance with established requirements.

S. Ali *et al.* (2022) determined that choosing a reliable outsourcing partner and effective quality management are key factors for the successful implementation of outsourcing strategies. Companies should carefully evaluate potential contractors based on their reputation, experience, and ability to meet established standards. It is also important to develop clear quality assessment criteria and establish regular inspections to ensure that the work meets internal requirements. Quality control systems such as Key Performance Indicators and Service Level Agreements can be used to monitor performance and respond to problems in a timely manner, which helps reduce risks and improve outsourcing results.

When analysing the results of the study, it becomes clear that effective risk management and the choice of reliable partners are critical for successful outsourcing. It is observed that the loss of control over vital processes can be successfully minimised through strict compliance with contractual terms, regular audits, and the implementation of quality control systems. The selection of qualified and trusted outsourcing partners is also of critical importance in ensuring high standards of task performance and maintaining control over processes. These findings highlight the need for an integrated approach to outsourcing management to ensure its effectiveness and minimise potential risks.

In conclusion, the results of the study indicate the prospects for further development of outsourcing in the automotive industry of the Kyrgyz Republic. The introduction of modern technologies such as digitalisation, robotics, and the use of artificial intelligence can substantially increase the competitiveness of the industry. The prospects for growth and development of innovative outsourcing solutions open up new opportunities for the automotive industry, contributing to its modernisation and strengthening its competitive position in the international arena.

Conclusions

The examination of outsourcing in the automotive industry of the Kyrgyz Republic demonstrated substantial prospects and potential benefits for the industry. During the analysis, the introduction of outsourcing in this area was identified to substantially improve production processes. Moving non-core tasks to external contractors contributed to more efficient use of resources and faster task completion, which, in turn, increased overall productivity and quality of services.

The economic efficiency of outsourcing turned out to be noticeable: companies that implemented outsourcing were able to substantially reduce operating costs. Reducing the need for permanent staff and infrastructure has decreased the overall maintenance and production costs, which has had a positive impact on the financial results of enterprises. This aspect is an important factor for sustainable development and competitiveness in the automotive industry.

The involvement of international companies, which ensured the introduction of modern technologies and management methods, played a key role in improving product quality and the skills of local staff. Technology and knowledge transfer, as well as joint work with foreign partners, contributed to substantial progress in the development of the industry. The creation of new jobs was another important achievement. Outsourcing has contributed to the development of related sectors such as auto parts manufacturing and IT services, which has opened up new employment opportunities and professional growth for

the local population. However, the study also identified the risks associated with the loss of control over some production processes. Errors or delays on the part of external contractors can negatively affect the reputation of companies and their operational performance. Therefore, it is important to implement effective measures to minimise these risks. The future of outsourcing in the automotive industry of the Kyrgyz Republic is linked to the prospects for the introduction of innovative technologies such as digitalisation, robotisation, and the use of artificial intelligence. These technologies can substantially increase competitiveness and contribute to the further development of the industry. In general, outsourcing is an important tool for the modernisation and growth of the automotive industry in the country.

The limitation of this study is the lack of data on the long-term effects of outsourcing on production processes and economic development in the specific conditions of the automotive industry of the Kyrgyz Republic. Additional research is needed, focusing on the long-term effects of outsourcing on innovation processes and the sustainability of the industry to better understand the impact of outsourcing on the automotive industry of the Kyrgyz Republic.

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Conflict of Interest

None.

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Аутсорсинг в автомобільній промисловості Киргизької Республіки: перспективи розвитку

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Анотація. Дослідження було проведено для оцінки перспектив розвитку аутсорсингу в автомобільній промисловості Киргизької Республіки та його впливу на продуктивність, економічну ефективність та інновації в галузі. У дослідженні використовувалися методи статистичного аналізу для опрацювання даних про виробництво та зайнятість з офіційних джерел, порівняльний аналіз успішних прикладів міжнародного співробітництва, а також методи оцінки ризиків, пов'язаних з аутсорсингом. У результаті дослідження було встановлено, що аутсорсинг в автомобільній промисловості Киргизької Республіки сприяє зниженню операційних витрат і підвищенню виробничої ефективності. Виявлено, що передача непрофільних функцій зовнішнім підрядникам дає змогу компаніям зосередитися на ключових процесах, що прискорює впровадження інновацій. Також підтверджено, що аутсорсинг допомагає залучати міжнародні компанії, стимулюючи економічне зростання і створюючи нові робочі місця. Однак було виявлено ризик втрати контролю над якістю та термінами виконання завдань, що потребує розроблення ефективних механізмів взаємодії з підрядниками для мінімізації можливих негативних наслідків. Також дослідження показало, що успішне впровадження аутсорсингу потребує активної участі державних органів для створення підтримуючої нормативної бази та стимулів для залучення інвестицій. Результати продемонстрували, що аутсорсинг сприяє розвитку суміжних галузей, таких як виробництво автозапчастин та ІТ-послуги, що зі свого боку стимулює зростання локального ринку праці. У довгостроковій перспективі, використання аутсорсингу може стати ключовим фактором у підвищенні конкурентоспроможності автомобільної промисловості країни на міжнародній арені. Дослідження надає цінні дані щодо впливу аутсорсингу на ефективність та інноваційний розвиток автомобільної промисловості, що може слугувати підґрунтям для розроблення стратегій оптимізації виробничих процесів і поліпшення економічних показників у цій галузі

Ключові слова: операційні витрати; виробнича ефективність; міжнародні компанії; економічне зростання; конкурентоспроможність

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Impact of leasing transactions on business development in Kyrgyzstan

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Abstract. The purpose of this study was to determine how leasing transactions contribute to business modernisation in Kyrgyzstan. The study used survey methods and semi-structured interviews with company representatives, followed by statistical analysis of the collected data to determine changes in productivity, operating costs, and investment payback period. In particular, the results showed that 90% of the surveyed agricultural enterprises reported a 25-30% increase in productivity after using leasing to purchase machinery, which was confirmed by analysing data on the reduction of repair and maintenance costs for old equipment. In transport logistics, 85% of the companies indicated a reduction in operating costs and improvement of logistics processes due to fleet renewal through leasing programmes, which also contributed to an increase in the customer base by 15-20%. In the construction sector, the use of leasing allowed 82% of companies to reduce project completion time by 20-25%, which was due to the acquisition of new construction equipment through leasing, which can accelerate the performance of work and improve the quality of projects. In the manufacturing sector, 70% of companies reported a positive impact of leasing on their production capacity, but a longer payback period was identified, which requires the development of specialised leasing programmes with more flexible terms for industrial enterprises. The results of the study confirm the important role of leasing as a financial instrument for the modernisation of enterprises in Kyrgyzstan, but also reveal the need to improve the access of small enterprises to leasing programmes and adapt the conditions for sectors with a long investment cycle, such as manufacturing

Keywords: economy; financial instrument; enterprises; investment; leasing; laws and regulations

Introduction

The study of leasing as an important financial instrument for business development in Kyrgyzstan requires consideration of its role in the context of modern economic realities of the country. In conditions of limited access to bank loans and high volatility of financial markets, leasing is becoming an attractive mechanism for modernising enterprises. Many companies, especially in the agricultural and manufacturing sectors, need to upgrade equipment and technologies, but due to high interest rates and credit requirements, they face difficulties in obtaining long-term loans. Leasing offers more flexible conditions for modernisation, which makes it a key tool for increasing competitiveness and improving operational processes. Nevertheless, there are significant barriers that limit the possibilities of using leasing in the country, especially for small and medium-sized enterprises.

In 2024, the use of leasing in Kyrgyzstan remains relatively limited compared to other developing countries. Research shows that in agriculture and transport logistics, leasing already plays an important role in the modernisation of enterprises (Omurgazieva *et al.*, 2024). The study by C.R. Kulueva *et al.* (2023) emphasises that leasing allowed farms to upgrade their equipment fleet and increase production capacity, which led to an increase in production volumes by 20-30%. In transport logistics, leasing has enabled companies to upgrade their fleet, reduce operating costs and improve the quality of logistics services. However, there is a lack of research on leasing in the industrial sector, which has its own specific problems, such as long payback periods and high equipment costs.

In transport logistics, E. Lee & J.S. Mah (2020) showed that leasing helps to reduce operating costs and improve logistics operations. However, their research also focused mainly on large companies, and did not analyse the possibilities of expanding leasing for small transport companies that cannot use the programmes due to high financial performance requirements. This limits the use of leasing in a

sector where its benefits could bring significant results for small businesses.

The studies by Kyrgyz researchers such as A.Z. Nagimova (2022) and P. Schröder (2024), indicate that there is limited government support for leasing programmes in the country, especially for small and medium-sized enterprises. This creates additional barriers for companies that need to modernise, but cannot afford large investments. International studies show that government support and subsidisation of leasing can significantly increase its availability. For example, in Kazakhstan and Uzbekistan, as indicated by J. Yang *et al.* (2022), leasing has become a key mechanism for agricultural and manufacturing enterprises, which has significantly improved their production performance. These examples highlight the importance of government support in the development of leasing, which is relevant for Kyrgyzstan, where small and medium-sized enterprises make up a significant part of the economy.

Existing research also highlights the importance of adapting leasing programmes to the specifics of individual industries. For example, in construction, as noted by M. Gorgan & M. Hartvigsen (2022), the use of leasing to upgrade construction equipment has reduced project deadlines and improved the quality of work. However, in the manufacturing sector, which requires long-term investments, leasing faces problems. Long payback periods and high cost of equipment make traditional leasing programmes less attractive for industrial companies. In this regard, there is a need to develop specialised leasing products adapted to the needs of this sector.

The study by J. Ishikawa & Y. Kawabata (2022), and N. Karimov *et al.* (2023) indicate that in Kyrgyzstan, small enterprises, especially in agriculture, face high creditworthiness requirements when trying to use leasing services. This limits their opportunities for modernisation and growth. However, studies conducted in neighbouring countries such as Kazakhstan and Tajikistan show that

subsidising leasing programmes for agriculture has significantly increased farmers' access to modern technologies and equipment. These examples confirm the need to expand government support for leasing in Kyrgyzstan to improve its accessibility, especially for small and medium-sized enterprises.

Thus, the study of leasing in Kyrgyzstan raises important issues related to its accessibility, adaptation of programmes for industrial enterprises and government support. However, to do this, it is necessary to develop more flexible programmes that will consider the specifics of various industries, and strengthen government support for leasing transactions, especially for small and medium-sized enterprises. Therefore, the purpose of this study was to identify and analyse the role of leasing transactions in the modernisation and development of business in Kyrgyzstan. The main objectives of the study included analysing the availability of leasing programmes for various categories of enterprises, identifying problems related to creditworthiness requirements and payback periods, assessing the role of government support in the development of leasing and determining the need to develop specialised leasing products for sectors with a long investment return cycle.

Materials and Methods

The study was conducted from January to July 2024 in four key economic regions of the Kyrgyz Republic: Bishkek, Osh, Jalal-Abad, and Issyk-Kul region. These regions were chosen as the main sites for the study due to their strategic importance in the country's economy and the significant number of small and medium-sized enterprises (SMEs) actively using leasing instruments. To assess the impact of leasing transactions on business development, a representative sample was selected, including 150 small and medium-sized enterprises that actively used leasing in their activities in the period from 2019 to 2023.

The companies included in the sample represented various sectors of the economy. In particular, 45 enterprises were engaged in agriculture, 35 in construction, 40 in transport logistics, and 30 in production activities. The selection of companies was based on two key criteria: participation in leasing operations to finance the purchase of equipment or vehicles and the availability of accessible financial statements that allowed tracking changes in economic indicators before and after the use of leasing. The sample was carefully designed to cover companies of various sizes and fields of activity, which helped to conduct a comprehensive analysis of the impact of leasing transactions on different segments of the economy.

For a deeper understanding of the specifics of the use of leasing in Kyrgyzstan and its impact on business, semi-structured interviews were conducted with 50 representatives of the companies included in the sample. Among the respondents were company directors, financial managers, leasing management specialists, and other key persons responsible for financial decisions at enterprises.

The level of professional experience of the interview participants ranged from 5 to 20 years, with about 70% of respondents having more than 10 years of work experience in their industries. This ensured the high qualifications of the participants, their competence in the use of leasing instruments, and a deep understanding of the impact of these transactions on the development of companies. The main topics of the interview were issues related to the terms of leasing agreements, interest rates, availability of financial instruments, and how leasing contributed to the modernisation of equipment and productivity growth.

To investigate the legal framework governing leasing activities in Kyrgyzstan, relevant laws and regulations were analysed. First of all, it was the Law of the Kyrgyz Republic No. 95 "On Financial Lease (Leasing)" (2005), which establishes the legal basis of leasing transactions, regulates the rights and obligations of the parties, and contains important provisions to protect the rights of lessees. The Law of the Kyrgyz Republic "On State Support for Small Business" (2007), which provides legal and financial mechanisms to support SMEs, including access to leasing instruments, was also reviewed. A comprehensive analysis of leasing programmes offered by leading commercial banks in Kyrgyzstan, such as Ail Bank (2024), Commercial Bank of Kyrgyzstan (2024), Optima Bank (2024), Demir Bank (2024), and Halyk Bank (2024), was conducted. The requirements for creditworthiness, collateral provision, and interest rates were analysed in detail for each bank. Special attention was paid to the analysis of the availability of leasing programmes for small and medium-sized enterprises.

Specialised software tools IBM SPSS and Microsoft Excel were used to analyse the collected data. With the help of these programmes, data processing and statistical analysis were carried out, which allowed to obtain quantitative results on the impact of leasing on the economic activities of companies. The main methods of statistical analysis were the Student's t-test, which helped to assess the significance of differences in economic indicators before and after using leasing, and the Mann-Whitney U-test, which was used to compare data between companies in different sectors of the economy. A correlation analysis was carried out to identify the degree of dependence between the volume of attracted leasing funds and the growth of companies' profits.

Results

Leasing transactions had a significant positive impact on the financial performance of small and medium-sized enterprises in Kyrgyzstan, which was confirmed by both quantitative and qualitative data. The study showed that 78% of the surveyed companies noted an improvement in financial performance after concluding leasing agreements (Table 1). This improvement was conditioned by several factors, such as access to modern equipment, lower maintenance and repair costs for outdated equipment, and increased production capacity, which contributed to higher revenues and lower operating costs.

Table 1. Main financial indicators of enterprises before and after the use of leasing

Indicators	Before using leasing	After using the lease
Average income growth (%)	0-5%	15-20%
Reduced maintenance costs (%)	2-4%	10-15%
Average net profit growth (%)	5-7%	12-18%
Share of investments in leasing (%)	Less than 10%	More than 20%
Liquidity level	Low	High

Source: compiled by the authors

In the agricultural sector, the impact of leasing was most noticeable. 90% of companies reported revenue growth of 15-20% in the first two years after using leasing. Such results were achieved due to the possibility of updating the fleet of agricultural machinery, which reduced downtime and repair costs. For example, farms that used old machinery reported high repair and maintenance costs, which negatively affected overall productivity. However, with the acquisition of new tractors, combines and other equipment through leasing programmes, these enterprises were able to reduce operating costs and increase profits. For transport companies, the use of leasing has also become an effective tool for improving financial performance. 85% of transport companies reported a reduction in fleet maintenance costs and an increase in revenue by 12-18%. Upgrading vehicles using leasing has allowed companies to improve the quality of logistics services, reduce delivery time, and increase customer satisfaction. These factors led to an expansion of the customer base and an increase in the volume of completed orders, which directly affected revenue growth.

In the construction industry, 82% of enterprises reported increased productivity and reduced costs for the operation of construction equipment due to leasing programmes. The opportunity to purchase modern cranes, excavators, and other heavy equipment through leasing allowed companies to reduce the time required to complete construction projects and improve their quality, which had a positive impact on revenues. In addition, the modernisation

of equipment allowed builders to expand their services and attract new contracts, which contributed to an increase in the volume of work.

The correlation analysis of the data showed a significant relationship between the volume of attracted leasing funds and the growth of net profit of enterprises. For example, companies that invested more than 20% of their capital in leasing transactions showed an 18% increase in net profit compared to enterprises that used less than 10% of leasing funds. This result confirms the high efficiency of leasing as a financing mechanism for upgrading assets and increasing overall productivity. It should also be noted that the use of leasing has had a positive impact on the liquidity of companies. The ability to upgrade equipment without significantly increasing the debt burden allowed enterprises to maintain a sufficient level of liquidity to cover current operating expenses, which, in turn, reduced financial risks and ensured business stability. As a result, companies were able not only to improve their financial stability, but also to invest additional funds in business expansion and new projects.

Leasing turned out to be an important tool for updating fixed assets of enterprises in Kyrgyzstan, which directly affected their productivity. In most cases, companies used leasing to purchase expensive equipment required to modernise production processes, improve product quality, and increase competitiveness (Table 2). Leasing allowed enterprises to avoid one-time large costs, providing an opportunity to gradually upgrade equipment without significantly deteriorating financial performance.

Table 2. Key indicators of productivity and efficiency of enterprises before and after the renewal of fixed assets through leasing

Indicators	Before using leasing	After using the lease
Increase in production volume (%)	5-10%	25-30%
Reduced downtime (%)	3-5%	15-20%
Reduction of construction project deadlines (%)	5-7%	20-25%
Reduction of operating costs in agriculture (%)	2-4%	10-15%
Increase in profitability of logistics companies (%)	5-7%	12-18%
Increase in the volume of completed construction works (%)	7-10%	20-25%
Improving the quality of logistics services (%)	5-8%	15-20%

Source: compiled by the authors

Companies in the agricultural sector have benefited the most from leasing programmes. Prior to the conclusion of leasing transactions, many farmers faced outdated equipment, which led to high repair costs and frequent downtime. Due to leasing, farmers were able to upgrade their machines, which led to an increase in production capacity by 25-30%. The updated equipment not only increased the processing speed of the fields, but also improved the quality of the harvest, which allowed farmers to expand their sales markets and increase their profitability. Construction companies also actively used leasing to modernise their fleet of heavy machinery, including excavators, cranes, bulldozers and concrete pumps. The modernisation of equipment enabled companies to increase the volume of work performed by 20-25%, which contributed to their growth in the market and attracting new contracts. In addition, shortening project deadlines has allowed construction companies to reduce the costs associated with equipment downtime and increased repair costs for old equipment (Krush & Makaliuk, 2014). Transportation companies have also gained significant benefits from using leasing to upgrade their fleet. The companies mainly leased trucks, tractors and buses, which reduced operating costs and increased the reliability of logistics

operations. 85% of transport companies reported that updating their fleet helped to reduce the delivery time of goods and improve the quality of customer service. This led to an increase in the volume of orders and an increase in the customer base, which directly affected their financial results. The companies noted that leasing allowed them to upgrade equipment without significant one-time costs, while maintaining liquidity and high operational efficiency.

A correlation analysis of the data showed that the modernisation of fixed assets through leasing led to a 20-30% increase in productivity, depending on the industry and the volume of leasing funds raised. Companies using leasing to upgrade their assets have reduced the cost of operating old equipment, increased production volumes and improved the quality of products and services. This, in turn, increased their competitiveness in the market, especially in conditions of increasing competition and increasing demands on the quality of goods and services. The study revealed significant industry differences in the use of leasing, which reflect the specifics of various sectors of the economy. The impact of leasing on production processes, financial performance, and strategic development of companies varies depending on the industry, due to different economic and operational needs (Table 3).

Table 3. Industry differences in the use of leasing and its impact on key indicators

Indicators	Agricultural industry	Transport logistics	Construction	Production
Share of enterprises using leasing (%)	90%	85%	82%	70%
Increase in production volume (%)	25-30%	20-25%	20-25%	15-20%
Reduced operating costs (%)	10-15%	12-18%	10-15%	8-12%
Reduction of project execution time (%)	–	10-15%	20-25%	15-20%
Increase in the customer base (%)	15-20%	15-20%	10-15%	8-12%
Payback period (years)	3-5	3-4	4-5	5-7

Source: compiled by the authors

In agriculture, leasing has become the main modernisation mechanism for most farms, especially small and medium-sized enterprises. Most farmers noted that without leasing, access to the latest technologies would be impossible due to the high cost of equipment. Leasing provided them with flexible financial conditions that allowed them to gradually pay for the acquired assets, while maintaining the liquidity of the business. For farmers, it was especially important that leasing transactions helped to increase production volumes without attracting large loans with high interest rates. This ensured the financial stability of the enterprises, allowing them to plan long-term development. Thus, leasing plays a strategic role in agriculture, contributing to an increase in production capacity and profitability of the business in conditions of limited access to loans.

Leasing has also proved to be a critical tool in transport logistics, especially for companies seeking to increase their operating capacity without increasing their debt burden. For many transport companies, leasing has allowed them to quickly respond to changes in demand, expanding their fleet in the face of a growing volume of orders. This has become especially important in the context of the globalisation of trade and the increase in traffic volumes. For transport companies, leasing was not only a means to maintain competitiveness, but also a way to flexibly adapt to changes in the market. As a result, the companies were able to reduce operating costs, improve the quality of their services and expand their customer base.

In the construction industry, the use of leasing has also shown significant differences compared to other industries.

Here, leasing has proved especially effective for companies working on long-term projects with tight deadlines. The opportunity to upgrade equipment through leasing allowed construction companies to speed up the execution of work, which had a positive impact on their reputation and competitiveness. Construction companies noted that leasing transactions allowed them to reduce maintenance costs and minimise the risks of delays associated with equipment downtime. However, leasing has become a project risk management tool for the construction sector, as it allowed maintaining a high level of productivity in conditions of instability of the construction market (Omurzakova *et al.*, 2022).

Manufacturing companies, although less likely to resort to leasing, also noted a positive impact on their operations. The manufacturing sector requires large investments in upgrading and updating equipment, which makes leasing attractive for enterprises seeking to increase their production capacity. However, in the manufacturing sector, the payback period for leasing investments is longer, which makes this tool less operational compared to other industries (Trusova *et al.*, 2021). Nevertheless, manufacturing companies noted that leasing allows maintaining a

high level of technological equipment, which is especially important in the context of global competition. The use of leasing to modernise production lines and reduce the cost of outdated equipment helps enterprises to remain competitive in international markets.

Industry differences in the use of leasing are also evident in approaches to risk management and financial strategies. In agriculture and transport logistics, leasing allows companies to minimise financial risks due to the flexibility of payments and the possibility of budget planning (Denyshuk *et al.*, 2022). In construction, leasing helps to manage project risks, improving project deadlines and reducing dependence on outdated equipment. In the manufacturing sector, leasing is used as a strategic tool for long-term modernisation, which helps companies to remain internationally competitive. Semi-structured interviews with representatives of various companies helped to identify different approaches to the use of leasing and assess its impact on the strategic development of enterprises (Table 4). It is important to note that the opinions of managers and financial managers confirm the results of quantitative analysis, emphasising the key role of leasing in business modernisation and growth.

Table 4. Opinions of company representatives on the impact of leasing on strategic development

Branch	Main advantages of leasing	Main risks and challenges
Agricultural industry	Flexible payments, affordable upgrades, increased production volumes	Limited access to leasing programmes for small farmers
Transport logistics	Rapid fleet renewal, improved customer service	Dependence on lease payments in conditions of unstable demand
Construction	Acceleration of project execution, reduction of equipment maintenance costs	Need for long-term planning for projects with variable deadlines
Production	Possibility of long-term modernisation, maintaining the technological level	Long payback period, high cost of equipment

Source: compiled by the authors

In agriculture, the majority of the interviewed representatives noted that leasing has become the only real way to modernise the fleet of equipment and increase production capacity without significant financial risks. Farmers, especially those working in small and medium-sized enterprises, stressed that traditional bank loans are often unavailable due to high interest rates and strict requirements. Leasing offered more flexible conditions, allowing to improve production without deterioration of financial stability. Farm managers noted that leasing helped them upgrade outdated equipment, which helped to reduce repair and operation costs, and increase production volumes. Many companies also pointed out that leasing programmes helped them to adapt more quickly to changes in the market, as the new fleet of equipment allowed them to improve product quality and speed up seasonal work.

Transport companies expressed similar opinions on the advantages of leasing, but emphasised that leasing has become not just a way to update the fleet, but also an important tool for strategic planning. Financial managers of

transport companies noted that the ability to flexibly plan payments and update equipment with minimal budget burden proved to be critical for business expansion. Many logistics companies have been able to increase their customer base through better and faster service through fleet renewal using leasing. The executives noted that leasing allowed them to compete with larger players in the market by offering more flexible terms and reliable services. Leasing, in their opinion, contributed to the long-term sustainability of the business by reducing capital costs for the purchase of equipment and increasing operational efficiency.

In the construction industry, representatives of companies noted that leasing has become not only a means to purchase equipment, but also an important tool to increase competitiveness. The finance directors stressed that leasing allowed companies to accelerate the implementation of projects and reduce the risks associated with delays due to the breakdown of outdated equipment. For construction companies that work on large projects, meeting deadlines is the most important factor in obtaining new contracts.

Leasing, in their opinion, provided them with the opportunity to remain competitive in the market, minimising capital investments, and providing high flexibility in the execution of contracts. They also noted that leasing programmes have reduced the cost of maintenance of old equipment and reduced equipment downtime, which has significantly improved the profitability of projects.

In the manufacturing sector, although leasing transactions are less common compared to other industries, representatives of companies also noted the positive aspects of using leasing. Manufacturing companies are more often faced with the need for large long-term investments in equipment modernisation, which makes leasing especially attractive to them. Financial managers stressed that leasing allowed them to maintain high technological equipment and quickly adapt to changes in demand, which is especially important for enterprises operating in conditions of fierce global competition. However, they also pointed to a longer payback period for investments in the manufacturing sector, which makes the use of leasing a less operational tool compared to other industries. Nevertheless, the companies noted that leasing allowed them to avoid large one-time costs and reduce the financial risks associated with the modernisation of production facilities. The study showed that a number of large commercial banks operate in the country, which provide a wide range of leasing services. Each of these banks has developed its own leasing programmes focused on various industries and customer needs; however, the terms of leasing vary significantly depending on the category of the enterprise, its financial stability and the specifics of its activities.

Ail Bank (2024) plays a key role in providing leasing services for the agricultural sector, due to its specialisation in agriculture and support for farmers. The leasing programme of this bank is aimed at providing access to agricultural machinery, including tractors, combines, and livestock equipment. The programme provides preferential conditions for farmers, such as a lower interest rate and a long loan repayment period. However, the analysis showed that the main beneficiaries of this programme are medium and large farms, since small farmers face high requirements for collateral and creditworthiness. In addition, the interest rate for such clients is often higher than for large companies, which reduces the attractiveness of leasing for small agricultural enterprises. It is important to note that many farmers in remote regions of Kyrgyzstan have difficulty accessing these programmes due to limited financial infrastructure.

Commercial Bank of Kyrgyzstan (2024) offers leasing mainly for large and medium-sized enterprises in the field of construction and logistics. The leasing programmes of this bank are aimed at updating fleets, purchasing construction equipment and cargo handling equipment. The analysis showed that the bank imposes strict requirements on the provision of collateral, and also focuses on customers with a high level of liquidity. The main disadvantage of the programme is that small companies that do not have significant collateral assets cannot take advantage of these

offers. For example, small and medium-sized construction companies that participate in tenders for government contracts face the problem of insufficient financing for the purchase of equipment through leasing, which limits their ability to compete with major players in the market.

Optima Bank (2024) provides a variety of leasing products for the trade, transport and industrial sectors. An important advantage of Optima Bank's leasing programme is the possibility of a flexible payment schedule, which is especially important for companies with a seasonal nature of business. For example, companies working in the field of transport logistics can adjust their payment schedules considering fluctuations in demand and seasonal peaks of activity. Nevertheless, the bank places high demands on financial reporting and business transparency, which makes it difficult for small businesses without a stable financial history to access programmes. Moreover, the study showed that interest rates in Optima Bank vary between 10-14%, which may be unaffordable for a number of enterprises with low profitability.

Demir Bank (2024) and Halyk Bank (2024) are also actively developing their leasing programmes, offering financing for enterprises operating in the field of production and trade. In particular, Demir Bank is focused on supporting the industrial sector by providing leasing for the purchase of production equipment, machine tools and production lines. An analysis of the bank's programmes has shown that the lease term for industrial enterprises can range from 5 to 7 years, which is acceptable for many companies with a long investment payback cycle. However, the main problems faced by enterprises include high requirements for the minimum capital of the company and for collateral, which limits the ability of small industrial companies to participate in leasing programmes. In addition, the bank offers programmes with a floating interest rate, which creates additional risk for enterprises in conditions of economic instability. Halyk Bank, for its part, offers several leasing programmes aimed at small and medium-sized enterprises, but the study showed that access to these programmes is also limited. The bank requires significant assets as collateral and strict requirements for the solvency of the company. The analysis showed that companies that are just starting their activities or have an unstable financial history are practically unable to take advantage of these offers. In addition, Halyk Bank's leasing programmes rarely include the possibility of subsidising interest rates, which makes them less competitive compared to the offers of other banks. Thus, the results of the study showed that despite the availability of various leasing programmes provided by leading banks in Kyrgyzstan, small and medium-sized enterprises face a number of barriers limiting their access to these services. The main problems are related to high requirements for creditworthiness, collateral and insufficient government support. In order to improve access to leasing programmes for such enterprises, it is necessary to develop more flexible conditions adapted to the specifics of small and medium-sized companies, and strengthen

government subsidies for leasing to stimulate its use in key sectors of the economy.

The regulatory framework plays a crucial role in the development and regulation of leasing transactions in Kyrgyzstan. Leasing legislation provides clear rules and conditions that ensure the protection of the rights of all parties involved in the transaction, and also contributes to the development of this financial instrument among small and medium-sized enterprises. The study revealed that the success of leasing programmes in various industries largely depends on current legislation and existing government support programmes that provide access to leasing services even for those enterprises that are experiencing financial constraints. The key regulatory act regulating leasing in Kyrgyzstan is the Law of the Kyrgyz Republic No. 95, which established the legal framework for leasing transactions, defining the rights and obligations of the parties involved in the leasing agreement. This law provided clear rules for the implementation of leasing operations, which increased trust between lessors and lessees. As a result, companies gained access to financial instruments that allowed them to upgrade fixed assets and increase production capacity without having to borrow expensive loans. The Law of the Kyrgyz Republic "On State Support for Small Business" has also had a significant impact on expanding access to leasing services. This law provided additional financial mechanisms that facilitated enterprises' access to preferential leasing programmes, giving them the opportunity to modernise assets without excessive debt burden. Consequently, many small and medium-sized enterprises, especially in agriculture and construction, have been able to use leasing to modernise their production facilities and expand their business.

In transport logistics, legal mechanisms have also contributed to an increase in the use of leasing. Representatives of transport companies noted that clear rules for concluding leasing agreements and protecting the rights of lessees contributed to the spread of leasing programmes in this industry. The legislation has provided lessees with the opportunity to safely use leasing to upgrade their fleet, without fear of excessive financial risks or unilateral changes to the terms of the contract on the part of lessors. This is especially important for transport companies operating in highly competitive conditions and the need for constant updating of equipment to maintain competitiveness.

In the construction industry, companies also noted that the regulatory framework gave them confidence in using leasing as an effective tool for project management. A clear legal framework has allowed construction companies to conclude leasing agreements on favourable terms and timely update the equipment necessary to carry out construction projects. This is especially important in the context of changing project deadlines and the need for flexible cost planning. Construction companies noted that, due to leasing legislation, they were able to minimise financial risks and improve production performance. However, despite the positive impact of the legislation, companies from various industries have identified a number of challenges.

In particular, representatives of small enterprises noted that access to leasing programmes can be difficult due to complex credit requirements. Some farms indicated that, despite the availability of subsidies, it is still difficult for them to obtain approval for leasing, as banks and leasing companies require strict compliance with financial indicators and the availability of sustainable income. In the manufacturing sector, representatives of companies noted that the legal framework, although it creates conditions for leasing transactions, requires further improvement in terms of supporting long-term investments, since the payback period of equipment in this industry is much longer compared to other sectors.

The identified problems underline the need for further development of state support for the leasing sector. First, it is necessary to expand existing subsidy programmes for agro-industrial enterprises to cover more farmers, including those who work in remote areas and have limited access to financial services. Second, specialised support programmes for industrial enterprises should be developed, which may include subsidising interest rates, increasing the payback period for investments, and reducing collateral requirements. Such programmes will help to make leasing more affordable for companies with long investment return cycles, which is especially important for the manufacturing sector.

Discussion

The results demonstrate the importance of leasing transactions for business development in Kyrgyzstan, especially in sectors such as agriculture, transport logistics, construction, and manufacturing. Leasing is an important financial tool for upgrading equipment and improving the efficiency of enterprises (Tsiomalchuk & Kireitseva, 2023). However, to understand the importance of these conclusions, it is necessary to analyse them in the context of international experience and research by other authors.

The study shows a significant impact of leasing on the productivity of agricultural enterprises in Kyrgyzstan, where 90% of companies noted an increase in production capacity and a 25-30% reduction in operating costs. These data correspond to the conclusions of B. Roszkowska-Mądra & P. Łupińska (2022), and Z. Tongxin *et al.* (2023), who investigated the use of leasing in agriculture in developing countries. They found similar productivity gains and cost reductions in countries in Africa and Southeast Asia. A comparison with their results confirms that leasing is a universal tool that contributes to the modernisation of farms in conditions of limited access to traditional financing. This underlines the importance of further development of leasing programmes in agriculture in Kyrgyzstan to expand access to modern technologies and increase the competitiveness of farmers.

In transport logistics, 85% of the companies that participated in the study noted a reduction in equipment maintenance costs and an improvement in the quality of logistics services due to the renewal of the fleet through leasing. These results are consistent with the findings of

Y. Kaena (2022) and Q. Huang (2023), which showed that leasing in South Korea allowed transport companies to reduce operating costs and improve delivery times. In both cases, leasing has become an important tool for improving the competitiveness of transport companies, especially in the context of growing global trade. This comparison highlights the universal nature of leasing as a mechanism for improving logistics operations, which is important for the further development of the Kyrgyz transport sector and its integration into international trade chains.

Additional data from the transport sector showed that 40% of the surveyed companies were able to significantly reduce downtime and improve their customer service conditions, which led to a 15-20% increase in the customer base. The studies by Y. Chen & A. Zhang (2022), J. Hu & D. Wang (2022), dedicated to transport logistics in Latin America, revealed a similar trend: the use of leasing to upgrade the fleet reduced the time for maintenance of equipment and increased the overall reliability of the services provided, which led to an increase in the number of orders. The comparison confirms that leasing not only reduces operating costs, but also directly affects the growth of the customer base and business expansion, which underlines the importance of its use for Kyrgyz transport companies seeking to strengthen their positions in the market. The analysis of the data showed that for construction companies in Kyrgyzstan, leasing not only contributed to reducing project deadlines, but also allowed companies to attract new contracts. About 65% of companies noted that due to the modernisation of equipment through leasing programmes, they were able to participate in larger tenders and offer competitive conditions, which was previously impossible due to outdated equipment. The studies by F. Gurning *et al.* (2022) and X. Tan *et al.* (2022), devoted to the construction industry in the United States, revealed similar results, where leasing helped companies attract more large-scale projects due to equipment upgrades. The comparison indicates that leasing plays a strategic role not only in improving productivity, but also in increasing competitiveness at the industry level, which is especially important for companies operating in the dynamically developing construction sector.

In the construction industry of Kyrgyzstan, 82% of companies reported that the use of leasing allowed them to reduce project deadlines by 20-25% and improve quality control of work. This coincides with the conclusions of H. Chung (2022), K.U. Pasi *et al.* (2022), and F. Azmi (2022), who investigated the impact of leasing on construction companies in Eastern Europe and came up with similar results. Their research showed that leasing allows construction companies to effectively manage project risks and modernise equipment in a timely manner. A comparison of the data confirms that leasing is an important tool for managing capital costs and increasing productivity in construction projects, which underlines its importance for the construction industry in Kyrgyzstan.

Kyrgyzstan's manufacturing sector has shown a more complex picture: 70% of companies noted the positive

impact of leasing, but faced a longer payback period for investments. These results correspond to the conclusions of S. Karaman & I. Akverdi (2022), M. Lan & Y. Ju (2022), who investigated leasing in the UK manufacturing sector and noted that manufacturing enterprises often face a long period of return on investment. This comparison indicates the need to develop specialised leasing programmes for companies with long investment cycles, which would improve the conditions for using leasing in the manufacturing sector of Kyrgyzstan and increase the attractiveness of this financial instrument for industrial enterprises.

The data also revealed problems with the access of small enterprises to leasing programmes. This was confirmed by M. Avi (2022), M. Jazzar (2023) and J. Ren *et al.* (2023) who showed that small businesses in rural areas of Eastern Europe also face difficulties in obtaining leases due to strict credit requirements. A comparison with their results highlights the need for Kyrgyzstan to develop more flexible programmes that would allow small businesses to use leasing more actively to modernise equipment and increase production capacity. This is especially important for agriculture and manufacturing, where small businesses make up a significant proportion. The legislative framework of Kyrgyzstan regulating leasing has had a significant impact on its development, as revealed in the course of the study. This was confirmed by S. Johan (2022), Q. Wang & Z. Yang (2023) and D. Wang *et al.* (2023), and who noted that countries with well-regulated legal norms demonstrate a higher level of confidence in leasing transactions. The Law of the Kyrgyz Republic No. 95, operating in Kyrgyzstan, created the legal conditions for concluding leasing agreements, which significantly contributed to the growth of leasing use in the country. A comparison of these results highlights the importance of clear regulation of leasing activities to ensure the growth of confidence in this financial instrument and its further dissemination among companies.

State programmes of subsidising leasing in agriculture in Kyrgyzstan have shown their effectiveness, which was confirmed by I. Shin & H. Lee (2022) in China. In both cases, subsidised programmes allowed farmers to gain access to modern technologies and improve production performance. This comparison highlights the importance of government support for the development of leasing in the agricultural sector, especially in conditions of high cost of machinery and lack of access to credit resources. The expansion of such programmes can contribute to the further development of agriculture in Kyrgyzstan. An important perspective for the development of leasing is the introduction of digital technologies. The studies by A. Ayoola & A. Oluwafunmilayo (2022), and K. Hunsader *et al.* (2022) have shown that digitalisation of leasing processes can significantly speed up the conclusion of transactions and increase the transparency of transactions. This process has not yet become widespread in Kyrgyzstan, but its implementation can significantly increase the availability of leasing for small and medium-sized enterprises. Comparison with international experience shows that digitalisation is a

promising direction for optimising leasing processes and adapting them to the needs of modern business.

Thus, the results of the study show that leasing has a significant impact on business development in Kyrgyzstan, especially in sectors such as agriculture, transport logistics and construction. However, there are challenges, such as limited access of small enterprises to leasing programmes and long payback periods in the manufacturing sector. Comparison with international studies highlights the universality of leasing as a tool for business modernisation, but also points to the need for further improvement of the legal framework, expansion of government support programmes, and the introduction of digital technologies to improve the efficiency of leasing in Kyrgyzstan.

Conclusions

The study showed that leasing transactions have a significant impact on the modernisation of enterprises in Kyrgyzstan, especially in sectors such as agriculture, transport logistics, construction, and manufacturing. In agriculture, 90% of the surveyed enterprises noted a 25-30% increase in productivity after using leasing to purchase equipment. In transport logistics, 85% of companies reported a 12-18% reduction in operating costs, and a 15-20% increase in the customer base. In the construction industry, 82% of companies have reduced project deadlines by 20-25% due to the renewal of heavy machinery through leasing. In the manufacturing sector, 70% of enterprises recorded an improvement in production capacities, but it was revealed that the payback period for investments here is 5-7 years, which significantly exceeds similar indicators in other industries.

The findings of the study emphasise that the existing leasing programmes offered by banks in Kyrgyzstan significantly contribute to business modernisation, but they are mainly focused on medium and large enterprises. Small companies, especially in the agricultural and industrial sectors, face difficulties in accessing leasing services due to high collateral and creditworthiness requirements. Although banks such as Ail Bank offer preferential terms for the agricultural sector, the programmes are mainly focused on larger farms, leaving small farms without access to leasing. Similar problems are observed in the programmes of Commercial Bank of Kyrgyzstan, Optima Bank, Demir Bank, and Halyk Bank, where strict asset requirements and

high interest rates make leasing less affordable for small and medium-sized companies. The results also revealed the need to increase the role of the state in subsidising leasing, especially for enterprises in remote regions and sectors with a high need for modernisation. In the long term, to increase the availability of leasing, it is necessary to develop more flexible conditions and expand government support programmes, which will allow small and medium-sized enterprises to actively use leasing to modernise and increase their competitiveness.

These results confirm the importance of leasing as a mechanism to stimulate business growth, increase its efficiency and competitiveness. However, there remains the problem of limited access to leasing programmes for small businesses, especially in rural areas. In agriculture, many small businesses face high credit requirements, which makes it difficult for them to access leasing programmes. To solve this problem, it is recommended to introduce subsidised programmes that will reduce the financial burden on small companies, and the development of more flexible conditions for manufacturing companies with a long payback period.

The recommendations include improving conditions for access to leasing programmes through government support and the introduction of digital technologies, which will simplify the processes of concluding leasing transactions and increase their transparency. The introduction of digital platforms can help accelerate the conclusion of contracts, improve communication between lessors and lessees, and attract more small businesses to participate in leasing programmes.

Limitations of the study include the fact that it only covered companies already using leasing. This does not allow considering the reasons why other companies avoid leasing services. In the future, it is necessary to investigate in more detail the barriers to access to leasing and analyse the factors influencing the refusal to use it, and to assess the impact of various forms of government support on the effectiveness of leasing programmes.

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Conflict of Interest

The authors of this study declare no conflict of interest.

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Вплив лізингових угод на розвиток бізнесу в Киргизстані

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Анотація. Метою цього дослідження було визначити, як лізингові угоди сприяють модернізації бізнесу в Киргизстані. У рамках дослідження були використані методи опитувань і напівструктурованих інтерв'ю з представниками компаній, після чого був проведений статистичний аналіз зібраних даних для визначення змін у продуктивності, експлуатаційних витратах і термінах окупності інвестицій. Зокрема, результати показали, що 90 % опитаних сільськогосподарських підприємств відзначили зростання продуктивності на 25-30 % після використання лізингу для придбання техніки, що було підтверджено аналізом даних про скорочення витрат на ремонт і обслуговування старого обладнання. У транспортній логістиці 85 % компаній вказали на зниження експлуатаційних витрат і поліпшення логістичних процесів завдяки оновленню автопарку через лізингові програми, що сприяло також збільшенню клієнтської бази на 15-20 %. У будівельній галузі використання лізингу дало змогу 82 % компаній скоротити терміни виконання проєктів на 20-25 %, що було пов'язано з придбанням через лізинг нової будівельної техніки, здатної прискорити виконання робіт і підвищити якість проєктів. У виробничому секторі 70 % компаній повідомили про позитивний вплив лізингу на їхні виробничі потужності, проте було виявлено триваліший термін окупності інвестицій, що потребує розроблення спеціалізованих лізингових програм з більш гнучкими умовами для промислових підприємств. Результати дослідження підтверджують важливу роль лізингу як фінансового інструменту для модернізації підприємств у Киргизстані, але також виявляють необхідність поліпшення доступу малих підприємств до лізингових програм та адаптації умов для секторів із тривалим інвестиційним циклом, таких як виробництво.

Ключові слова: економіка; фінансовий інструмент; підприємства; інвестиції; лізинг; нормативно-правові акти; нормативно-правові акти

Impact of diversification on strategic business management

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Abstract. This study focuses on analysing the role of diversification as a tool that enables businesses to adapt to changes in the external environment, mitigate risks, and ensure sustainable development. The study explores the main types of diversification: horizontal, vertical, concentric, and conglomerate. Each type of strategy has its own distinct characteristics, benefits, and risks. Horizontal diversification allows companies to expand their product range by utilising existing resources and knowledge, facilitating rapid entry into new markets. Vertical diversification offers the opportunity to control the supply chain or distribution channels, reducing reliance on external partners and enhancing operational efficiency. Concentric diversification enables companies to expand their business by leveraging existing competencies and technologies, thereby minimising risks. Conglomerate diversification, although the most risky, allows businesses to enter new industries unrelated to their core operations, potentially increasing profits. Successful use of different diversification strategies to achieve market leadership is illustrated by companies such as Disney, Tesla, and Mironivsky Hliboproduct (MHP). Tesla employed all types of diversification, controlling every stage of the production of its electric vehicles, including the creation of infrastructure for charging stations. Disney also implemented diversification by expanding its presence through the acquisition of studios, the development of theme parks, and the launch of streaming services. MHP demonstrated examples of diversification by controlling the entire production chain from raw materials to finished products, while also expanding its range of meat products. The conclusion emphasises the importance of a cautious and well-considered approach when selecting a diversification strategy, considering available resources, market opportunities, and the specific characteristics of the business. Successful implementation of a diversification strategy allows companies not only to reduce risks but also to strengthen their position in the face of volatile economic conditions and competitive pressure

Keywords: business strategies; risk management; market expansion; financial performance; competitiveness

Introduction

The current business environment is characterised by rapid changes in external conditions, intensified competition, and continuous technological innovations. Enterprises are compelled to seek new approaches to maintain their competitiveness and ensure sustainable development. One of the most effective methods that allows businesses to adapt to change and minimise risks is diversification. Diversification involves expanding the business by entering new markets and developing new products or services, which provides an opportunity to reduce dependence on a single source of income or market.

The relevance of this subject is driven by the fact that contemporary enterprises increasingly face market instability, which demands flexibility in management and strategic planning. In both global and Ukrainian economies, a substantial number of companies adopt diversification as a means of protection against economic crises, fluctuations in demand, and industry changes. This makes the impact of diversification on strategic management an important subject for investigation. The issue lies in the fact that diversification does not always yield the expected results. Poorly planned and implemented diversification strategies can lead to the dispersion of resources, a loss of focus on the company's core competencies, and, consequently, a reduction in its effectiveness (Hlushko, 2024). It is essential to examine which forms of diversification are most effective for specific types of enterprises and the factors that contribute to the successful implementation of diversification strategies.

From a theoretical perspective, diversification is a key component of strategic management. It encompasses various approaches, such as horizontal, vertical, concentric, and conglomerate diversification. Each of these types has its own advantages and disadvantages, which affect the

company's activities in different ways. Horizontal diversification involves entering new markets with similar products, while vertical diversification entails integrating production or distribution processes. Concentric diversification focuses on using existing competencies to explore new business areas, whereas conglomerate diversification involves venturing into entirely new fields of activity. Thus, the impact of diversification on a company's strategic management is a multifaceted process that requires careful analysis and consideration of the specific characteristics of each enterprise.

Researchers provide varying interpretations of the diversification process, focusing on different aspects of its impact on businesses. Š. Bojnec & K. Knific (2021) consider diversification a key element for the long-term survival and growth of enterprises. They emphasise that well-planned diversification helps companies adapt more rapidly to changes in the market environment and increases their resilience to external challenges. M. Ilchuk *et al.* (2023) highlight that diversification is an effective tool for growth through expansion into new sectors. In their view, the success of diversification depends on the company's ability to manage new divisions efficiently. G. Fuertes *et al.* (2020) also underscore the importance of strategic planning in the context of diversification. The authors stress the necessity of a thorough analysis of internal and external factors affecting the enterprise, particularly its resources and competitive advantages. A. Naglič *et al.* (2020) propose considering diversification through the lens of a product-market matrix, distinguishing strategies for entering new markets, developing new products, and diversification itself. M.S. Oladimeji & I. Udosen (2019) view diversification as crucial for building competitive advantages. They emphasise that this strategy can strengthen a company's market

position through the integration of related businesses or by leveraging existing resources in new areas. H. Le (2019) examined management aspects in enterprises implementing diversification, noting that its success depends on the ability to achieve synergy between different business areas. J. Wu *et al.* (2020) analysed the relationship between diversification and company performance, finding that diversified companies can achieve higher profitability if their new business areas complement the core business.

O. Zghurska *et al.* (2021), in turn, explored market structures and strategic interactions between companies under conditions of diversification, suggesting that it can offer additional advantages in new markets while simultaneously raising entry barriers for other market participants. T. Sohl *et al.* (2020) highlight the importance of market analysis before implementing a diversification strategy. The authors indicate the need to consider shifts in consumer preferences and market conditions to avoid inefficient investments in new products or markets. E. Sobczak and D. Głuszczyk (2022) focus on the role of innovation in the diversification process, arguing that innovative diversification can become a driving force for economic growth by creating new markets and products.

Various authors confirm the importance of diversification as a strategic management tool. However, its effectiveness depends on several factors, including the competencies of the enterprise, market conditions, and the ability of a company to manage diverse areas of activity. Despite the numerous studies dedicated to diversification, there remain several aspects that are under-researched. There is a lack of comprehensive studies that analyse the impact of different types of diversification (horizontal, vertical, concentric, and conglomerate) on the effectiveness of strategic management in turbulent market environments. Another issue relates to the assessment of risks and potential negative consequences of unsuccessful diversification.

The purpose of this study is to evaluate the impact of various types of diversification on the strategic management of enterprises, considering the risks and opportunities for companies of different sizes in a dynamic market environment. The objectives of the study are to assess the risks and potential negative outcomes of diversification on operational efficiency and to identify the key factors for the successful implementation of diversification strategies across different industries.

Materials and Methods

This study is based on a comprehensive approach to analysing diversification strategies, using leading international companies such as Disney, Tesla, and the Ukrainian agribusiness company “Myronivsky Hliboproduct” (MHP) as case studies. Both general scientific and specialised economic methods of analysis were employed. The primary approach was content analysis, which allowed for the collection and systematic review of a large volume of secondary data, including publications, annual company reports, financial indicators, and analytical reviews. These materials

were obtained from publicly available sources, such as reports from Disney (2024), Tesla (2024), and MHP (n.d.), as well as analytical data from financial platforms such as Macrotrends (2024a; 2024b). Data collection and analysis were conducted through qualitative analysis of secondary sources, enabling a focus on the key aspects influencing the selection and implementation of diversification strategies by companies.

The next step of the study involved using comparative analysis to examine different types of diversification strategies, including horizontal, vertical, concentric, and conglomerate diversification. The comparative method allowed for the analysis of different approaches to diversification across three companies from distinct industries, highlighting their common features and differences. The selection of Tesla, Disney, and MHP was driven by the diversity of their activities and the successful application of diversification strategies, providing a detailed examination of the advantages and risks associated with each type of diversification.

The case study method was employed for an in-depth analysis of specific examples of diversification in each company. Tesla was examined in terms of vertical diversification, allowing the company to control all stages of electric vehicle production and service, from raw material procurement to the sale of the final product. Moreover, Tesla's horizontal diversification in energy solutions, such as the production of solar panels and batteries, was also explored. In the case of Disney, the study covered horizontal, vertical, and conglomerate diversification, which spans across various media platforms, the entertainment industry, and other sectors, contributing to the company's global growth and expansion into different markets. MHP was selected as an example of a company employing concentric and vertical diversification, controlling all stages of production from raw material cultivation to the manufacturing and sale of the final product.

To identify the risks associated with diversification strategies, a systems analysis method was utilised, enabling the identification and assessment of potential threats that may arise when implementing new business areas. Specifically, risks such as increased management complexity, loss of focus on core business, rising costs, and the potential negative impact on the company's overall strategy were analysed through the examples of the companies under consideration. The analysis of both successful and unsuccessful diversification cases helped identify key success factors, such as the availability of resources, synergy between new and core business activities, and a deep understanding of market conditions.

Through a comprehensive approach to analysis, the use of various methods, and the examination of specific company case studies, systematic data on the effectiveness of different diversification strategies was obtained.

Results

Diversification is a vital strategy employed by businesses to reduce risks, expand markets, and ensure sustainable

growth. Its essence lies in the expansion of business activities through the introduction of new products, services, or entry into new markets, allowing a company to reduce its dependency on a single source of revenue. There are several main types of diversification, each with its own characteristics, risks, and advantages.

Horizontal diversification is the most common strategy among businesses aiming to enter new markets closely related to their core activities. This involves the development of new products or services that are similar to the primary operations of a company and can be marketed to existing customers. Horizontal diversification enables businesses to leverage their existing resources, knowledge, and market channels for a swift market entry or to attract new consumer groups (Dhir & Dhir, 2015). This strategy is particularly effective for firms with strong market positions and significant brand equity. A successful example of horizontal diversification is Apple, which started with the production of computers and gradually expanded its product range to include smartphones, tablets, watches, and other electronic devices, maintaining a strong connection between its products.

Vertical diversification involves a company expanding either upstream or downstream along the value chain. It can take two forms: backward integration, where a company begins to control the supply of raw materials or components for its own production, and forward integration, where the firm takes control of the distribution or sale of its products. This strategy allows businesses to reduce their dependence on suppliers or intermediaries and enhance control over product quality and operational costs (Block *et al.*, 2016). For instance, car manufacturer Tesla has actively pursued vertical diversification by controlling battery production and distributing its electric vehicles through its own network of stores.

Concentric diversification refers to the expansion of a business based on existing competencies, technologies, or market positions. A company employing concentric diversification seeks to develop new products or services that complement its core business. This form of expansion is based on the firm's existing resources or expertise, making it less risky compared to other forms of diversification (Kim *et al.*, 2017). For example, Samsung, which initially focused on electronics, utilised its research and development capabilities to enter the home appliance market, complementing its primary business.

Conglomerate diversification is the riskiest strategy, as it involves expanding a company into entirely new industries that are unrelated to its core activities. This approach often arises when a company seeks to diversify its investments or mitigate risks associated with a downturn in its primary sector. While conglomerate diversification can yield high returns, it is also fraught with significant risks due to a lack of experience in the new field (Nguyen, 2018). A notable example of this strategy is the General Electric Corporation, which has expanded its operations into various sectors – from aviation to financial services – moving beyond its initial focus on electronics.

Diversification plays a crucial role in ensuring the resilience of a company in the market, particularly in the face of intense competition and rapid changes in the economic environment. One of the primary advantages of diversification is the reduction of dependence on the core business. For companies operating in highly competitive markets or unstable conditions, diversification allows for risk distribution by entering new sectors or developing new products (Kotsenko *et al.*, 2023).

Another important factor is the creation of synergy among different business lines. Diversification can help companies generate synergistic effects between various products or services, enhancing overall efficiency and reducing costs. For instance, horizontal diversification allows the utilisation of shared resources, such as production capacities, distribution channels, marketing efforts, or research and development, to serve multiple markets simultaneously. This enables a company to increase profitability by making more effective use of its existing assets (Chen *et al.*, 2019). Moreover, synergy can manifest in the form of cross-selling, where products or services from one business segment contribute to increased sales in another segment.

Enhancing a company's innovative potential through diversification is also a critical component of competitiveness. Expanding into new areas encourages companies to adopt innovative technologies and processes, which improves the quality of products or services and meets new consumer demands. Firms that actively engage in diversification can implement innovations across multiple sectors simultaneously, thereby increasing their chances of future success. For example, Google, which began as a search engine, has leveraged diversification in artificial intelligence, mobile platforms, and autonomous vehicles to secure leading positions in various technological fields.

Diversification can serve as an effective means of strengthening a brand. Entering new markets or creating new products allows companies to extend their brand influence and enhance brand recognition among diverse consumer groups. This enables the company to increase its market share and strengthen relationships with customers. Successful expansion of product or service offerings can solidify a company's reputation as a leader in its industry, fostering greater trust among its clientele (Shim, 2019).

Despite the numerous advantages, diversification as a business development strategy has its drawbacks. Each type of diversification is accompanied by specific risks that can affect the success of a company. These risks may include increased management complexity, loss of focus, financial expenditures, and potential negative consequences for the overall business strategy. Expanding product offerings can lead to the dilution of a company's resources, especially if new products require substantial investments in research, development, or marketing (Holzmayer & Schmidt, 2020). When a company attempts to occupy multiple market niches simultaneously, it risks losing its key competitive advantages in its core business. For example, Kodak, once a leader in the photography industry, tried to diversify its

business by investing in digital technologies and other sectors but ultimately lost its market position due to insufficient attention to the major changes in the photography industry (Menezes & Pinto, 2022).

Furthermore, diversification can lead to product “cannibalisation”, where new products or services begin to compete with existing products from the same company, resulting in decreased sales. This can become problematic if the company is unable to manage its product portfolio effectively and avoid duplication or market saturation with similar offerings. One of the main disadvantages of vertical diversification is the increase in management complexity. Taking control of new parts of the supply chain or sales process necessitates that a company possesses in-depth knowledge of these processes and adequate resources to manage them. Expanding into new areas of activity may require significant investments in infrastructure, personnel, and technology, which do not always justify expectations. For example, companies seeking to control the entire production process, from raw materials to the sale of the final product, may encounter challenges in effectively managing all links in this process. Vertical diversification can also reduce the flexibility of a company. Controlling a large part of the supply chain makes a company more dependent on its internal processes, potentially complicating its ability to adapt to external market changes.

An important concern with concentric diversification is the risk of excessive reliance on existing competencies. A company that focuses too heavily on leveraging its own technologies or expertise may miss out on innovations or radical changes in the industry. For instance, firms investing in the development of new products based on their conventional competencies may find that these new products do not meet the needs of the contemporary market (Fan & Xiao, 2023). This can limit a company's adaptability and lead to a loss of market position. Even if a company utilises its existing resources, the development and launch of new products still require investment. If new products fail to meet expectations, this can result in severe financial losses.

The primary drawback of conglomerate diversification strategies lies in their high level of uncertainty. When a company enters unfamiliar markets, it faces difficulties associated with a lack of experience, knowledge, and contacts in the new sector. This increases the risks of making poor management decisions, underestimating costs, or misunderstanding the complexities of the new area of operation. Conglomerate diversification can also lead to the dispersion of managerial resources (Bellon *et al.*, 2020). Managing completely disparate businesses requires specialised knowledge and different approaches, complicating the overall management of the company. In addition, the emergence of new, unrelated businesses can dilute the strategic focus of the company, diminishing its capacity to concentrate its efforts effectively on its core areas of activity.

The Walt Disney Company is one of the most prominent examples of successful business diversification. Its transformation from an animation studio into a global media

giant illustrates how a well-planned diversification strategy can lead to tremendous success. Throughout its history, Disney has employed various forms of diversification, including horizontal, vertical, and conglomerate strategies.

Disney began its operations as a producer of animated films, but over the decades, the company has actively diversified its business by acquiring other studios and developing new products for diverse audiences. In 2006, Disney acquired Pixar, the studio behind animated blockbusters such as *Toy Story*, *Finding Nemo*, and *Cars*, for USD 7.4 billion. This acquisition significantly strengthened Disney's position in the animation market, resulting in a series of successful film projects and increased profitability. Furthermore, Disney acquired Marvel Entertainment for USD 4 billion, gaining access to a vast array of comic book characters and franchises. The Marvel Cinematic Universe has emerged as one of the most successful media projects in history, generating over USD 25 billion at the global box office. This expanded Disney's audience reach and substantially solidified its position in the global entertainment market. In 2012, Disney also acquired Lucasfilm for USD 4.05 billion, which included rights to the *Star Wars* and *Indiana Jones* franchises. *Star Wars* remains one of the most lucrative franchises worldwide, and the release of new films and series has helped Disney maintain audience interest for decades.

In addition to focusing on content creation, Disney has also actively worked to expand its distribution and infrastructure to deliver entertainment through various channels. One of the most successful avenues of vertical diversification for Disney has been the establishment of theme parks. The first Disneyland Park opened in California in 1955, and over the following decades, the company launched several other parks in the USA, Europe, and Asia, including Disney World in Florida, Disneyland Paris, Tokyo Disneyland, and Shanghai Disney Resort. These theme parks have become significant revenue sources, attracting millions of visitors each year. In 2022, revenues from the parks and resorts exceeded USD 28 billion. The streaming service Disney+ was launched in November 2019 and achieved 100 million subscribers within two years, with numbers exceeding 160 million by 2023. Disney+ has positioned the company strongly in the digital media market, enabling it to compete with Netflix and Amazon Prime Video. In 1996, Disney acquired the ABC television network, granting it access to a vast array of television channels and sports broadcasting through ESPN. This presence in television has allowed Disney to control the distribution of its content across various media platforms.

Over time, Disney has also begun to actively develop areas not directly related to media or entertainment. The company has become a significant player in innovation and new technologies, investing in the development of technological solutions for entertainment. This includes not only streaming services but also the use of artificial intelligence, virtual reality, and augmented reality to enhance customer engagement. Revenue and profit figures for the company are presented in Figure 1.

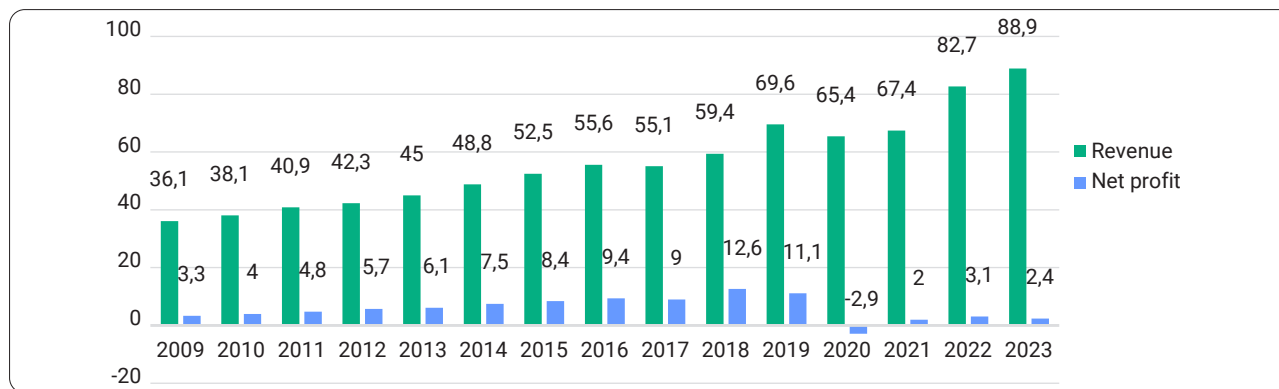


Figure 1. Revenue and profit of Disney from 2009 to 2023 (in billion USD)

Source: developed by the authors based on data from Macrotrends (2024a)

From 2009 to 2023, Disney demonstrated stable growth in revenue and profits, attributable to successful diversification and business expansion, particularly through the acquisition of major franchises such as Marvel and Lucasfilm and opening new theme parks. However, the COVID-19 pandemic in 2020 caused a decline in revenue and resulted in a net loss for the first time in decades. Following this, the company began a gradual recovery, and although revenues reached record levels in 2023, net profit remained below the peak figures of 2018–2019, potentially indicating increased expenditures on streaming services and other new initiatives.

Tesla is one of the most notable examples of an innovative company that has leveraged diversification to establish a new standard within the automotive, energy, and technology sectors. Founded in 2003, Tesla has become a pioneer in electric vehicle production and has expanded its operations into various markets through diverse diversification strategies. Since its inception, Tesla has impacted multiple industries and is now viewed as a leader in the transition towards more environmentally sustainable technologies.

One of the initial instances of Tesla's diversification was the expansion of its electric vehicle lineup, which enabled the company to penetrate various segments of the automotive market. The first car of the company, the sporty electric Roadster, was released in 2008 and demonstrated the potential of high-performance electric vehicles with significant driving range. It demonstrated the potential of electric vehicles with high performance and long driving range. The launch of the Model S marked the beginning of mass production for premium electric vehicles. This sedan gained popularity due to its extensive range (up to 600 km on a single charge), innovative autopilot features, and high performance, helping Tesla to establish a reputation as a technological leader. The company continued its diversification by releasing the Model X crossover, which became the first electric sport utility vehicle with unique "falcon-wing" doors and high safety ratings. The Model 3 emerged as a significant breakthrough, allowing Tesla to enter the mass market

with a more affordable electric vehicle. Model 3 became the best-selling electric car globally, achieving remarkable success due to its pricing, driving range, and extensive array of technological innovations.

Tesla is actively pursuing vertical integration by controlling both the manufacturing process and the infrastructure for its electric vehicles and energy products. Tesla's manufacturing plants, known as Gigafactories, play a crucial role in the vertical diversification strategy of the company. The first Gigafactory in Nevada was opened in 2016, and since then, the company has established several such factories worldwide, including in China, Germany, and Texas. These facilities enable Tesla to independently produce batteries and electric vehicles on a large scale, thereby reducing costs and enhancing control over the supply of components. Tesla has developed its own global network of charging stations for its electric vehicles, which has become a key aspect of its vertical integration strategy. The Supercharger network allows Tesla drivers to quickly charge their vehicles worldwide, facilitating the use of electric vehicles and enhancing their appeal to consumers.

Tesla has also diversified into other high-tech sectors, moving beyond conventional automotive manufacturing. The company is a pioneer in the development of autonomous driving technologies. Its Autopilot system is among the most advanced on the market, and the company continues to invest in the creation of fully autonomous vehicles. Tesla collects data from millions of vehicles, which helps to refine its artificial intelligence algorithms, a critical step towards developing driverless cars. In 2021, Tesla announced the development of the Tesla Bot, a humanoid robot designed to assist with routine tasks. This project illustrates how the company aims to leverage its expertise in artificial intelligence and robotics to enter an entirely new market. Tesla is also expanding its operations into commercial transport. The company introduced the Tesla Semi, an electric truck designed to reduce fuel costs for logistics companies, as well as the Cybertruck, which combines innovative design with high performance. Figure 2 illustrates the company's revenue and profit from 2009 to 2023.

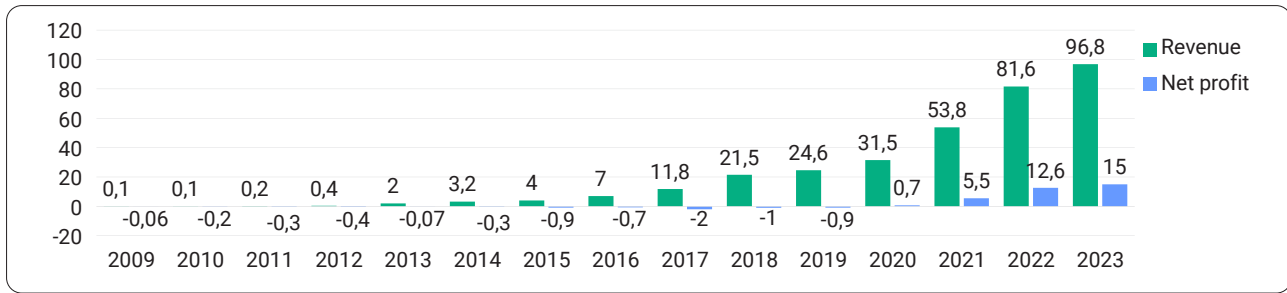


Figure 2. Revenue and profit of Tesla from 2009 to 2023, USD billion

Source: developed by the authors based on Macrotrends data (2024b)

The figure demonstrates the evolution of the company from a stage of significant losses to stable profits and revenue growth. In its early years, Tesla faced financial challenges, despite a gradual increase in revenue; however, 2020 marked a turning point when the company achieved its first net profit, signalling the effectiveness of its strategies. Subsequently, Tesla continued to exhibit impressive financial growth, driven by the successful launch of new vehicle models and expansion into new areas such as battery production and energy solutions. Key factors in this success included innovative technologies, expanded manufacturing capabilities, and the ability to adapt to market changes, allowing the company to emerge as a leader in the electric vehicle sector.

MHP is one of the largest agro-industrial companies in Ukraine, distinguished by its strategic diversification within the agribusiness and food industry. Founded in 1998, the company initially specialised in poultry production, but over time expanded its business by employing various diversification strategies to enhance its competitiveness in both Ukrainian and international markets. MHP actively pursues horizontal diversification, broadening its product range and introducing new items to meet consumer demands. The primary activity within the company remains poultry production, but MHP has gradually begun producing other types of meat, such as pork and beef. This strategy has enabled the company to mitigate risks associated with fluctuations in demand for a single product type and attract new consumers. MHP has introduced several proprietary brands to the market, including “Nasha Ryaba”, “Piryatin”, and “Smachna Sprava”, allowing it to secure competitive positions in the retail sector. In response to the growing

demand for ready-to-eat meals and convenient food products, MHP has also invested in the production of meat semi-finished products and prepared meals, enabling the company to respond swiftly to shifts in consumer trends.

The company implements vertical diversification by controlling most production stages, which provides it with competitive advantages in the market. MHP owns and operates its poultry farms, enabling it to control the quality of raw materials, reduce production costs, and ensure supply stability. The company also possesses agricultural enterprises that grow grains and feed crops essential for poultry feeding. This vertical integration ensures stability in the production process and reduces dependence on external suppliers. MHP has its own facilities for processing meat products, which helps to lower transportation costs and enhance business efficiency.

In addition to its agribusiness operations, MHP is actively expanding into new business segments. It is one of the largest exporters of poultry in Ukraine, supplying its products to over 50 countries worldwide, including Europe and the Middle East. This allows the company to capitalise on global demand and expand its market reach. MHP is investing in renewable energy projects, particularly biogas plants, enabling the company to utilise production waste for energy generation. This initiative not only reduces costs but also enhances the environmental profile of the company. The company is actively implementing new technologies in agribusiness, including the automation of production processes and innovative solutions to improve product quality, which allows it to remain at the forefront of its industry. Figure 3 illustrates the revenue and profit of MHP from 2009 to 2023.

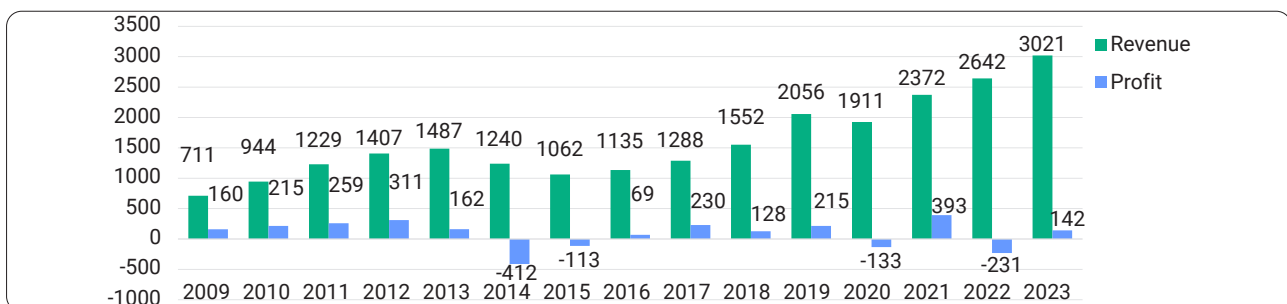


Figure 3. Revenue and profit of MHP from 2009 to 2023, USD million

Source: developed by the authors based on MHP reports (n.d.)

The figure demonstrates the instability of profitability against the backdrop of consistently rising revenues, which is influenced by economic crises and global events, such as war and pandemics. Following a period of steady growth from 2009 to 2013, the company faced sharp losses during the 2014 crisis. However, it gradually regained its position, showing positive results until 2019. The negative impact of the pandemic in 2020 and military events in 2022 led to significant losses; nevertheless, in 2023, the company exhibited signs of recovery, indicating stabilisation and a return to profitability.

For large companies with well-developed resources and global opportunities, the diversification strategy must be carefully considered in light of both current market conditions and long-term prospects. Horizontal diversification can be an effective strategy for companies that already possess strong positions in their primary market and seek to expand their product or service offerings. This approach allows companies to maximise their market share, reduce risks associated with dependence on a single product, and strengthen their competitive advantages. Vertical diversification can be beneficial for large corporations aiming to control all stages of production, from raw materials to end consumers. This control helps to lower costs, ensure quality management, and enhance business efficiency. Global corporations have the capacity to invest significant resources in supply chain and production management, enabling them to be more flexible in an unstable economic environment.

For medium-sized companies looking to expand their business, concentric diversification is a suitable strategy. This involves leveraging existing competencies and technologies to create new products or enter new markets related to the core activities of a company. Such an approach minimises risks by capitalising on established experience and knowledge. For instance, a company specialising in furniture manufacturing may expand its operations into adjacent segments, such as producing interior accessories or offering design services. However, medium-sized companies should avoid excessive concentration of resources by entering too many new markets simultaneously. Gradual development, utilising existing strengths and partnerships, is key to success. Furthermore, conducting thorough market analysis prior to launching new products is essential to ensure adequate demand and favourable conditions for growth.

Small companies should adopt a cautious diversification strategy due to their limited resources and capabilities. The best approach for them is adjacent or concentric diversification, allowing them to develop within a familiar domain while utilising existing skills and resources. A small business could, for example, offer new services or products to its current customer base, thereby minimising risks and maintaining stability. For small companies, it is also important to focus on innovation and specialisation. It is crucial for small enterprises to maintain financial flexibility, control costs, and avoid excessive investments in new areas that may be risky or fail to meet short-term expectations. In addition, it is important for small businesses to maintain financial flexibility, control costs, and avoid over-investing

in new destinations that may be risky or fall short of expectations in the short term.

A strong corporate culture that fosters innovation, openness to change, and collaboration encourages active employee engagement in diversification processes. This, in turn, can enhance motivation and employee involvement, which is critical for the successful execution of new projects. When employees feel that their contributions are valued, they are more willing to embrace new ideas and solutions, positively impacting the company's adaptation to new market conditions and reducing the risks associated with diversification.

Discussion

Research on business diversification strategies highlights their importance in risk reduction, market expansion, and sustainable growth. The findings indicate several primary types of diversification, each with its unique characteristics, advantages, and risks. Horizontal diversification, the most common strategy, allows companies to leverage their existing resources to enter new markets swiftly. This is particularly significant for firms that already hold a strong market position. For instance, Apple's experience demonstrates how diversification can help maintain competitive advantages by introducing new products closely related to the core business. P. Arte & J. Larimo (2022) emphasised horizontal diversification as the most effective strategy during economic instability. They argued that this approach enables companies to respond quickly to changes in demand by using existing resources to launch new products. This conclusion aligns with the findings obtained, where it is also noted that horizontal diversification creates opportunities for faster market entry. However, it can be contended that this approach is not universally applicable, as in highly competitive markets, horizontal diversification may fail to deliver the desired results if the company lacks sufficient resources to support new initiatives.

Vertical diversification, on the other hand, allows companies to control more stages of the production process, thereby reducing dependence on suppliers and intermediaries. This is particularly relevant in the contemporary economic environment, where quality and cost control are of critical importance (Tiurina *et al.*, 2023). For example, Tesla not only manufactures electric vehicles but also controls battery production, enabling the company to reduce costs and improve efficiency. A.W. Stevens J. Teal (2024) investigated the risks of vertical diversification. They argue that this approach can lead to excessive managerial complexity, hindering a company's ability to respond swiftly to market changes. The authors emphasised the need for a balance between production control and flexibility, highlighting that excessive control may impede a company's ability to adapt. In this context, the present findings also acknowledge the risks associated with vertical diversification, though they focus more on quality control issues. This presents an opportunity for further research: does the importance of quality control truly outweigh the risks posed by managerial complexity, as suggested by the author.

Concentric diversification, which is based on leveraging existing competencies, reduces the risks associated with initial investments in new products. This underscores the importance of innovation, as companies must be prepared to adapt to changes in demand and implement new technologies. Samsung is a prime example of how a company can successfully apply its technological expertise to expand into new segments, such as home appliances. M.E. Widi-ana & D. Amartani (2019) examined concentric diversification, noting how it enables companies to remain within their areas of expertise. They cited examples of successful companies that expanded into new segments using existing technologies. This approach is reflected in the current findings, which emphasise the importance of concentric diversification for medium-sized enterprises. J. Sahni & A.S. Juhari (2019), on the other hand, focused on risk reduction, whereas the present study highlights the potential for innovation, creating a degree of dissonance in approaches to evaluating concentric diversification. On one hand, it is possible to agree with the authors that risk reduction is a critical aspect, particularly for companies with limited experience. However, the emphasis on innovation is equally important, as growth opportunities may outweigh the risks associated with new products if implemented thoughtfully.

Conglomerate diversification, involving entry into entirely new industries, is the riskiest strategy. While it may yield high returns, a lack of expertise in new sectors can lead to significant losses. General Electric is an example of a company that successfully diversified into various sectors but encountered challenges due to a lack of sufficient knowledge about the new markets it entered. L. Atieno & O. Sangoro (2023) consider conglomerate diversification the most hazardous but potentially rewarding strategy, particularly for companies with significant experience. They also provided an example of a company that successfully diversified into new industries but encountered financial difficulties. Current results also highlight the risks of conglomerate diversification. In line with the authors' conclusions, it is crucial to highlight the importance of successful experience in the execution of such a strategy. The current findings also stress this point, demonstrating similarities in the approach to risk assessment. It is also worth examining examples of companies that diversified without adequate expertise and subsequently failed.

Despite its numerous advantages, diversification has its drawbacks. Increased management complexity, resource dilution, and the risk of product cannibalisation can affect a company's success (Nogoibaeva *et al.*, 2024). In particular, Kodak's attempt to diversify into digital technologies resulted in the loss of key competitive advantages due to insufficient attention to its core business. Issues related to vertical diversification also warrant discussion. Increased managerial complexity can reduce a company's flexibility in responding to rapid market changes. Companies must recognise that controlling all stages of production requires substantial investment in human resources and technology, as well as in-depth knowledge of new areas.

V. Jafari-Sadeghi *et al.* (2021) highlighted the role of technology in diversification strategies. They argue that companies implementing new technologies have a higher chance of success in diversification. P.A. Balland *et al.* (2019) also emphasised the importance of thorough market research before implementing any changes. Current findings underscore the importance of innovation, which aligns with their conclusions, but technological aspects are not as detailed as in the authors' works. Technological advancements can influence diversification strategies and impact a company's overall outcomes.

R.M. Lizares (2019) examined the impact of the external environment on diversification strategies. He emphasises that changes in political, economic, and social contexts can significantly affect the success of diversification strategies. The results also acknowledge the importance of external factors, although the current study is more focused on internal capabilities.

For large companies with well-developed resources and global reach, diversification strategies must account for both current and long-term market conditions (Ilchuk *et al.*, 2023). Horizontal diversification can be an effective strategy for strengthening market positions, while vertical diversification enables cost reduction and increased quality control. For medium-sized companies, concentric diversification, which leverages existing technologies, is more appropriate (Kalchenko *et al.*, 2018). Small enterprises should approach diversification cautiously, choosing strategies that allow them to maintain financial flexibility and avoid excessive investment in new, high-risk ventures. J.C. Alves *et al.* (2020) argued that small businesses should avoid risky diversification strategies and focus on strengthening their core products. They provided examples of small companies that failed due to aggressive diversification. Current results also recommend caution for small enterprises in pursuing diversification, supporting the authors' stance. However, the importance of financial flexibility should be emphasised alongside the risks. Companies need reserves to adapt to changes and should focus on safety and stability.

H. Guyader & L. Piscicelli (2019) examined the role of corporate culture in the context of diversification. They argue that companies with a strong corporate culture are more successful in implementing diversification strategies, as employees embrace change and adapt to new conditions more readily. The current findings do not place as much emphasis on the importance of corporate culture, though they touch upon employee motivation. There is a link between corporate culture and success in diversification, where cultural changes can either support or hinder the implementation of new strategies.

Different analytical approaches, such as focusing on risks, the importance of technology, the external environment, and corporate culture, allow for a more comprehensive understanding. The current findings, while noting both similarities and differences with the authors' views, emphasise the importance of diversification and the critical role of a company's internal capabilities in its success.

Conclusions

Diversification is an effective tool for reducing risks, expanding markets, and ensuring sustainable business growth. Diversification strategies enable companies to reduce their reliance on a single product or market, thereby increasing competitiveness and adaptability to market changes. Horizontal diversification allows firms to leverage existing resources and market channels, which is particularly beneficial for companies with a strong market position. Vertical diversification, as exemplified by Tesla, enables a company to control the entire production process, reducing dependence on suppliers and increasing business efficiency.

Concentric diversification offers the opportunity to expand based on existing competencies, reducing the risks compared to other forms of diversification. However, companies must be cautious to avoid over-reliance on current competencies, as this may limit opportunities for innovation. Conglomerate diversification, while holding the potential for high returns, is associated with uncertainty and risks due to a lack of experience in new industries.

The risks associated with each strategy have also been considered. For instance, excessive diversification may lead to a loss of focus on a company's core activities, and managing various businesses requires additional resources and expertise. However, for many companies, as demonstrated by the examples provided, well-executed diversification has been the key to sustainable development and enhancing innovation potential.

One of the key aspects of the study was the examination of companies actively employing diversification strategies to expand their businesses. Disney serves as a prime example of a company utilising horizontal, vertical, and conglomerate diversification. Initially focused on producing animated films, Disney has since evolved into a global media corporation encompassing film studios, theme

parks, streaming platforms, and innovative technology projects. Tesla is another example of a company actively pursuing diversification, particularly vertical diversification. In addition to manufacturing electric vehicles, Tesla has expanded into battery production, autonomous driving technologies, and energy solutions. This strategy has enabled the company to reduce its reliance on external suppliers and establish itself as a leader in several innovative industries simultaneously.

MHP, a leading agribusiness company in Ukraine, demonstrates successful diversification within the agricultural sector. The company not only expanded its product range by producing various types of meat and ready-made products but also implemented vertical integration by controlling most stages of production – from growing grain for feed to meat processing. This approach has allowed MHP to improve efficiency, enhance competitiveness, and expand its presence in international markets. The study thus demonstrates that diversification is a key tool for reducing risks, increasing market share, and strengthening competitive advantages. Different diversification strategies can be effectively applied depending on the scale and nature of the business.

The limitations of the study include the insufficient volume of data on company diversification strategies and the potential impact of market changes on the analysis results. Future research could focus on comparing the effects of different diversification strategies on small and medium-sized enterprises and exploring new trends in diversification in the context of rapidly changing market environments.

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Conflict of Interest

None.

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Анотація. Дане дослідження направлене на аналіз ролі диверсифікації як інструменту, що дозволяє підприємствам адаптуватися до змін у зовнішньому середовищі, зменшувати ризики та забезпечувати сталий розвиток. Розглянуто основні види диверсифікації: горизонтальну, вертикальну, концентричну та конгломератну. Кожен тип стратегії має свої особливості, переваги та ризики. Горизонтальна диверсифікація дозволяє компаніям розширювати асортимент продукції, використовуючи наявні ресурси й знання, що сприяє швидкому входженню в нові ринки. Вертикальна диверсифікація надає можливість контролювати ланцюг поставок або збуту продукції, що знижує залежність від зовнішніх партнерів і підвищує операційну ефективність. Концентрична диверсифікація допомагає компаніям розширювати бізнес на основі існуючих компетенцій та технологій, що мінімізує ризики. Конгломератна диверсифікація, хоча і є найбільш ризикованою, дозволяє підприємствам увійти в нові галузі, не пов'язані з основною діяльністю, що може значно збільшити прибутки. На прикладах таких компаній, як Disney, Tesla та "Миронівський Хлібопродукт" (МНП), показано успішне використання різних стратегій диверсифікації для досягнення провідних позицій на ринку. Tesla використовувала всі види диверсифікації, контролюючи всі етапи виробництва своїх електромобілів і навіть створюючи інфраструктуру для зарядних станцій. Disney також реалізував диверсифікацію, поширюючи свою присутність через придбання студій і розвиток розважальних парків, а також запроваджуючи стримінгові сервіси. МНП демонстрував приклади диверсифікації, контролюючи весь ланцюг виробництва від сировини до готової продукції, водночас розширюючи асортимент м'ясної продукції. У висновках підкреслюється важливість обережного і виваженого підходу до вибору стратегії диверсифікації, враховуючи доступні ресурси, ринкові можливості та особливості бізнесу. Успішне впровадження диверсифікаційної стратегії дозволяє компаніям не лише знизити ризики, але й суттєво зміцнити свої позиції в умовах мінливої економічної ситуації та конкурентного тиску.

Ключові слова: бізнес-стратегії; ризик-менеджмент; розширення ринків; фінансові результати; конкурентоспроможність

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The role of global economic change in the transformation of Georgian management

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Abstract. This study examines the impact of global economic changes, particularly European integration, on the transformation of management practices in Georgian enterprises. It highlights how foreign investment, international standards, and technological innovations have reshaped corporate structures and management strategies. The methodology included both quantitative and qualitative analyses, focusing on sectors such as agriculture, pharmaceuticals, and IT, which attract foreign investment and engage in international economic activities. Data was gathered through surveys and financial reports to explore management transformations spurred by European integration and foreign managers' influence. Key findings show that foreign managers and Georgian specialists educated abroad have been crucial in modernizing management practices by introducing international best practices adapted to local conditions. Adopting European standards has significantly improved operational efficiency and competitiveness, especially in quality-sensitive industries. However, challenges remain, particularly for small and medium-sized enterprises (SMEs), which face financial constraints in investing in staff training and new technologies. Resistance to change among middle management and employees further complicates the transition to innovative management approaches. In particular, Georgian companies must focus on building robust internal leadership and management talent to reduce reliance on external expertise. This includes creating ongoing professional development programs, fostering a culture of innovation, and ensuring that knowledge transfer from foreign managers to local teams is effective. Additionally, developing strategies to overcome resistance to change will be critical. Expanding research across more industries and incorporating objective performance metrics will provide a broader understanding of global economic changes in Georgia management practices

Keywords: regional business practices; impact of foreign experience; leadership strategies; joint ventures; European integration

Introduction

Global economic changes continue to significantly impact national economies, causing profound transformations in various sectors, including governance. As a country actively integrating into European and global markets, Georgia faces challenges and opportunities accompanying these changes. The signing of the Association Agreement with the European Union (EU) and the Deep and Comprehensive Free Trade Agreement (DCFTA) was a catalyst for these transformations (EU-Georgia deep and..., 2016). The introduction of European business standards and deepening economic integration create new requirements for management approaches and strategies.

The relevance of the topic is determined by the fact that the changes caused by international agreements require Georgian enterprises not only to modernize existing management methods but also to develop new strategies that meet international standards. In particular, economic integration with the EU puts pressure on enterprises to adapt to new rules and procedures, which requires management changes. In addition to political and economic agreements, the presence of foreign managers working in branches of international companies or joint ventures has a significant impact on changes in management style in Georgia. Their experience and management techniques play a key role in modernizing Georgian management practices. This allows Georgia to borrow international best practices and adapt them to local conditions.

Another important factor is the return of Georgian specialists who have been educated abroad and are implementing innovative practices in leading Georgian companies. Their experience of working according to European and global standards contributes to the rapid development of corporate governance in the country. The problem of the study is the need for an in-depth analysis of the impact of

these changes on Georgian management practices to identify key areas for the development of management in the context of global economic changes.

The study of global trends in the sharing economy found that digitalization and intellectualization optimize management processes. E. Panchenko & A. Samoilenko (2023) noted that digital platforms are changing social relations in management. However, legal regulation and business social responsibility regarding sharing models are still under-researched.

The COVID-19 pandemic and globalization have significantly impacted international commerce. L. Smolii *et al.* (2020) observe that globalization increases the influence of major firms and accelerates reshoring. They also emphasize how new technologies have driven trans-nationalization in small and medium enterprises (SMEs). However, the effects of digitalization and reshoring on global economic processes require further research.

Business transformation due to the Ukraine conflict is another key focus. V. Vergeles & D. Baiura (2020) highlight digitization and reorganization as primary adaptation strategies, emphasizing the importance of digital technology for process optimization. Nonetheless, there is still a gap in studying digitalization's long-term effects on business resilience during conflict. Global economic developments have caused significant changes in the economy and society. L. Batyuk & T. Reznitska (2021) note that globalization has transformed labour markets and income distribution, exacerbating inequalities. They also identify paradoxes in globalization that require further exploration, particularly its effect on national competitiveness.

Research on globalization's impact shows that digitalization and international trade have driven economic growth through innovation and global value chains.

E.A. Bespalyy (2023) noted the positive effects on the economy and consumers while highlighting gaps in studying environmental impacts and the need for deeper analysis of digital flows. Georgia's economic strategy shifted due to the COVID-19 outbreak. G. Zoidze & S. Veshapidze (2022) stress the need for stronger public sector management to attract investment and boost exports. More research is needed on fiscal policy's role in long-term economic stability. Globalization has stimulated innovation and integration of national economies into world trade, as noted by M. Chania & R. Putkaradze (2022). However, studies point to insufficient research on the environmental consequences and the impact of digital flows on international markets, which requires additional analysis.

The study aims to analyse the impact of global economic changes on the development of management approaches in Georgia, focusing on the role of foreign investment and the introduction of technological innovations. The objectives of the study are to analyse the main economic and management transformations taking place in Georgia under the influence of globalization, as well as to determine the role of foreign investment and technological innovations in the development of modern management approaches in Georgian enterprises.

Materials and Methods

The study of the impact of global economic changes on management approaches in Georgia was conducted from January to July 2024 based on Georgian enterprises involved in international economic processes. The main objects of the study were companies from the agriculture, information technology (IT), and industry sectors that actively attract foreign investment and cooperate with foreign partners. The sample of companies was selected based on their participation in international programs and economic integration.

The study consisted of quantitative and qualitative components. The quantitative research was based on the analysis of economic indicators of the enterprises. The data were obtained from statistical reports of the National Statistics Office of Georgia (n.d.). The analysis was carried out using Excel and SPSS software, which allowed to focus on the indicators of foreign investment, enterprise productivity, and innovation.

The qualitative research consisted of a survey of executives and managers of enterprises involved in international economic processes. The survey was conducted through the online platform Google Forms, which allowed to reach a wider audience of respondents. All survey participants provided their informed consent before participating in the study. They were informed about the purpose of the study, its objectives, the types of data that would be collected, and how the data would be used. The respondents agreed to the processing of their data by the current data protection legislation. Confidentiality and anonymity of responses were guaranteed, and no personal information was linked to the answers. A total of 50 responses were

collected from middle and senior management. All respondents were aged 30 to 55 with at least five years of management experience. The main questions concerned changes in the management system caused by the implementation of European standards, the use of new technologies, and adaptation to global challenges.

The questions in Google Forms concerned the implementation of the latest management strategies, changes in management approaches, and the role of technological innovations in the transformation of enterprises. The collected responses were processed using the content analysis method, which allowed to identify key trends in the management of Georgian enterprises in the context of globalization.

To complement the study, an additional analysis of open sources related to the activities of the participating companies was conducted, including financial reports and publications in economic journals (AG Georgia, 2023; General Motors, 2023; European Medicines Agency, 2024). This allowed to supplement the data obtained in the quantitative and qualitative research with details on the implementation of strategies for adapting to global economic changes and the use of foreign investment to modernize management processes. Thus, the study was based on a combination of quantitative and qualitative methods, which allowed for an in-depth analysis of the impact of global economic changes on management processes in Georgia.

Results

Global economic changes, which began at the end of the 20th century and continue into the 21st century, have a profound impact on countries actively involved in international economic processes. Georgia, as a country with a relatively small economy and limited resources, is intensively integrating into the global economy, which, on the one hand, opens up opportunities for economic growth and modernization but, on the other hand, presents new challenges and tasks for Georgian companies.

Georgia's independence after the collapse of the Soviet Union marked an important starting point for its integration into the global economy. Since gaining independence, the country has sought international cooperation and participation in global trade. This opened up new opportunities for development, including access to international markets, the inflow of foreign investment, and modernization of key economic sectors. One of the most important stages in this integration was the signing of the Association Agreement with the EU in 2014, as well as the DCFTA with the EU (EU-Georgia deep and..., 2016). These agreements provided Georgian companies access to the largest market in the world, offering new export opportunities.

The signed agreements required Georgian companies to adapt to European standards, especially in terms of quality, management, and production processes. This was not only a stimulus for development but also a challenge for businesses. Local companies had to rethink their strategies, modernize their production facilities, and restructure management to comply with the stringent requirements

of the EU. Nevertheless, the opportunity to enter the European market has become a strong incentive for many Georgian enterprises.

Furthermore, globalization combined with foreign investments has brought significant changes to Georgia's economy, greatly influencing the management style of Georgian companies. One of the main sources of these changes was the introduction of foreign managers who brought international standards and management techniques to local companies. Many of these managers work in the branches of international companies or joint ventures, helping Georgian companies adapt to international business conditions.

Another important factor in the transformation of management in Georgia was the return of specialists educated abroad. These professionals, having received degrees from leading universities in Europe and the USA, brought modern management practices and strategies that proved beneficial for modernizing local companies. These specialists took key positions in Georgian companies, introducing innovations and helping businesses adapt to the demands of international markets.

Foreign managers working in Georgian companies have become one of the main factors in the transformation of local management. Research has shown that foreign managers working in Georgian branches of international companies or joint ventures have significantly improved

management in these companies. At companies like the "Tbilisi Automotive Company" and the "Kutaisi Metallurgical Plant", the introduction of international experience has led to optimized production processes, reduced costs, and improved product quality.

Special attention is given to quality management. For example, at the "Tbilisi Automotive Company", foreign managers introduced Total Quality Management principles, which significantly improved quality control, reduced defects, and increased customer satisfaction. This was an important step in expanding the company's export opportunities, as high product quality is a key requirement for entering international markets.

At the "Kutaisi Metallurgical Plant", foreign managers introduced strategic planning methods, allowing the company to develop long-term growth strategies and improve resource management. This is especially important in the metallurgical industry, where effective resource management is critical to maintaining competitiveness in international markets. Moreover, foreign managers have made significant changes to human resource management in Georgian companies. They introduced new approaches to human resources management, emphasizing employee training and development. For instance, many companies have started developing training programs aimed at improving employee skills, helping companies adapt to the rapidly changing conditions of global markets, as can be seen in Table 1.

Table 1. Number of foreign managers and their impact on Georgian companies

Company	Number of foreign managers	Main changes in management
E-Motors Georgia	5	Optimization of production processes
Kutaisi Metallurgical Plant	7	Introduction of strategic planning
Agro Holding of Georgia	4	Improvement of logistics processes
GM Farma	6	Introduction of EU quality standards
Georgia IT Innovation Center	3	Innovations in Project Management

Source: created by the authors

The introduction of international management practices by foreign managers has had a significant impact on Georgian companies, allowing them to improve processes and increase management efficiency. This indicates the importance of integrating foreign experience to accelerate modernization. Georgian specialists who have studied abroad also play a significant role in transforming management in Georgian companies. These professionals, educated at leading universities in Europe and the USA, return to Georgia with deep knowledge of international management standards and cutting-edge management practices. Their experience and qualifications have been crucial in modernizing management within enterprises. Research indicates that at "GM Farma", specialists with international

education implemented a quality control system based on Good Manufacturing Practices (GMP) standards (European Medicines Agency, 2021). This significantly improved the quality of products and increased export opportunities. Thanks to these standards, the company gained access to new markets, especially in the EU, where product quality requirements are among the strictest in the world.

Furthermore, specialists with international education at the "Agro Holding of Georgia" introduced innovative supply chain management methods, which helped the company improve logistics and increase resource efficiency. This played a critical role in boosting the company's productivity and its ability to compete in international markets, as can be seen in Table 2.

Table 2. Return of specialists and their impact on Georgian companies

Company	Number of foreign managers	Main changes in management
E-Motors Georgia	3	Automation of management processes

Table 2, Continued

Company	Number of foreign managers	Main changes in management
Agro Holding of Georgia	2	Optimization of supply chain management
GM Farma	4	Improvement of quality control systems
Georgia IT Innovation Center	5	Implementation of innovative management technologies

Source: created by the authors

The return of Georgian specialists with international education contributes to the introduction of advanced management practices, improving product quality and business efficiency. This underscores the importance of investing in education and developing human capital to enhance the competitiveness of Georgian companies on the international stage. The Association Agreement with the EU and DCFTA had a substantial impact on Georgian companies, requiring them to adapt to European standards. These standards cover a wide range of management and production aspects, including product quality, safety, environmental sustainability, and data protection. Georgian companies had to invest significant resources in modernizing their production processes and management structures to comply with these requirements.

At “GM Farma”, the implementation of GMP standards became a priority, requiring significant efforts and investments. However, the results were very successful. After the company adapted its processes to EU requirements, its products gained access to new markets, including EU countries, where strict requirements for pharmaceutical product quality are mandatory. This allowed the company to increase export volumes by 30% within two years of implementing the standards.

Georgian companies in the agricultural sector were also at the centre of transformation under the influence of agreements with the EU. The “Agro Holding of Georgia” which actively operates in international markets, had to undergo certification according to European food safety standards. For this, the company needed to modernize its quality control systems and introduce new production management methods. These changes allowed the company to access new markets and significantly improve its position in international trade. However, the adaptation process involved high costs for staff training, acquiring new equipment, and optimizing supply chains.

Adapting to EU standards also affected industrial enterprises. For example, the “Kutaisi Metallurgical Plant” implemented environmental sustainability standards required by the EU for export activities. This necessitated the introduction of new waste processing technologies and improvements in resource management. Despite the high costs associated with implementing these standards, the company was able to enter new markets and enhance its reputation as an environmentally sustainable enterprise. The impact of EU Agreements on Georgian Companies can be seen in Table 3.

Table 3. Impact of EU agreements on Georgian companies

Company	Key changes after signing EU Agreements
GM Farma	Implementation of GMP standards
Agro Holding of Georgia	Certification for European food safety standards
Kutaisi Metallurgical Plant	Compliance with environmental sustainability standards
Georgian IT Innovation Center	Introduction of EU data protection standards

Source: created by the authors

Agreements with the EU have played a crucial role in transforming Georgian companies, pushing them to adapt to strict international standards. These changes have opened new export opportunities for Georgian enterprises, increasing their competitiveness in international markets.

Despite the positive results of implementing international standards and innovative management approaches, Georgian companies continue to face several challenges. One of the key problems is the lack of qualified personnel capable of adapting enterprises to new conditions and standards. Many companies struggle with training employees in new technologies and management methods, which slows the process of implementing changes (Akhmetova et al., 2024). In addition, the introduction of new standards

and technologies requires significant financial investments, which is a serious barrier for many SMEs. It is generally limited in accessing finances and cannot afford large-scale investments in modernizing production processes. As a result, many Georgian enterprises face the problem of insufficient preparation for adopting international standards, limiting their competitiveness in the global market. Moreover, resistance to change from employees is another challenge. In many enterprises, especially those that have used outdated management methods for a long time, employees resist the introduction of new approaches. This requires additional efforts from managers in change management and raising awareness among employees about the benefits of new technologies and methods.

For example, the “Kutaisi Metallurgical Plant” encountered significant resistance when implementing environmental sustainability standards. Middle management and workers feared that the introduction of new standards would lead to job cuts or deteriorating working

conditions. As a result, the implementation of changes took longer than expected and required additional expenses for staff training and managing resistance. Challenges in implementing international standards can be seen in the Table 4.

Table 4. Challenges in implementing international standards

Problem	Number of companies facing the problem	Main difficulties
Lack of staff training	4	Need for additional training and education
High cost of technology implementation	3	Expenses on purchasing and maintaining new systems
Resistance to change	2	Opposition from middle management

Source: created by the authors based on Understanding the challenges of international norms and standards (2024)

The implementation of international standards faces several challenges, including a lack of qualified personnel, high technology costs, and resistance to change. Overcoming these challenges requires investing in staff training and developing effective change management strategies (Pererva & Myronova, 2023).

One of the key factors for the successful adaptation of Georgian companies to global economic changes is the development of human capital. In the context of globalization and integration into international markets, qualified employees are the most valuable asset of companies. However, Georgian companies face a shortage of staff capable of working under new management and technological standards. Georgian companies are increasingly investing in employee training and development programs.

Many companies send their managers to training and educational programs abroad to learn advanced management methods and implement them in their companies. For example, “GM Farma” organized a series of training sessions for its managers in EU countries, where they studied GMP standards and methods for their practical implementation.

However, access to such educational programs remains limited for SMEs. It often cannot afford to invest in staff training, reducing their ability to adapt to new conditions. This problem requires government support and international cooperation to provide access to educational resources for all categories of companies. The key directions for human resource development in Georgian companies can be seen in Table 5.

Table 5. Key directions for human resource development in Georgian companies

Development direction	Main objectives	Examples of implementation
Training and skill development	Preparing employees to work with new technologies	EU standards training, educational programs
Leadership skills development	Improving managerial competencies	Leadership development programs for managers
International internships and exchanges	Implementing international management standards	Internships and knowledge exchange with European colleagues

Source: created by the authors based on K. Khupenia (2023)

Human capital development is a key factor in the successful adaptation of Georgian companies to global changes. Investing in staff training and skill development will help companies better handle the challenges associated with implementing international standards and innovative technologies.

The global economy has undergone significant shifts over the last few decades, particularly in terms of increased interconnectedness, technological advancements, and the rapid expansion of international trade. These changes have fundamentally altered the way businesses operate worldwide, and Georgia is no exception. Globalization has opened up new markets, fostered foreign

investment, and accelerated the introduction of modern management practices in Georgian enterprises.

As a small but strategically positioned economy, Georgia has faced both opportunities and challenges in adapting to these global economic changes. The country's economic growth has been driven largely by foreign direct investment (FDI) and the liberalization of its market, which has encouraged international trade and investment. These global shifts have brought modern business practices, technological innovations, and new management approaches to Georgian enterprises, particularly through the influence of multinational corporations and joint ventures.

FDI has been one of the most influential factors in shaping the modern management landscape in Georgia (Hayes, 2024). Since its independence, Georgia has actively pursued foreign investment to boost economic growth, modernize infrastructure, and develop its business environment. This strategy has had a profound impact on the way management is practiced in the country.

Foreign investors have not only injected capital into the Georgian economy but also brought with them international management standards and practices. Multinational companies operating in Georgia, such as British Petroleum in the energy sector and Heidelberg Cement in construction, have introduced Western-style management techniques that emphasize efficiency, innovation, and performance-based outcomes (Carpenter, 2016). These companies have set benchmarks for Georgian enterprises, encouraging them to adopt more structured, transparent, and competitive management approaches.

One of the key changes that foreign investment has driven in Georgia is the shift from traditional, hierarchical management structures to more decentralized, flexible systems. This shift has allowed Georgian companies to become more agile and responsive to market changes. In addition, foreign companies often focus on the development of human capital, investing in the training and upskilling of their workforce, which further strengthens the management capabilities within Georgian enterprises.

The influence of foreign managers working in Georgian subsidiaries or joint ventures has also played a crucial role in this transformation. These managers bring with them international experience, which is invaluable in helping local businesses navigate the complexities of global markets. In sectors such as banking, telecommunications, and logistics, foreign managers have introduced advanced management tools, including enterprise resource planning systems, customer relationship management systems, and performance management frameworks. These tools have streamlined operations, improved decision-making, and enhanced overall efficiency within Georgian companies.

The introduction of technological innovations has been another major driver of change in the management practices of Georgian companies. Globalization has accelerated the diffusion of technology across borders, allowing even SMEs in Georgia to adopt cutting-edge solutions that enhance productivity and competitiveness.

One of the most significant technological trends impacting management in Georgia is the rise of digitalization. Many Georgian companies have embraced digital tools to optimize their operations, reduce costs, and better serve their customers. For example, the adoption of cloud computing solutions has enabled businesses to store and access data more efficiently, collaborate remotely, and scale their operations without significant upfront investments in IT infrastructure. This shift towards digitalization has been particularly important in sectors such as retail, where e-commerce platforms have enabled Georgian companies to reach a broader customer base both domestically and internationally.

Moreover, automation has started to play a significant role in improving the efficiency of Georgian enterprises. In industries such as manufacturing, agriculture, and logistics, companies are increasingly using automated systems to streamline production processes, reduce human error, and minimize operational costs. This, in turn, has allowed Georgian enterprises to compete more effectively in international markets, where efficiency and quality are key differentiators.

However, while technological innovations have brought numerous benefits, they have also posed challenges for Georgian companies, particularly in terms of workforce adaptation. Many employees lack the necessary skills to operate advanced technologies, which has created a skills gap that needs to be addressed through targeted training programs. Companies that have successfully implemented technological innovations, such as the "Georgian IT Innovation Center", have invested heavily in employee training, ensuring that their workforce is equipped to handle new technologies.

Globalization has not only impacted the structural and technological aspects of management but also brought significant changes to corporate culture in Georgian enterprises. Traditionally, Georgian companies operated with a hierarchical, top-down management style, where decision-making was centralized, and authority was concentrated in the hands of a few senior managers. However, the influx of foreign investment and the exposure to international business practices have gradually shifted this dynamic.

Many Georgian companies have started to embrace a more open, collaborative, and participatory management style, influenced by Western business models. In sectors such as finance, hospitality, and technology, companies have adopted flatter organizational structures that encourage innovation, creativity, and employee engagement. This cultural shift has been especially evident in companies with a large foreign workforce or those that are part of multinational corporations.

One notable example is the "Agro Holding of Georgia", where the introduction of participatory management practices has led to significant improvements in employee morale and productivity. By giving employees more autonomy and involving them in decision-making processes, the company has been able to foster a culture of accountability and innovation. This shift towards a more inclusive management style has been instrumental in driving the company's growth and competitiveness.

In addition, globalization has brought a greater emphasis on corporate social responsibility (CSR) in Georgian companies. Many multinational companies operating in Georgia have introduced CSR initiatives that focus on environmental sustainability, community engagement, and ethical business practices. This has encouraged local companies to adopt similar initiatives, helping to improve their reputations and build stronger relationships with stakeholders.

While globalization has brought many benefits to Georgian enterprises, it has also created challenges that need to be addressed. One of the main challenges is the increasing

competition from foreign companies. As Georgia continues to open its market to international players, local companies face pressure to improve their management practices, enhance their efficiency, and meet international standards.

Another challenge is the need for continuous innovation. In a rapidly changing global economy, companies must constantly evolve to stay competitive. This requires a strong focus on research and development, as well as the ability to quickly adapt to new technologies and market trends. Georgian companies that fail to innovate risk falling behind their international competitors, particularly in industries such as technology, manufacturing, and agriculture.

At the same time, globalization presents significant opportunities for Georgian companies to expand their operations beyond the domestic market. By adopting modern management practices, leveraging foreign investment, and embracing technological innovations, Georgian enterprises can increase their competitiveness and tap into new markets across Europe, Asia, and beyond. This is particularly relevant in the context of Georgia's strategic location, which positions the country as a key hub for trade and logistics in the South Caucasus region.

Furthermore, the increasing integration of Georgia into global value chains offers new opportunities for local companies to collaborate with international partners. Joint ventures, strategic alliances, and partnerships with multinational corporations can provide Georgian companies with access to new markets, technologies, and expertise. These collaborations can also help Georgian companies improve their management capabilities and adopt best practices from leading global firms.

The study highlights the significant impact of global economic changes on the development of management approaches in Georgia. The influx of foreign investment, the introduction of technological innovations, and the influence of globalization have reshaped the way businesses are managed in the country. Georgian companies, particularly those that have embraced international management practices and invested in technological advancements, have been able to enhance their competitiveness and expand their presence in global markets.

However, the challenges associated with globalization, including increased competition, the need for continuous innovation, and the skills gap in the workforce, must be addressed to ensure the sustainable development of Georgian enterprises. Investing in human capital, fostering innovation, and building stronger partnerships with international companies will be key to overcoming these challenges and ensuring the long-term success of Georgian businesses.

The future of management in Georgia will largely depend on the country's ability to adapt to the rapidly changing global economy. By continuing to attract foreign investment, embracing technological innovations, and developing a skilled workforce, Georgian companies can position themselves as competitive players in the global marketplace. The ongoing process of modernization and integration into the global economy presents a unique

opportunity for Georgian enterprises to thrive and contribute to the country's economic growth.

Discussion

The discussion of the results focuses on the impact of global economic changes on the transformation of management practices in Georgia. In the context of deeper integration into the European economic area and active attraction of foreign investment, Georgian enterprises have faced the need to quickly adapt to new standards. In particular, the introduction of foreign management approaches and technological innovations has become a key factor in business modernization.

The internationalization of management processes, especially through the involvement of foreign managers, has contributed to improving the quality of management, increasing the efficiency of production processes, and creating more flexible corporate structures. The return of foreign-educated professionals has further strengthened these processes, allowing for the adaptation of international best practices to local conditions. However, these changes have also brought new challenges to businesses, such as the need to invest in staff training, overcoming resistance to change, and the high costs of adopting new technologies.

O. Mihalache and H. Volberda (2010) exploration of how emerging economies adapt their management practices and business models also shares similarities with this study. Both investigate the role of foreign investment and technology in reshaping management strategies in response to new economic conditions. O. Mihalache and H. Volberda, however, took a more generalized approach to business model innovation across various emerging markets, examining broader trends in how companies pivot in the face of global economic pressures. In contrast, this study narrows the focus to Georgia's specific experience, particularly how foreign managers and European integration have spurred changes in local management practices. The study delves into the nuanced impacts of European investment and guidance, showcasing how foreign management reshapes Georgian business models in the face of new international expectations.

O. Petricevic & D. Teece (2019) also studied the impact of globalization on management strategies, with a focus on multinational companies and the challenges they face. Both O. Petricevic and D. Teece and this study emphasize the transformative role of foreign capital and how globalization reshapes governance structures within firms. However, O. Petricevic and D. Teece paid more attention to macroeconomic trends and global governance shifts, highlighting new forms of international integration and their implications for large, multinational firms. In contrast, this research focuses more on the localized impact of European investment in Georgia, analysing how it influences management at a granular level, particularly through the lens of foreign managerial influence and sector-specific reforms.

P. Samimi & H. Jenatabadi (2014) also looked at the role of globalization in economic development and

management change. Both studies focused on the impact of global economic transformations on management approaches. However, P. Samimi & H.S. Jenatabadi focused more on economic indicators and political factors, while the other study looked at the implementation of specific management practices in the Georgian business environment, with a focus on European integration and the influence of foreign managers.

K.W. Khaw *et al.* (2022) investigated the reactions of organizations to change, especially during global economic transformations. In both cases, the adaptation of management approaches under the influence of external factors was considered. However, K.W. Khaw *et al.* focused on the psychological aspects of change, while the other study was more focused on management strategies and the impact of foreign investment and technology on business development in Georgia.

K. Schwertner (2022) examined the impact of digital technologies on management processes. Both studies emphasized the importance of technological innovations for increasing the competitiveness of enterprises. However, K. Schwertner's study explored general trends in digital transformation, while the other study focused on the adoption of specific technologies and standards in Georgian companies under the influence of European agreements.

Work by M. Qureshi (2021) on digital technology and governance explored how innovations in technology drive economic change and necessitate new governance models. Both studies discussed the transformative power of digital innovation in reshaping business practices. However, M. Qureshi took a global perspective, analysing broad technological trends and their effects on governance worldwide. In contrast, the other study concentrated on the adoption of specific digital innovations by Georgian companies, particularly within the framework of European integration. This localized focus illustrated how technological advancements, backed by European investments, are influencing the modernization of management practices in Georgia.

Analysis by G. Shirokova *et al.* (2015) of economic transformation similarly paralleled the themes of managerial change driven by external factors. G. Shirokova and others examined how economic shifts in the UK, particularly in sectors undergoing rapid change, prompted adaptations in managerial practices. Like the other study, G. Shirokova *et al.* recognized economic transformation as a crucial driver of management change. However, while G. Shirokova *et al.* study remained centred on UK-based examples, the other research focused on the specific context of Georgia, where European investments and reforms have led to significant shifts in managerial strategies, particularly in response to the country's integration into the European economic space. The analysis of the results highlights the profound influence that global economic transformations have had on management practices in Georgia. The necessity to quickly adapt to European standards, driven by deepening integration into the EU economic space and the inflow of foreign investments, has resulted in significant

shifts in corporate structures and management strategies. The introduction of foreign management approaches, combined with technological innovations, has accelerated the modernization of Georgian companies, allowing them to enhance efficiency and competitiveness.

However, while these changes have brought clear benefits, they have also posed new challenges. Georgian companies now face the pressing need for continuous investment in staff training and the modernization of production processes. Resistance to change from both employees and middle management has emerged as a significant barrier to implementing new technologies and managerial practices. The research demonstrates that the involvement of foreign managers and specialists with international education has been crucial in overcoming some of these hurdles by introducing global best practices tailored to local needs.

The findings underscore the importance of balancing the advantages of international integration and innovation with the practical challenges faced by local companies in adapting to these new conditions. The role of foreign investment and international management practices is undeniably a key driver in this transformation, but successful implementation depends on the ability to address internal resistance, foster innovation, and invest in human capital to sustain these changes over time.

Conclusions

The study's findings show that the evolution of management methods in Georgian businesses has been greatly impacted by developments in the global economy, especially those brought about by European integration. The modernization of corporate structures has increased due to the entry of foreign management approaches and technological breakthroughs. According to the report, foreign managers and experts with foreign education were crucial in bringing best practices to Georgian businesses and bringing them up to speed with global norms. The adoption of European business techniques has raised competitiveness globally and enhanced production efficiency, especially in industries like IT, pharmaceuticals, and agriculture.

However, several challenges emerged during the adaptation process. Georgian companies face significant financial barriers, particularly SMEs, which struggle to invest in staff training and technological upgrades. The study revealed that resistance to change, especially among middle management and employees accustomed to outdated practices, further complicates the adoption of new management strategies. Overcoming these challenges requires not only financial investment but also a focus on human capital development, particularly through continuous training and education programs for staff.

The study also highlighted that, while foreign investment and international management practices have improved operational efficiencies, the reliance on external expertise poses risks. Georgian enterprises need to develop internal capacity to sustain long-term growth. This includes fostering local leadership and management talent

capable of handling the complexities of a globalized economy. One limitation of the research was the focus on a limited number of industries, primarily agriculture, IT, and pharmaceuticals, which may not fully represent the broader economic landscape of Georgia. Another limitation is the reliance on self-reported data from managers, which could introduce biases. Expanding future studies to include more diverse sectors and objective measures of success (such as financial performance over time) would provide a more comprehensive view of the impact of global economic changes on Georgian management practices. In conclusion, this study confirmed that European integration and foreign investment have significantly transformed management practices in Georgia, highlighting the need to overcome resistance to change and enhance local capacity for long-term success and competitiveness.

Future research on management methods in Georgian businesses should focus on several key areas. First, it is vital to assess the long-term impact of foreign management and how local businesses can sustain changes without ongoing external support. Second, examining how SMEs can access international financial resources and training programs will help them overcome implementation barriers. Finally, expanding the study to include industries, services, and tourism will shed light on the effects of foreign management practices across the Georgian economy.

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Conflict of Interest

None.

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Роль глобальних економічних змін у трансформації грузинського менеджменту

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Анотація. У цьому дослідженні розглядається вплив глобальних економічних змін, зокрема європейської інтеграції, на трансформацію управлінських практик на грузинських підприємствах. Воно висвітлює, як іноземні інвестиції, міжнародні стандарти та технологічні інновації змінили корпоративні структури та управлінські стратегії. Методологія дослідження включала як кількісний, так і якісний аналіз, зосереджуючись на таких секторах, як сільське господарство, фармацевтика та ІТ, які залучають іноземні інвестиції та беруть участь у міжнародній економічній діяльності. Дані були зібрані за допомогою опитувань та фінансових звітів, щоб дослідити управлінські трансформації, спричинені європейською інтеграцією та впливом іноземних менеджерів. Основні висновки показують, що іноземні менеджери та грузинські фахівці, які отримали освіту за кордоном, відіграли вирішальну роль у модернізації управлінських практик шляхом впровадження найкращих міжнародних практик, адаптованих до місцевих умов. Прийняття європейських стандартів значно підвищило операційну ефективність та конкурентоспроможність, особливо в галузях, чутливих до якості. Однак проблеми залишаються, особливо для малих і середніх підприємств, які стикаються з фінансовими обмеженнями при інвестуванні в навчання персоналу та нові технології. Опір змінам серед керівників середньої ланки та працівників ще більше ускладнює перехід до інноваційних управлінських підходів. Зокрема, грузинські компанії повинні зосередитися на розвитку сильного внутрішнього лідерства та управлінських талантів, щоб зменшити залежність від зовнішньої експертизи. Це передбачає створення постійних програм професійного розвитку, сприяння розвитку культури інновацій та забезпечення ефективної передачі знань від іноземних менеджерів місцевим командам. Крім того, критично важливою буде розробка стратегій подолання опору змінам. Розширення дослідження на більшу кількість галузей та включення об'єктивних показників ефективності забезпечить ширше розуміння глобальних економічних змін в управлінських практиках Грузії

Ключові слова: регіональні бізнес-практики; вплив іноземного досвіду; стратегії лідерства; спільні підприємства; європейська інтеграція

**Economic assessment of the export potential of the Kyrgyz regions:
Methodology for calculating and analysing the rating**

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Abstract. The purpose of the study is to develop a methodology for assessing the export potential of the regions of Kyrgyzstan and conduct an analysis aimed at identifying key factors affecting competitiveness and the development of export opportunities. The methodology is based on the analysis of statistical data from official sources such as the websites of government agencies, ministries, statistical agencies, and international organisations to ensure the accuracy and reliability of the assessment of the export potential of the regions of Kyrgyzstan. The results of the study show that from 2019 to 2023, there was an overall increase in export volumes in the regions of Kyrgyzstan due to successful economic reforms and infrastructure improvements. The greatest achievements are observed in Batken, Jalal-Abad, Talas regions and the city of Bishkek, while Issyk-Kul and Naryn regions need additional measures. The positive dynamics of the gross regional product (GRP) per capita confirms economic growth and an increase in living standards. The implementation of tax reforms and investments in infrastructure creates favourable conditions for exports. In turn, the international experience of countries such as Singapore, Germany, South Korea, Chile, and India demonstrates the effectiveness of investments in infrastructure and support for innovation to increase the competitiveness of the country's regions. The conclusions highlight the importance of targeted government initiatives and investments for the balanced development of regions and maximising their contribution to the national economy through the effective use of export potential. Special attention is paid to the need to develop regional support programmes that promote the growth of export activity, improve infrastructure, and attract international investors. This, in turn, contributes to reducing economic disparities between regions and ensuring sustainable economic growth of the country in general

Keywords: strategic planning; investment climate; international trade; competitiveness; trade policy; export; export potential

Introduction

The examination of the export potential of the regions of Kyrgyzstan is extremely relevant since effective management of export opportunities can substantially affect the economic growth of the country. In the context of globalisation and the integration of national economies into international trade, countries with heterogeneous economic and infrastructural conditions need strategic planning to identify and use their economic advantages. The lack of a comprehensive methodology for assessing export potential may limit the ability of the state to maximise the opportunities of each region, which leads to uneven economic development and reduces the country's competitiveness at the international level. Research on this subject will help develop effective strategies for balanced economic growth and improved export performance, which is key to improving Kyrgyzstan's stability.

The problem of research in this industry is a lack of understanding of how export promotion programmes, measures to strengthen export potential, and the impact of foreign direct investment affect the export potential of countries, and how risk management of small and medium-sized enterprises (SMEs) in developing countries depends on their economic level.

In the study by A. Dooranov *et al.* (2023), the strategic directions for the development of the export potential of Kyrgyzstan and Ukraine were analysed, emphasising the importance of a systematic approach for effective growth. Based on the data obtained, the concept and mechanism for realising the export potential for the regional development of Central Asian countries are presented. Researchers O. Malca *et al.* (2020) focused on the impact of external factors, in particular, export support programmes on SMEs, and concluded that participation in such programmes has a positive impact on the export resources of SMEs in

developing countries. Their study also analysed changes in the structure of exports and imports, focusing on the relationship between the exchange rate and trade indicators, and noted the need to develop processing industries. A. Catanzaro and C. Teyssier (2021) showed that government export support programmes have a positive impact on the international results of SMEs. O. Shnyrkov *et al.* (2020) analysed the impact of Ukraine's economic integration on export diversification in the period 2013-2018, pointing to an increase in the concentration of exports through trade barriers. In turn, A. Dooranov *et al.* (2023) examined the strategic management of foreign economic activity of agricultural enterprises, having developed an effective procedure for assessing the strategy of innovation activity. P.C. Athukorala & H. Hill (2023) analysed Kyrgyzstan's trade policy, noting that the country achieved macroeconomic stabilisation after the Soviet period, but economic growth remained limited. I. Ahmad *et al.* (2024) assessed Pakistan's export potential, finding substantial untapped potential at USD 2 billion for new goods and USD 5 billion for existing ones. U. Shahzad *et al.* (2022) investigated the role of structural changes in the growth of developed countries, stressing the positive impact of export quality and financial development on long-term growth.

In the subject under study, insufficient attention has been paid to the specific aspects of assessing the export potential of the regions of Kyrgyzstan, especially in developing detailed calculation methods that consider regional economic characteristics. Due to the lack of a single method for assessing export potential, existing research focuses on common approaches, apart from a detailed analysis of regional differences and their impact on competitiveness. This leads to gaps in understanding the true factors affecting export potential and highlights the need for further

research and development of more accurate and adapted methodologies.

The purpose of this study is to create a methodology for a comprehensive assessment of the export potential of the regions of Kyrgyzstan, which will identify the main obstacles and opportunities for the development of the country's foreign economic activity. The following tasks were set to achieve this goal: assess the positions of different regions of Kyrgyzstan in the export potential ratings; examine the impact of state economic reforms and policy decisions on the export potential of the regions; compare successful practices and strategies in countries such as Singapore, Germany, South Korea, Chile, and India to identify effective approaches to increasing export potential to review regional characteristics, such as access to resources, quality of infrastructure and other factors affecting export opportunities; determine the competitiveness of regions in international markets and develop recommendations for improving economic efficiency and strategic development.

Materials and Methods

With the help of economic analysis, the results were assessed and influence factors such as economic and social aspects affecting the export potential of the regions of Kyrgyzstan were identified. Special attention was paid to identifying the reasons why some regions showed high or low results and the possibility of improving their export potential by changing certain economic policies. For this purpose, data on exports of goods by region and gross regional product (GRP) per capita were used.

An analysis was used that allowed assessing such important aspects as the impact of tax policy to assess the impact of economic reforms and political decisions on the export potential of the regions of Kyrgyzstan, in particular, tax rates and benefits, on export activities. It provided a deeper understanding of how government decisions contributed to or hindered the development of export activities.

With the help of a comparative analysis, the export potential of Kyrgyzstan was examined, based on the experience of countries such as Singapore, Germany, South Korea, Chile and India, which have succeeded in developing their export activities. The analysis allowed collecting data on selected countries with high export rates that are relevant for comparison. In turn, the data collected were used for a detailed analysis of the strategies and practices applied in these countries,

including government policies, tax measures, trade agreements, and other initiatives that contributed to the successful development of exports. An analysis was applied to examine the regional characteristics affecting export potential, focused on key factors such as access to natural resources, the state of infrastructure, the level of human capital development, and economic and political stability. Each of these aspects was assessed to determine their impact on opportunities and constraints in the development of export sectors in different regions and to identify potential ways to improve export performance. Based on the results obtained, a methodology for assessing export potential was developed, which included the creation of innovative tools, and factors affecting exports such as software for integrating key indicators and analytical tables for data visualisation were also clarified.

Statistical data from official sources were used to analyse the export of goods and GRP of the regions of Kyrgyzstan, in particular, the National Statistical Committee of the Kyrgyz Republic (n.d.a; n.d.b), International Monetary Fund (n.d.), U.S. Department of State (2023a; 2023b; 2024), Ministry of Commerce and Industry of India (n.d.), statistical information from the reports of the United Nations Economic Commission for Europe (2015), and W. Naudé & P. Nagler (2017), who provided valuable data and analytical conclusions helping to analyse in more depth the impact of export programmes and investments on the economic development of countries, and assessed the effectiveness of various approaches to managing export potential and risks. The use of these resources allowed examining in detail various aspects of economic activity, in particular, the export potential of the regions, assessing their impact on economic development and international trade.

Results

In today's globalised world, the rating of the export potential of regions is an important tool for assessing their economic competitiveness and development prospects. Assessing the positions of different regions of Kyrgyzstan in such ratings allows getting a clear idea of their strengths and weaknesses in the context of international trade. It also helps to identify the key factors affecting their export potential, priorities for further development and optimisation of export strategies. Next, an analysis of the export activities of different regions of Kyrgyzstan from 2019 to 2023 was conducted (Fig. 1).

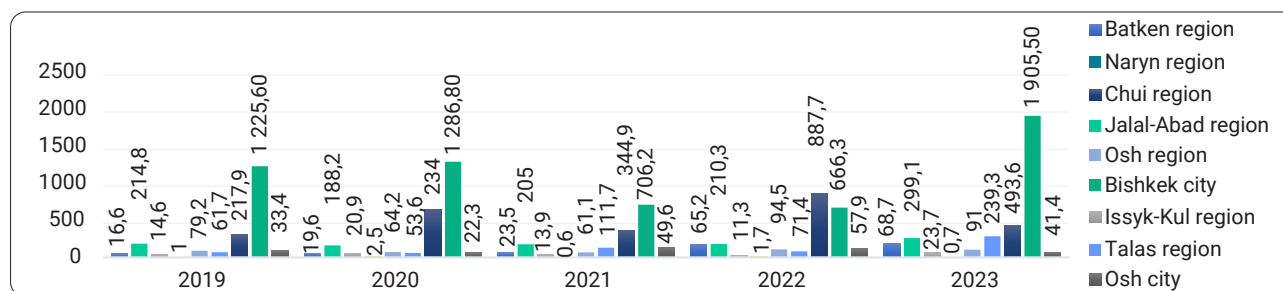


Figure 1. Exports of goods by regions of Kyrgyzstan from 2019 to 2023, million USD

Source: developed by the authors using data from the National Statistical Committee of the Kyrgyz Republic (n.d.a)

Most regions show stable export growth, which is likely the result of effective implementation of economic reforms, infrastructure improvements, and improvement of the investment environment. The successes in Batken, Jalal-Abad, Talas regions and Bishkek may indicate that the reforms have created favourable conditions for business and stimulated exports. However, instability in the Issyk-Kul and Naryn regions may be caused by infrastructure deficiencies, low investment levels, or insufficient government support. Such factors may limit the development of exports and require additional efforts to improve economic conditions.

In general, to ensure sustainable economic growth and increase competitiveness, it is important to continue to support and develop infrastructure and the investment climate and effectively implement economic reforms in all regions.

The analysis of GRP per capita indicators is an important tool for assessing economic well-being and living standards in different regions of the country. Figure 2 shows GRP per capita data for the regions of Kyrgyzstan for the period from 2019 to 2023. This period includes substantial economic changes caused by both internal reforms and external factors.

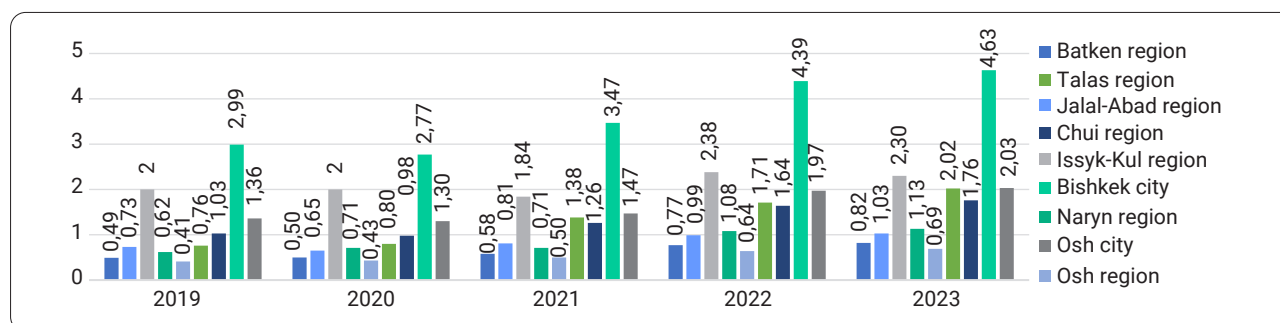


Figure 2. GRP per capita of Kyrgyzstan from 2019 to 2023, thousand USD

Source: developed by the authors using data from the National Statistical Committee of the Kyrgyz Republic (n.d.b) and the International Monetary Fund (n.d.)

The analysis of GRP per capita in Kyrgyzstan for the period from 2019 to 2023 indicates substantial changes in the economic condition of different regions. In general, most regions demonstrate positive dynamics of GRP per capita growth, which is an indicator of economic growth and improvement in the standard of living of the population. Batken and Jalal-Abad regions have shown stable growth, reflecting the effectiveness of implemented economic reforms and measures to support local businesses. Substantial growth is observed in the Issyk-Kul region, where, after a temporary recession in 2021, GRP began to grow again, which may be due to the development of tourism infrastructure and investments in the region. Naryn and Osh regions also show positive dynamics, although their growth is less pronounced compared to other regions. This indicates the need for further efforts to stimulate economic activity and investment in these regions. Bishkek city and Osh city show the highest GRP per capita, which is the result of substantial investments and development of urban infrastructure. The city of Bishkek stands out in particular, being the economic centre of the country

and showing stable growth, reflecting the positive impact of economic reforms on the urban level.

These positive changes in the economic environment contribute to strengthening the export potential of the regions. The growth of GRP per capita creates favourable conditions for the development of local businesses, increasing their competitiveness in international markets. Thus, the increase in the economic indicators of the regions contributes to the overall economic growth of the country and the strengthening of its export positions.

It is important to consider specific initiatives and programs implemented at the state level to assess the impact of state economic reforms and policy decisions on the export potential of the regions of Kyrgyzstan. The analysis of specific reforms and policy decisions helps understand how these changes affect various aspects of the development of export potential and provide the basis for the formation of strategies to increase the competitiveness of regions. Table 1 provides a detailed overview of key reforms and policy decisions and their possible impacts on the export potential of the regions of Kyrgyzstan.

Table 1. Economic reforms and political decisions that may affect the export potential of the regions of Kyrgyzstan

Factor	Reforms/solutions	Description	Impact on export potential
Economic reforms	The reform of the Kyrgyz tax system in 2020	Reduction of tax rates, simplification of tax returns	Reducing the tax burden has made export operations cheaper and more attractive for businesses
	Infrastructure modernisation programme by 2025	Investments in roads, ports, transport networks, logistics centres	The developed infrastructure has reduced the cost and time for the delivery of goods, which has a positive effect on the export potential

Table 1, Continued

Factor	Reforms/solutions	Description	Impact on export potential
Economic reforms	The state programme of support for small and medium-sized businesses in 2021	Financing programmes, benefits for SMEs, simplification of regulatory requirements	Support for small and medium-sized businesses has helped small enterprises develop export opportunities and expand sales markets
	Free Trade Agreement with China in 2020	Reduction of tariffs and quotas, expansion of access to international markets	Trade deals have helped reduce costs for exporters and open up new markets for goods and services
Political decisions	Legislative changes to improve the conditions for foreign investment in 2023-2024	Improving the conditions of foreign investment, protecting the rights of investors	Improving investment conditions stimulates the development of new business projects and modernisation of production facilities, which, in turn, will increase export potential
	The programme for ensuring political stability and transparency in 2023	Ensuring the stability and transparency of public administration	Political stability helps reduce business risks and stimulates investment and export initiatives

Source: developed by the authors using data from the Organisation for Economic Co-operation and Development (2023) and World Bank (2022a; 2023)

The implemented economic reforms and political decisions have a substantial impact on the export potential of the regions of Kyrgyzstan. The 2020 tax system reform has substantially reduced the tax burden on enterprises, which has reduced export costs and made it more profitable for businesses. Simplification of tax procedures facilitated the activities of companies, which stimulated their participation in international markets. Upgrading infrastructure by 2025 is also important to increase export potential. The development of transport networks and logistics centres has reduced the cost of transporting goods and reduced delivery time. This has improved the competitiveness of Kyrgyz goods in the global market, facilitating access to international markets and increasing the efficiency of business processes. The state programme of support for small and medium-sized businesses, which began in 2021, contributed to the development of export opportunities (World Bank, 2022b). Financial support and incentives for SMEs have helped to expand their activities and enter new markets, which has ensured sustainable growth in this sector.

Political decisions taken in recent years have played a critical role in increasing Kyrgyzstan's export potential. The Free Trade Agreement with China in 2020 opened new markets for Kyrgyz goods by reducing tariff barriers and quotas, which reduced export costs (United

Nations Economic..., 2015; China Briefing Team, 2021). This contributed to the expansion of export opportunities and improved competitiveness of Kyrgyz products in international markets. Legislative changes aimed at improving the conditions for foreign investment in 2023-2024 created attractive conditions for investors, which stimulated the development of new business projects and the modernisation of existing production facilities (U.S. Department of..., 2023b; 2024). This contributed to an increase in the country's overall export potential. The programme to ensure political stability and transparency in 2023 reduced business risks and increased confidence in public administration (United States Agency..., 2022). This, in turn, contributed to attracting investments and had a positive impact on export initiatives, providing a stable environment for economic development and expansion of export opportunities.

Increasing export potential is a key factor in economic development and integration of countries into world markets. Each country uses its unique strategies to achieve this goal, considering its resources, economic conditions, and political priorities. The examination of successful practices and strategies implemented in Singapore, Germany, South Korea, Chile, and India will provide valuable lessons and guidance for improving export potential (Table 2).

Table 2. Comparison of successful practices in Singapore, Germany, South Korea, Chile, India to increase export potential

Country	Strategy	Description	Conclusion
Singapore	Innovative infrastructure projects	Investments in port and logistics systems, modern infrastructure	The contribution to infrastructure and the introduction of the latest technologies substantially increases the efficiency of logistics operations
Germany	Export-oriented policy	Support for scientific research, innovation, and enterprise efforts	The focus on innovation and scientific research contributes to an increase in export potential

Table 2, Continued

Country	Strategy	Description	Conclusion
South Korea	Development of technology hubs	Creation of technology hubs and business incubators to support startups and innovative companies	The formation of technology hubs and support for startups stimulate innovation and increase export potential
Chile	Openness to international markets	Conclusion of free trade deals, reduction of trade barriers and tax benefits for exporters.	Simplification of trade barriers and active deal-making expand access to global markets
India	Strategies for the development of the manufacturing sector	Financial support for the modernisation of production facilities, improvement of product quality, and support for SMEs	Support for the manufacturing sector and SMEs improves product quality and reduces production costs

Source: developed by the authors using data from Coface (n.d.), M. Holzamer (2022), and W. Yi (2024)

Singapore is an example of how substantial investments in infrastructure can have a substantial impact on economic efficiency. Investments in the modernisation of ports and logistics systems have allowed Singapore to become an important international transportation hub (U.S. Department of..., 2023a). This includes the introduction of the latest technologies for cargo management and optimisation of logistics processes. High-quality infrastructure reduces transportation costs and increases the country's competitiveness in global markets. From this example, it can be seen that investments in infrastructure are critically important for the development of foreign economic activity.

In turn, Germany demonstrates how supporting research and innovation can become the basis for economic growth and increasing export potential. The German model focuses on the integration of scientific achievements and the latest technologies into industry, allowing companies to develop high-quality products and services (Naudé & Nagler, 2017). The national policy of promoting innovation and scientific research stimulates the development of new technologies and strengthens Germany's position in the global market. This highlights the importance of investing in science and technology to maintain competitiveness.

South Korea is actively using the creation of technology hubs and business incubators to support startups and innovative enterprises (Yi, 2024). Such hubs provide resources, financial support, and mentoring for new companies, which allows them to develop and enter international markets. This contributes to the emergence of new technologies and products, which increases the country's export potential. Supporting innovative startups and developing technology centres is an important aspect of stimulating economic growth and competitiveness.

Chile shows how an open trade policy can expand access to international markets (Matchplat, 2024; Observatory of Economic..., 2023). The conclusion of free trade deals and the reduction of trade barriers contribute to an increase in exports and lower costs for the exporter. Tax incentives and simplification of procedures also play an important role in supporting export efforts. The Chilean experience highlights the importance of an active trade policy for integration into the global economy.

In turn, India shows how supporting the manufacturing sector and small and medium-sized companies can increase export potential (Ministry of Commerce..., n.d.; Bansal, 2023). Financial support for the modernisation of production facilities and improvement of product quality allows reducing production costs and increasing the competitiveness of Indian goods on the world market. Support for manufacturing facilities and SMEs is critical for the growth of export opportunities and economic development. The conclusion that can be drawn from the analysis of these countries is that an integrated approach to the development of export potential, including investment in infrastructure, support for innovation, openness to international markets, and the development of the manufacturing sector, is key to achieving success in the global market. These strategies can be adapted and implemented in other countries, which makes it possible to increase their economic opportunities and competitiveness.

The economic assessment of the export potential of the regions has a critically important aspect of the development of the national economy. Each region has its own unique characteristics that determine its ability to compete in international markets. Therefore, Figure 3 shows the aspects that create the basis for the formation of an effective export strategy.

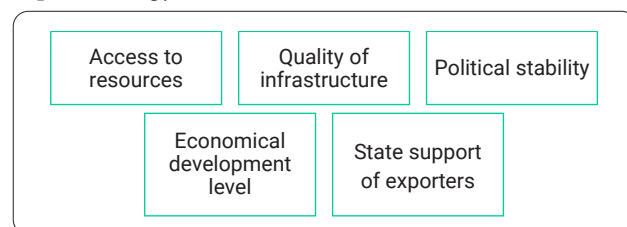


Figure 3. Aspects that create the basis for the formation of an effective export strategy
Source: compiled by the authors

Access to resources is one of the key factors affecting the export potential of regions. In Kyrgyzstan, with its natural resources, this aspect is of particular importance. For example, the availability of minerals such as gold, coal, and water resources are an important factor for the

development of the mining and energy industries. In addition, fertile lands and favourable climatic conditions create prerequisites for the development of agriculture, traditionally an important industry for Kyrgyzstan (Sakkaraeva & Kumashev, 2024). The high quality of natural resources contributes to the production of competitive products that can be successfully exported to international markets.

The quality of infrastructure plays a crucial role in the development of export potential. A well-developed transport network, including highways, railway lines, airports and ports, ensures efficient logistics and reduces the cost of transporting products. Investments in transport and logistics facilities can substantially improve the regions' access to international markets, which will increase their export potential in Kyrgyzstan. In addition, the development of information and communication technologies contributes to improving supply chain management and improving the efficiency of business processes (Podra & Petryshyn, 2023).

Political stability is an important factor influencing the economic development and export potential of the regions. It provides predictability and security for investors and entrepreneurs, which creates favourable conditions for business development. In Kyrgyzstan, political stability is one of the key conditions for attracting foreign investment and expanding export activities. Strengthening political stability includes measures to increase transparency of government procedures, combat corruption, and improve the legal framework to protect investors' rights.

The level of economic development of the regions has a direct impact on their export potential. The high level of economic development ensures the availability of industrial capacities, skilled labour, and modern technologies, which contributes to the production of competitive products (Loxha, 2019). In Kyrgyzstan, it is necessary to focus on improving the level of economic development through support for small and medium-sized businesses, innovation, and technological development. Investments in education and training of the workforce also contribute to improving the productivity and quality of products produced in the regions.

In addition, state support for exporters is an important factor in the development of the export potential of the regions. This may include financial incentives, preferential taxation, export development programmes, and other measures. In Kyrgyzstan, it is necessary to develop an effective state support strategy that promotes the expansion of export activities. This may include the creation of special economic zones, the development of programmes to increase the competitiveness of products, and measures to promote Kyrgyz products on international markets. Government support may also include providing information and consulting services to exporters to enhance their knowledge of international markets and product requirements (Kucher & Mazurenko, 2024).

Thus, considering these key aspects creates the basis for the formation of an effective export strategy that contributes to the economic development of the regions of

Kyrgyzstan and increases their competitiveness in international markets.

An integrated approach to assessment, including economic, social, and infrastructural factors, allows not only to understand the current state of export potential but also to identify key areas for improvement and optimisation. This, in turn, contributed to the development of strategies that will increase the competitiveness of the regions, improve their economic integration, and ensure sustainable economic growth. The development of the new methodology includes several stages, each of which is aimed at a detailed analysis of various aspects of the export potential of the regions (Fig. 4).

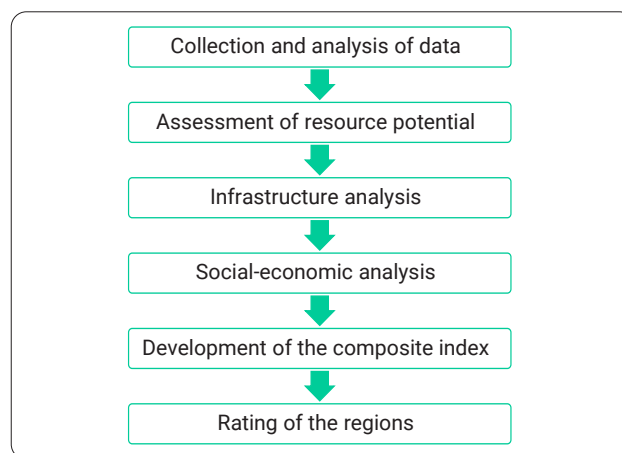


Figure 4. The developed methodology for calculating the export potential

Source: compiled by the authors

The first step in data collection is to identify reliable sources of information. The primary sources of information are government statistical agencies, such as the National Statistical Committee of Kyrgyzstan, the Ministry of Economy, and regional administrations. These bodies provide official statistics on economic indicators, unemployment, production, and exports. It is also important to use data from international organisations such as the World Bank, and the International Monetary Fund, which can provide additional macroeconomic data and comparative information. After identifying the sources of information, the data collection process is conducted. This includes the collection of statistical data on the gross domestic product (GDP), unemployment, production and export volumes, road quality, availability of logistics centres, education level, and other indicators. It is important to consider the relevance and completeness of the information to ensure the accuracy of further analysis. The collected data is systematised in the form of tables, graphs, and other formats, which simplifies their further analysis.

Thus, the first stage of data collection and analysis is an important step that lays the foundation for further assessment of the export potential of the regions of Kyrgyzstan. It provides the necessary information for making informed

decisions and developing effective strategies to increase the competitiveness of regions in international markets. The assessment of the resource potential of the regions of Kyrgyzstan begins with an analysis of the available natural resources. This includes exploring the availability of minerals such as coal, gold, uranium, and other minerals that can be used for mining and exports. Geological data, exploration results, and information on existing and potential deposits are analysed.

Data on the area and fertility of agricultural land, the types of crops grown, yields, and opportunities for expanding agricultural production are examined to assess agricultural potential. A key aspect of this is the availability of water resources, which provide irrigation for agricultural land and water supply for industrial and domestic needs. The assessment includes an analysis of rivers, lakes, reservoirs, and groundwater, and their accessibility for use. An important component of the resource potential assessment is the analysis of the region's technological capabilities for the efficient use of natural resources. This involves examining the available extraction and processing technologies for minerals, agricultural technologies, irrigation, and water supply systems. The development of industrial enterprises, their production capacities, the availability of modern equipment, and the infrastructure for storing and transporting products are also assessed.

In addition, the region's innovative potential is assessed, including its ability to adopt new technologies and innovations. This assessment covers research institutions, educational establishments, the level of specialist training, and partnerships with international collaborators. A key aspect is the availability of investment resources and support from both the state and private investors, which contributes to the development of the region's technological potential (Lazaj *et al.*, 2024). The next step involves an infrastructure analysis, focusing on assessing the quality and availability of critical infrastructure that impacts the economic activity of the region. The state of the transport network is assessed, including roads, railways, and air and sea ports. This assessment is essential for understanding how efficiently the region can support transportation links for production and export needs. The quality and accessibility of transport routes influence transportation costs and the speed of goods delivery.

The analysis of logistics services includes assessing the availability of warehouses, logistics centres, and customs terminals. It is important to examine how effectively these facilities handle and store goods, and their impact on logistics costs and efficiency. Investments in modernising or expanding logistics infrastructure can significantly improve these processes and reduce costs. Communication services, such as Internet access and mobile connectivity, are also crucial for business development. Assessing the quality of communication infrastructure helps determine how well the region provides the connectivity and access to information necessary for conducting business and integrating into global markets. High-quality communication services

enhance business process management and improve the competitiveness of the region.

The socio-economic analysis focuses on assessing demographic characteristics, educational levels, workforce qualifications, and living standards. Demographic data helps assess the labour force potential and the region's needs for educational and professional services. The level of education and workforce qualifications directly influences labour productivity and the region's capacity to adopt innovations. Based on the collected data and analysis, a composite index is developed to reflect the overall export potential of each region. This index considers various factors such as infrastructure conditions, access to resources, socio-economic indicators, and other relevant data. The composite index allows different aspects of potential to be aggregated into a single measure, simplifying regional comparisons.

The development of the composite index involves determining the value of each factor and integrating them into a unified model. This approach ensures that different dimensions of export potential are accounted for, creating an objective indicator that reflects the overall readiness of a region for export activities. Based on the composite index, a ranking of the regions is created according to their export potential. This ranking helps identify the regions with the highest or lowest export potential, highlighting their strengths and weaknesses. The process aids in formulating recommendations for enhancing export potential, such as improving infrastructure, investing in education, or developing new infrastructure projects.

The regional ranking analysis can also be utilised for strategic planning and decision-making at the national or local government level. It enables the allocation of resources and policies to support regions with high potential, while also assisting those that need to enhance their export capabilities. This methodology not only assesses the current state of export potential but also identifies opportunities for further development and optimisation of resources. It serves as a crucial tool for forming effective policies and strategies aimed at improving the economic situation in the regions and enhancing their competitiveness in international markets.

Discussion

In the context of the global economy, where increasing regional competitiveness is gaining importance, understanding export potential becomes a key aspect of assessing economic development. Various studies on this subject not only enable the comparison of regional indicators but also identify best practices and strategies that can be adapted to improve the economic situation in different countries. Therefore, the assessment methodologies of export potential used in different countries allow for a determination of their success and a focus on what makes the proposed method more comprehensive and unique.

Studies by P.H. Linh *et al.* (2019), A. Mulabdic & P. Yasar (2021), S. Süleyman (2022) assessed export potential based on the analysis of specific economic factors

and sectors. However, regional differences and the interrelations between these factors were not always considered. The methodology proposed in this study is more comprehensive, involving a thorough analysis that better accounts for these aspects. This aligns with the findings of the present research and provides a more accurate understanding of export potential. For instance, the analysis of Turkey's export potential using the gravity model revealed opportunities in sectors such as electronics and chemical industries, while identifying untapped resources in the agricultural sector. However, a detailed analysis of regional characteristics and their impact on overall export potential was not considered, limiting the comprehensiveness of the approach. Similarly, a study on Vietnam's agricultural export potential to the European Union employed stochastic frontier analysis and the generalised method of moments, confirming the high potential and growth trends. While this study emphasised crucial factors such as financial market development and trade liberalisation, it did not examine the complex influence of regional differences.

The research findings of M. Aucamp *et al.* (2023), F.M. Adoho & R. Kotchoni (2022), R. Huang *et al.* (2020) revealed that many export potential assessment methodologies focus on specific economic conditions and political initiatives, which do not always reflect all aspects of export potential, as addressed in the proposed methodology. One of the examined approaches highlights under-exported opportunities by analysing unutilised or underutilised aspects and identifying potential markets and segments for expanding export performance. Another approach considers specific economic and geographic variables, such as the level of economic development, infrastructure, or location, assessing how these factors influence export potential. Studies using the gravity model to analyse the export potential of the Democratic Republic of Congo revealed an export gap, emphasising the potential for expansion in African markets. Similarly, panel data and regression analysis to forecast China's exports to Central Asia by 2022 identified steady growth. However, these approaches do not always consider all regional characteristics and their complex impacts, making the developed methodology more comprehensive by integrating a detailed analysis of regional factors that were not considered in the aforementioned studies.

There was also alignment with the research of V. Ritan & A. Spasić (2022), D. Mance *et al.* (2023), E. Prseždzienka (2023), where the importance of considering value-added aspects, strategic promotion methods, and competitiveness in international markets in assessing export potential is emphasised. Specifically, these studies employed various methodologies to assess regional value chains, such as in Croatia, where the impact of value-added on the country's efficiency and integration into European production networks was assessed. Researchers also analysed export support strategies in six Southeast European countries outside the European Union, aiming to determine their effectiveness and develop recommendations for improving outcomes. In addition, methodologies applied to assess

Poland's prospective export industries to the United States included a competitiveness index and demand analysis to identify industries with the highest growth potential. While these studies highlight the importance of a comprehensive approach to evaluating export potential, they do not account for certain aspects integrated into the developed methodology, particularly the incorporation of strategic and economic factors at the level of regional and international integration.

At the same time, the studies by C. Yirga *et al.* (2019), I. Konstantakopoulou (2020), E. Karkhaneh *et al.* (2022), identified both similarities and differences in the assessment of export potential across different countries. The use of a decision-support model to identify realistic export opportunities highlighted the significant potential for exports to the Eurozone, the Balkans, and the United States, but it did not account for the macroeconomic and political factors that the methodology proposed in this study includes for more comprehensive results. An analysis of Iran's export potential to Brazil showed the positive influence of Iran's GDP and population size, yet it did not involve a detailed examination of local conditions and trade barriers, which would have provided more accurate recommendations. The study of legume export potential in Ethiopia demonstrated the possibility of significantly increasing exports, but it did not incorporate an analysis of global market conditions, which are part of the methodology developed in this study. These studies affirm the importance of a comprehensive approach to assessing export potential, while the methodology developed in the current study provides a more encompassing analysis by including both macroeconomic and specific factors, resulting in more accurate and practical outcomes.

However, the interrelationship between various aspects of export potential, particularly the influence of cultural characteristics and innovation, is explored in greater detail in the studies by J. Hagemeyer & J. Mućk (2019), G. Buturac *et al.* (2019), U. Heriqbaldi *et al.* (2023). An analysis of the sources of industrial export growth in Croatia using the constant market share method and input-output model identified a significant improvement in export performance following Croatia's accession to the European Union, particularly due to the increased competitiveness of the manufacturing industry, which also had a positive effect on other domestic sectors such as agriculture, trade, and business services. The impact of export promotion programmes in Indonesia demonstrated how these programmes strengthen organisational resources and companies' export capabilities, leading to increased productivity and competitiveness, with the greatest effect seen in export promotion programmes for small companies with significant export experience, although their development in Indonesia requires further refinement. The role of exports and participation in global value chains in economic growth in Central and Eastern Europe underscores that exports are a key driver of economic growth and convergence with developed partners, with primary drivers being

participation in global value chains, technology imports, and capital deepening (Mayis *et al.*, 2021). At the same time, the methodology developed in this study offers a more detailed and accurate analysis of export potential by integrating cultural characteristics, innovation, and other factors into a unified model. This approach allows for a more comprehensive understanding of export potential, in contrast to studies that focus on analysing only individual elements or aspects, thus providing a better evaluation and accuracy of results.

A correlation was also found with the study by S. Havivand *et al.* (2020), which examines the impact of macroeconomic factors on the export potential of agricultural products. The assessment of Iran's agricultural export potential confirmed the positive influence of the GDP and population size of trading partners.

In their study, C. Bayudan-Dacuycuy & R.B. Serafica (2019), D. Hıdıroğlu (2021), A. Namrata (2023), revealed that methods of assessing export potential tend to focus on specific aspects, such as export portfolio diversification, bilateral trade analysis, and strategies for entering new markets. For the Philippines, it was established that from 1995 to 2014, the complexity of exported goods remained low, and the implementation of diversification strategies and the development of human capital was recommended to improve the situation. In the case of India and the USA, an analysis of bilateral trade between 2012 and 2021 demonstrated growth in trade and the competitiveness of key export products, while identifying untapped export potential. The study on Turkey provides recommendations on export strategies, particularly for SMEs, emphasising the importance of detailed export plans for each market, considering marketing, logistics, and financing. The main outcome of these studies is the development of methodologies that assess export potential in various countries. However, the methodology developed in this study is more comprehensive, as it integrates all these factors, providing a more holistic and accurate analysis.

The analysis of various studies showed that the stability of supply chains, experience in foreign markets, and the expansion of market opportunities are critical to the effectiveness of export strategies and long-term export growth. The importance of supporting new exporters and facilitating their access to international markets is widely recognised. However, unlike most studies that examine these aspects individually, the methodology developed in this study integrates all these factors into a single model, allowing for a deeper understanding and assessment of the export potential of countries.

Conclusions

This study demonstrated that the methodology developed for assessing the export potential of regions in Kyrgyzstan is a key achievement, enabling the effective analysis of export potential. The methodology involves several important stages, such as gathering data from reliable sources, assessing resource potential, infrastructure, technological

capabilities, and socio-economic conditions. This approach allowed for a detailed assessment of the various aspects of the export potential of regions of Kyrgyzstan. As a result, key strengths, such as the availability of natural resources or developed infrastructure, were clearly identified, along with weaknesses, such as insufficient government support or difficulties in market access.

In turn, the analysis of the export potential of regions of Kyrgyzstan for 2019-2023 demonstrated an overall growth in export volumes, indicating the success of economic reforms and improvements in infrastructure. The most substantial achievements were observed in Batken, Jalal-Abad, Talas regions, and the city of Bishkek, highlighting the effectiveness of the measures implemented. However, certain regions, such as Issyk-Kul and Naryn, require additional efforts to stabilise their export potential. The positive growth in GDP per capita, particularly in Batken, Jalal-Abad, and Issyk-Kul regions, confirms economic growth and an improved standard of living. High performance in the cities of Bishkek and Osh reflects the positive impact of investments and infrastructure development. Overall, these economic changes contribute to strengthening the export potential of the regions and enhancing the competitiveness of Kyrgyzstan on the international stage, creating conditions for the further development of local businesses.

An assessment of the impact of government reforms and political decisions on the export potential of Kyrgyzstan's regions shows a positive effect on the economic situation. In particular, tax reductions and the simplification of administrative procedures reduce export costs, making business more attractive to investors. Investments in infrastructure modernisation, such as the improvement of transport networks and logistics centres, enhance the efficiency of goods transportation and reduce delivery times. Political decisions, such as the free trade agreement with China, reduce trade barriers and improve the investment climate. Overall, the comprehensive approach to implementing reforms and political decisions supports stable economic development and the strengthening of Kyrgyzstan's international relations.

The export potential of regions of Kyrgyzstan was also assessed, which is crucial for the development of the national economy given the significant natural resources in the country. Key factors, such as access to resources, the quality of infrastructure, political stability, and government support, collectively influence the competitiveness of products and business efficiency. The presence of modern infrastructure and active governmental support helps reduce costs and improve business processes. Developing an effective export strategy that considers these factors contributes to economic growth and enhances competitiveness in international markets.

It is essential to focus on applying the developed methodology for calculating and analysing rankings to further improve the outcomes of the study. This methodology should be used for a detailed examination of the export potential of different regions, which will enhance

data collection accuracy and expand the use of econometric models. Future research should also include an assessment of the impact of specific regional initiatives to provide a more precise evaluation of the effectiveness of the implemented measures.

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Conflict of Interest

None.

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Економічна оцінка експортного потенціалу регіонів Киргизстану: методика розрахунку та аналіз рейтингу

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Анотація. Метою дослідження було розроблення методики оцінювання експортного потенціалу регіонів Киргизстану та проведення аналізу, спрямованого на визначення ключових чинників, що впливають на конкурентоспроможність і розвиток експортних можливостей. Методологія ґрунтується на аналізі статистичних даних з офіційних джерел, таких як сайти урядових агентств, міністерств, статистичних відомств і міжнародних організацій, з метою забезпечення точності та достовірності оцінки експортного потенціалу регіонів Киргизстану. Результати дослідження засвідчили, що з 2019 по 2023 рік у регіонах Киргизстану спостерігається загальне зростання обсягів експорту завдяки успішним економічним реформам і поліпшенню інфраструктури. Найбільші досягнення спостерігаються в Баткенській, Джалал-Абадській, Талаській областях та в місті Бішкеку, тоді як Іссик-Кульська та Наринська області потребують додаткових заходів. Позитивна динаміка валового регіонального продукту (ВРП) на душу населення підтверджує економічне зростання і підвищення рівня життя. Реалізація податкових реформ та інвестицій в інфраструктуру створює сприятливі умови для експорту. Своєю чергою, міжнародний досвід таких країн як Сінгапур, Німеччина, Південна Корея, Чилі, Індія демонструє ефективність інвестицій в інфраструктуру та підтримку інновацій для підвищення конкурентоспроможності регіонів країни. Висновки наголошують на важливості цілеспрямованих державних ініціатив та інвестицій для збалансованого розвитку регіонів і максимізації їхнього внеску в національну економіку через ефективне використання експортного потенціалу. Особлива увага приділяється необхідності розроблення регіональних програм підтримки, що сприяють зростанню експортної активності, поліпшенню інфраструктури, а також залученню міжнародних інвесторів. Це, своєю чергою, сприятиме зниженню економічних диспропорцій між регіонами та забезпеченню сталого економічного зростання країни в цілому.

Ключові слова: стратегічне планування; інвестиційний клімат; міжнародна торгівля; конкурентоспроможність; торговельна політика; експорт; експортний потенціал

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Public finance management reform in the Kyrgyz Republic and Ukraine: Ways to increase transparency and efficiency in the use of budget funds

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Abstract. The purpose of the study was to analyse the existing problems of using the budgets of the Kyrgyz Republic and Ukraine and to develop recommendations for improving the management of public funds in the two countries. A comparative analysis of public finance management in Ukraine and Kyrgyzstan for the period 2019-2023 was carried out based on official statistical data, government programmes, and other theoretical sources. As a result of the analysis,

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it was found that budget deficits are typical for both countries. This situation has been observed in two countries for 2019-2023, with the exception of the situation in Kyrgyzstan in 2023. The annual increase in public debt is typical for both countries. For Kyrgyzstan, over the period 2019-2023, by more than 75.1%, and for Ukraine – by more than 3 times. Also characteristic of the two countries is the annual decrease in the transparency of the use of budgetary funds with deterioration in indicators by 25 points for Ukraine and 2 points for Kyrgyzstan for the period 2019-2023. As a result of the analysis, the main measures to improve the current situations in the two countries were identified: attracting foreign capital and changing the structure of expenditures and revenues to reduce the budget deficit, and digitalisation of public budget management and increasing the level of digital literacy of management staff to increase transparency in the use of public finances. It is more difficult for Ukraine to achieve such an effect, given the state of war. Such measures should be implemented gradually step by step for their synergistic effect as a result

Keywords: income and expenses; debt; payment stability; regulatory transformation; taxation

Introduction

The state, on the one hand, acts as a service provider and buyer of goods and services, and, on the other hand, acts as a guarantor of social protection of the population in the form of social assistance payments. In all two cases, the state bears its own expenses. In addition, the interaction of the economy and the state occurs at the expense of income. Through taxation, the state can regulate business activity in society. Tax revenues to the budget also depend on the activity of taxpayers. Another channel of the state's influence on the economy is the achievement of a balance between income and expenditure in the state (Marattin *et al.*, 2022). In order to achieve such a balance between expenditures and incomes, an effective budget management system should function in practice.

In modern conditions, various spheres of national economy of countries are developing, requiring reform and improvement of public money management to effectively develop the country in the international market, as noted in his work K. Ketners (2024). The effective allocation, planning, and use of the country's budget funds have always been the focus of attention of various researchers. Exploring the relationship between tax revenues, government spending, and economic growth in the G7 countries, including the income-expenditure ratio, T. Gurdal *et al.* (2021) concluded that it is almost impossible to achieve synchronisation of income and expenses in practice, therefore, there will always be either a deficit or a surplus of finances in the country's budget. Analysing the changes in the national budget balances of 143 countries over the period 1990-2019, the researchers T. Nguyen *et al.* (2023) concluded that, on the one hand, the deficit and surplus are affected by global uncertainty, which hits fiscal balances regardless of the degree of economic development. On the other hand, the internal management of the country's finances plays a role. Since government debts have reached record levels, an analysis of public finance management in the countries of the former Soviet Union is of interest. Namely, studying the experience of public finance management in Ukraine and Kyrgyzstan and identifying effective measures to apply the experience to improve the situation for Ukraine. An important indicator is the transparency

of the use of public funds in the country. It is transparency that can show what problems exist in the management of budgetary funds in a country (Bauhr *et al.*, 2020). Accountability has become one of the main topics of modern research in the field of political economy and public administration (James, 2019). Exploring the features of public funds management in democratic conditions, A. Androniceanu (2021) found that it is access to information that develops the trust of the country's citizens in public institutions, allowing them to monitor the performance of budget management functions. Similar conclusions were obtained by A. Farazmand *et al.* (2022), who explored the relationship between corruption, lack of transparency, and misuse of public funds during the crisis. As a result of the meta-analysis, C. Chen and S. Ganapati (2023) concluded that transparency plays an important role in the management of the state budget. The researcher J. Cifuentes-Faura (2024b) came to similar conclusions after analysing a related topic. Other researchers such as A. Mungiu-Pipidi (2023), came to similar conclusions as a result of the study. In countries with high levels of corruption, despite all the fiscal measures of the government, the country's competitiveness is declining (Tiganasu *et al.*, 2022).

In terms of government spending to gross domestic product (GDP), Kyrgyzstan's public sector is large by international standards, which is inherited from the socialist past (Gerstenberg *et al.*, 1999). The same can be said about the situation in Ukraine. According to the Corruption Perception Index, as of 2023, Ukraine has 36 points out of 100, and Kyrgyzstan has 26 (Transparency International, 2023). But, given the level of economic development, Kyrgyzstan is much ahead of Ukraine. It is important to note that this trend was observed even before the start of Russia's full-scale military invasion of Ukraine in 2022. Therefore, it is of interest to analyse the reform of the state budget management system in Ukraine and Kyrgyzstan and to develop measures to improve the reform that can lead to positive results in the development of these countries and solve current problems, for example, corruption and economic growth of countries. This study aims to close the existing scientific gap.

The purpose of the study was to analyse the state and existing problems in the management of revenues and expenditures of the state budget in Ukraine and Kyrgyzstan and identify ways to improve the efficiency of public financial management. The following tasks are important in the course of the study:

- analysis of the main statistical data characterising the process of public finance management in Kyrgyzstan and Ukraine;
- analysis of budget management reform in Kyrgyzstan and Ukraine;
- development of recommendations to increase the transparency of the use of the state budget.

Materials and Methods

Initially, in order to fulfil the first task set in the study, the most important indicators of state budget management in Kyrgyzstan and Ukraine were determined using statistical data analysis. The statistical analysis was carried out in five stages. At the first stage, the main statistical data of interest were collected and systematised. Such data included the following indicators: expenditures and revenues, budget deficit/surplus (Ministry of Finance of the Kyrgyz Republic, 2022; Ministry of Finance of Ukraine, 2024b; National Statistical Committee..., 2023a; 2023b; 2023c; 2023d), GDP figures (Statista, 2024), the amount of external and internal debt of both countries (Ministry of Finance of the Kyrgyz Republic, 2022; Ministry of Finance of Ukraine, 2024b), percentage of budget deficit to percentage of GDP (Ministry of Finance of Ukraine, 2024b; National Statistical Committee..., 2023d; 2023e; 2023f), budget transparency (International Budget Partnership, 2023a; 2023b). At the second stage, data on income, expenditure, and deficit (surplus) were presented for the period 2019-2023 for each country separately in the form of a table. At the third stage, separately Ukrainian and Kyrgyz indicators of deficit (surplus), budget revenues, and expenditures were analysed in dynamics for different years. To do this, the growth rate formula (1) was used:

$$Gr = \frac{Cp}{Bp} * 100\%, \quad (1)$$

where Gr – growth rate; Cp – indicators of the values of the current period, Bp – indicators of the values of the base period.

The formula (2) of the growth rate of indicators was also used:

$$Gri = \frac{Cp}{Bp} * 100\% - 100\%, \quad (2)$$

where Gri – growth rate of indicators.

At the fourth stage, a comparison of the state budget deficit as a percentage of GDP in the two analysed countries for the period 2019-2023 was carried out. At the last fifth stage of statistical data analysis, the budget transparency indices of Ukraine and Kyrgyzstan for the period

2019-2023 were also analysed and presented in the form of a table. The budget transparency score was compared both in dynamics by year for each country, and in the equality of the two countries, and was also compared with the international average.

Due to the specifics of the topic, the second task of the study was based on the analysis of previous studies and other theoretical sources of information. In order to analyse the specifics of the functioning and reform of budget management in Kyrgyzstan and Ukraine, various sources of information were analysed, including research papers, books, studies, and other publications related to the research topic. The following government programmes also formed the information base of the study: Order of the Cabinet of Ministers of Ukraine No. 774-r “On the Strategy for the Development of the Public Finance Management System” (2013), Order of the Cabinet of Ministers of Ukraine No. 142-r “On approval of the Strategy for Reforming the Public Finance Management System for 2017-2020” (2017), Order of the Cabinet of Ministers of Ukraine No. 1805-r “On approving the Strategy for Reforming the Public Finance Management System for 2022-2025 and the Action Plan for its Implementation” (2021), Resolution of the Government of the Kyrgyz Republic No. 696 “On Approval of the Strategy for the Development of Public Finance Management in the Kyrgyz Republic for 2017-2025” (2016), Annex 1 to the Resolution of the Government of the Kyrgyz Republic No. 469 “Main Directions of Fiscal Policy of the Kyrgyz Republic for 2020-2022” (2019).

Results

The state budget acts as the main fund for the preservation and distribution of money in the country. It is with the help of the state budget that the government concentrates a certain part of GDP and distributes funds for the subsequent development of the country's national economy (Ministry of Finance of Ukraine, 2024a). The state budget management system is a set of processes, mechanisms, and rules that regulate the use of state funds in various areas.

The ideal scenario for managing the state budget in any country is the predominance of income over expenditure. Consequently, the resulting balance is the part of the budget that the government of the country, on the one hand, can direct to address unforeseen circumstances and their consequences, and, on the other hand, these funds can be directed to the income of the state budget next year. But this is only a theory, but in practice there is often a situation of budget deficit, that is, not covering expenses with income for a calendar year. Kyrgyzstan and Ukraine are no exception. During 2019-2022, Kyrgyzstan experienced a budget deficit (Ministry of Finance of the Kyrgyz Republic, 2022). In Ukraine, the state budget deficit is observed for the period 2019-2023 (Ministry of Finance of Ukraine, 2024a). The study will take a closer look at the indicators of the state budget of each country. Revenues, expenditures, and the balance of the state budget of Kyrgyzstan are listed in Table 1.

Table 1. Revenues, expenditures, and deficit of the state budget of Kyrgyzstan for 2019-2023

Year	Revenues, million USD	Percentage of income change	Expenses, million USD	Percentage of change in expenditure	Deficit/surplus, million USD
2019	2,401.1	-	2,407.3	-	-6.2
2020	1,836.7	-23.5	2,074.9	-13.8	-238.2
2021	2,476.1	34.8	2,496.9	20.3	-20.8
2022	3,508.9	41.7	3,630.3	45.4	-121.4
2023	4,403.2	25.5	4,261.4	17.4	141.8

Note: exchange rate as of December 31 of each year under study

Source: compiled by the authors based on data from the Ministry of Finance of the Kyrgyz Republic (2022), National Statistical Committee of the Kyrgyz Republic (2023b; 2023c; 2023d)

Analysing the data in Table 1, it can be concluded that the dynamics of the country's income for the period 2019-2023 was characterised by an annual increase, with the exception of 2020. The growth rate of budget revenues for the same period amounted to 83.4%. The cost growth rate for

2019-2023 was 77%. For the period 2019-2022, Kyrgyzstan had a state budget deficit except for 2023, when the figure was 141.8 million USD surplus. Considering the indicators of budget revenues and expenditures for Ukraine, there is also a budget deficit in the country (Table 2).

Table 2. Revenues, expenditures, and deficit of the state budget of Ukraine for 2019-2023

Year	Revenues, million USD	Percentage of income change	Expenses, million USD	Percentage of change in expenditure	Deficit/surplus, million USD
2019	42,121.5	-	45,269.7	-	-3,148.2
2020	38,224.4	-9.3	45,755.5	1.1	-7,531.1
2021	47,743.5	24.9	54,829.2	19.8	-7,085.7
2022	44,573.5	-6.6	67,466.9	23.1	-22,883.4
2023	70,085.2	57.2	105,296.2	56.1	-35.211

Note: exchange rate as of December 31 of each year under study

Source: compiled by the authors based on data from the Ministry of Finance of Ukraine (2024a)

Analysing the data from Table 2, it can be concluded that the dynamics of Ukraine's income for the period 2019-2023 was characterised by an annual increase in the same way as the dynamics of expenses. The budget revenue growth rate for the same period was 66.4 per cent (from 42,121.5 million USD in 2019 to 70,085.2 million USD in 2023). The growth rate of expenditure for 2019-2023 was 132.6% (from 45,269.7 million USD in 2019 to 105,296.2 million USD in 2023). It is important to take into consideration that Ukraine has been in a state of armed conflict with Russia since 2014, which in February 2022 turned into a war with a full-scale attack on the territory of Ukraine by Russia. Wars increase the importance of government functions, but at the same time limit its ability to perform these functions. That is, effective governance during war is significantly undermined (Klymak & Vlandas, 2024). More than 8 million people moved abroad, which had the effect of reducing tax payment (Poluschkin & Kirchner, 2023). The number of internally displaced persons in Ukraine is estimated at 7 million. Damage to residential and other buildings, as well as infrastructure, is already estimated at more than 114 billion USD (Bergmann & Romanyshyn, 2022). The country's economic capital was also hit. Consequently, this situation has significantly affected the country's budget in terms of excess spending.

Calculations have shown that during the analysed period, the growth rate of budget expenditures outstrips the increase in its revenue side. Consequently, for the period 2019-2023, there was an annual state budget deficit in Ukraine. The deficit of the Ukrainian budget increased more than 11 times during the period under review (from -3,148.2 million USD in 2019 to -35.211 million USD in 2023) (Ministry of Finance of Ukraine, 2024b). The budget deficit in the country can be covered by loans, both external and internal. Government loans are less dangerous than the issue of funds in the country, therefore, the governments of both Ukraine and Kyrgyzstan resort to such a tool. When it comes to external forms of borrowing, these can be loans in international organisations, loans in banks, non-budget funds, or other persons. In terms of domestic borrowing, it is a country's debt to holders of valuable government securities and other creditors (Ministry of Finance of Ukraine, 2024b). As a rule, all countries of the Commonwealth of Independent States (CIS) cover the budget deficit through international lending. Because this is due to the limited ability to generate income in the country through taxes and other financing systems. Considering in dynamics the external and internal public debt of Kyrgyzstan, a tendency to its increase for the period 2020-2023 can be noted, which is a negative trend. The growth rate of public

debt over the period under study amounted to 75.1% (from SOM 319,474.6 million in 2019 to SOM 559,503.6 million in 2023) (National Statistical Committee..., 2023a). Analysing the structure of public debt on domestic and foreign loans, it can be concluded that 80% of public debt is foreign debt. Consequently, 20% of the public debt is the internal debt in the budget of Kyrgyzstan (Ministry of Finance of the Kyrgyz Republic, 2022).

Analysing the public debt of Ukraine, there is a tendency for its increase for the period 2019-2023 by more than 3 times (from UAH 1,998,275.4 million in 2019 and by UAH 6,115,263.5 million in 2023). Analysing the structure of public debt on domestic and foreign loans, it can be concluded that about 72% of public debt is foreign debt, and

domestic debt is about 28%. At the same time, in Ukraine, the growth rate of external debt is significantly ahead of the growth rate of domestic debt, since they amount to 280.4% and 103.2%, respectively (Ministry of Finance of Ukraine, 2024b). The budget deficit is not considered by researchers as a catastrophically negative financial indicator, since many states operate at the expense of external debt. This practice is considered normal practice today. But it is important that the amount of the state's debt is not exceeded annually and does not become a problem for taxpayers. The budget deficit can occur as a "normal indicator" if it is 2-3% of the country's GDP. The government budget deficit as a percentage of GDP in the two analysed countries for the period 2019-2023 is presented in Table 3.

Table 3. Budget deficit of Kyrgyzstan and Ukraine as % of GDP

Year	Ukraine	Kyrgyzstan
2019	1.9%	0.07%
2020	5.2%	3.3%
2021	3.6%	0.2%
2022	17.6%	1.13%
2023	20.4%	-

Source: compiled by the authors based on data from the Ministry of Finance of Ukraine (2024b), National Statistical Committee of the Kyrgyz Republic (2023d; 2023e; 2023f)

Analysing the above data in Table 3, it can be concluded that as of 2019-2023, Kyrgyzstan's debts fluctuate, while for Ukraine over the same period the indicators increased annually, turning into a problem for the financial system of each country (National Statistical Committee..., 2023a; Ministry of Finance of Ukraine, 2024a). A separate aspect of interest is the transparency of the use of budgetary funds. Transparency is recognised as one of the main pillars of effective and democratic financial resource management. In this context,

transparency should be understood as openness to the general public of the structure, functions, and intentions of the government in relation to state budget funds (Chen & Neshkova, 2020). In modern conditions, the transparency score is calculated for 125 countries by the International Budget Partnership. Based on 109 criteria, the transparency score is estimated from 0 to 100 points (Cuadrado-Ballesteros & Bisogno, 2022). A comparison of the transparency scores of Ukraine and Kyrgyzstan is shown in Table 4.

Table 4. Budget transparency score of Ukraine and Kyrgyzstan

Year	Ukraine	Kyrgyzstan
2019	63	63
2021	65	62
2023	38	61

Source: compiled by the authors based on data from the International Budget Partnership (2023a; 2023b)

An indicator of 61 points or higher is considered good. This indicator is observed in Kyrgyzstan in 2023. Kyrgyzstan ranked 383rd out of 125 countries in terms of transparency in 2023 (International Budget Partnership, 2023b). Based on the indicators presented in Table 4, it can be concluded that as of 2023, the level of transparency of budget management in Ukraine was insufficient. Ukraine ranked 79th out of 125 countries in terms of transparency in 2023. However, the national average for 2023 was 45 points (International Budget Partnership, 2023a). But it is important to consider the factor of war. The international community has been providing financial support to Ukraine since the beginning of the full-scale invasion.

Therefore, full transparency of the Ukrainian budget in the period 2022-2023 is primarily a matter of the country's military security. Russia can use such information for its own selfish purposes. In dynamics, the indicator of budget transparency in Kyrgyzstan is gradually decreasing, while in Ukraine it increased until 2021 inclusive, after which it sharply decreased in 2023. That is, this is a problem for both countries and measures are needed to improve this indicator, considering the country's military security. Returning to the issue that the country's debt and budget deficit are interrelated, the reform of the public finance management system in the country's budget in conjunction with the implementation of measures to improve the

transparency of the use of the country's financial resources is relevant and important for Kyrgyzstan as of 2024.

For a long period of time, both Ukraine and Kyrgyzstan have been reforming the budget system. Initially, in the two analysed countries, starting in 1991, public finance management was based on financial management standards in the Union of Soviet Socialist Republics (USSR). Next, the study considers the development of public finance management reform in each of the analysed countries in more detail. During 1991-2013, public finance management was regulated by legislation, which was developed based on Russian legislation at that time. Considering the components and structure of legislative acts that were adopted in Ukraine during the first 20 years of independence, it can be concluded that they completely duplicate similar laws of Russia. As a result, the management of public finances and its regulation were increasingly approaching the Russian system and increasingly moving away from European management standards. Since 2013, the government of Ukraine has entered a new stage of development in the management of the state budget system, starting to develop its own approaches. In 2013, the Order of the Cabinet of Ministers of Ukraine No. 774-r "On the Strategy for the Development of the Public Finance Management System" (2013) was adopted, which provided for the development of independent financial control, public involvement in budgetary issues, and improvement of the tax system. That is, the process of development by the state budget office has begun.

The next strategy was developed in 2017 and was supposed to improve public financial management by 2020. The second adopted strategy was designed to develop four main areas: compliance with financial discipline and its development in the medium term, improving the allocation of financial resources, more efficient use of financial resources from budgets, and increasing the level of transparency in the management of the state budget. In terms of financial discipline, the tasks were to reform the country's public debt, improve the tax system, introduce budget forecasting, and draw up three-year budgets. In terms of improving the allocation of financial resources, the objectives were primarily strategic budget planning and the introduction of the programme-targeted method of budgeting. The objectives of improving the allocation of financial resources were to increase state control over the country's financial resources, improve accounting and management of budget funds, respectively, to European and state standards. In terms of increasing the level of transparency in the management of the state budget, the objectives were to increase the transparency of both budget revenues and expenditures, and the introduction of information technology in the management process (Annex 1 to..., 2019; Order of the..., 2017). Following this reform, there was fiscal consolidation in Ukraine over 2015-2019, as evidenced by a 69.4% increase in GDP growth rate (from 90.91 billion USD in 2015 to 154.01 billion USD in 2019) (Statista, 2024). The researchers also claim that due

to the above-described strategy, it was possible to reduce the country's debt by 30.6% (Demianyshyn, 2022).

In 2020, such an external challenge as the spread of the SARS-CoV-2 coronavirus pandemic, and internal problems such as insufficient accountability for the use of budget funds, lack of medium-term planning provoked a revision of the existing strategy. In 2021, the government of Ukraine adopted a new strategy for reforming financial resource management, designed for the period 2022-2025. The purpose of such a strategy was to build a sustainable and effective strategy for managing the country's budget to ensure financial stability. This approach was supposed to have a positive impact on the economic development of the country and the country's integration into the European Union (Toktosunova *et al.*, 2024). Such a strategy provided for changing the tax system in accordance with European standards, reforming the management of both internal and external debt of the country, forecasting the budget, planning it, ensuring high-quality execution of plans, increasing transparency in budget management (Order of the..., 2021). In order to increase transparency in the management of financial resources in Ukraine for the period 2018-2020, a system was put into effect "Transparent Budget", which in 2024, through digital tools, provides citizens with a real-time analysis of all aspects of interest regarding the use and management of the state budget. Such a system combines three main areas of tracking state budgeting and financing: an open database of the country's public finances, a budget for Ukrainian citizens with information about the specifics and lines of budget tasks, and information about projects that are implemented at the expense of international organisations (IFIs Projects, 2024). Given the insufficient level of budget transparency in Ukraine as of 2023, it can be concluded that the problem with transparency has not been solved. That is, despite the introduction of new strategies for the development of the country's financial resources management, the problems are not being solved, since each strategy repeats the measures being implemented.

In Kyrgyzstan, as of 2024, firstly, changes in the pension system are being discussed, the purpose of which is to ensure the sustainability of the pension fund. Secondly, reforms in public finance management are being discussed, which is aimed at increasing transparency and efficiency in the use of budget funds. The study will consider in more detail the role of these changes in relation to the state budget of the country. Initially, the transformation of the public finance management system in Kyrgyzstan in 1991 was carried out within the framework of the crisis of the old system that remained from the USSR. Initially, the state transformed the tax system close to a market economy and introduced the abolition of subsidies from the state and the issuance of public loans, which significantly reduced budget expenditures for the period 1992-1995. During the same period, the first attempts to implement international standards of control and reporting were introduced. Such actions resulted in haphazardness. Further, reactionary

short-term policy in the country became a pattern, causing other negative consequences. The following attempts to change the management of the state budget were characterised by both positive changes and unsuccessful actions. Since the country did not have its own development strategy, reforms were not carried out in most areas for many years. As a result of the functioning of the country's budget system, democratisation and increased transparency of governance have not been observed for many years, which as a result caused a revolution among the population towards the government, which did not fulfil its duty to society with minimal transparency in the use of budget funds (Tiuliundieva, 2012).

After Kyrgyzstan gained independence in 1991, the underdevelopment of the financial market and the lack of funds also proved to be a problem. But gradually, the government reformed the country's financial system, including its social component. The relations between the state and society, which were established during the accession of Kyrgyzstan to the USSR, began to gradually transform for the better. Since 1997, the conditional savings system began to operate in the country, which assumed the accumulation of funds in an individual account of a person without saving, but only for the purpose of using current pensioners in the country for pension payments. The retirement age was also raised for both women (from 55 to 58 years old) and men (from 60 to 63 years old), pension benefits were reduced and a three-level pension system was introduced. It assumed the payment of pensions based on work experience, employee contributions as a percentage of the salary rate before 1996, and individual pension contributions. Such measures helped to reduce pension debt in the country by 1.9% of GDP for the period 1996-2008. However, the financial stability of the system has not been achieved. Therefore, in 2010, a conditional funded pension system was adopted in the amount of 2% of the average salary. This step served to further improve the pension system in the country. In 2024, the pension is paid from the pension insurance system in the amount of the insurance and funded component. The insurance component is a part of the general pension, which is established based on a person's insurance record, salary, or accumulated insurance premiums. The accumulative component is a new aspect and represents, relatively speaking, the "safety cushion" of the Kyrgyz pension system (Zholboldueva *et al.*, 2024). Such measures have been able to help Kyrgyzstan to improve its public budget management system. This happened due to the reform and optimisation of the use of public spending on the social component. Thus, the government of the country has improved the socio-economic component, but it cannot be argued that such measures have led to more effective budget management and increased its transparency. This problem still remains unresolved and requires the implementation of improvement measures.

The negative consequences of budget deficits and inefficient management of the state budget require a comprehensive approach of improvement measures. The main

task in this case is to determine the balance between income and expenditure in the state budget. This is the only way to conduct a targeted financial policy. In the process of developing measures to reduce budget deficits, it is necessary to understand three main aspects. Firstly, mathematical operations cannot dramatically lead the country to a surplus, since the consequences of such a "leap" are much more difficult to eliminate. This is especially important to consider when developing measures for Ukraine, where the budget deficit in 2023 is large compared to Kyrgyzstan. Secondly, budget surpluses are not an integral part of a dynamically developing economy. Budget deficits are the norm, given the specifics of the country's economic development. Thirdly, as the analysis of public debt shows, for both Ukraine and Kyrgyzstan, replenishing the budget through a loan is not a promising and effective solution to the problem. Fourthly, the 'treatment' of the country's economic system itself is important, because without developing the country's economy, it is impossible to achieve financial sustainability, despite many measures applied. It is the above four aspects that are the basis of the programmes being developed to regulate the level of expenses and income and reduce the level of deficit in the state budgets of Ukraine and Kyrgyzstan. It is important to consider them when reforming the management of public budgets in the analysed countries.

Since each country has its own specific features of the budget system operation, it is extremely difficult to identify universal measures that can reduce the budget deficit. However, it is obvious that the funds of the state budget deficit should be directed to those measures that allow them to be returned in the form of taxes (Ketners, 2015). One of the possible options for reducing the state budget deficit for the two countries is to attract investments into the country, especially foreign capital. Attracting foreign capital reduces the gap between expenditures and revenues of the state budget, since first of all the expenses aimed at financing capital investments are reduced. In addition, attracting foreign investment increases the potential base of production of goods or services and attracts new taxpayers to the country's financial system (Trusova *et al.*, 2022). Consequently, due to tax deductions, revenues in the state budget increase and the balance of payments improves. It is more difficult to achieve such an effect in modern conditions in Ukraine, since the country is at war, which minimises investments in the economy. However, for Kyrgyzstan, such measures are of considerable interest. If the budget remains in deficit after the above measures are implemented and the economy does not develop, an important measure is to cover the funds by reducing other budget items.

Since the transparent process of budget management in the country is the basis for effective management, the main and correct approach to increasing transparency for both Ukraine and Kyrgyzstan is the digitalisation of this process to increase accessibility to information for all interested parties. A necessary and important common feature for the two countries is the systematisation of financial data

from society to the highest level of financial management with automatic information exchange. Due to such actions, it will be possible to improve the process of execution and control of the expenditure of public funds. Positive consequences of digitalisation of financial resource management are also expected, such as reducing errors due to the “human factor” in decision-making, reducing the risk of document loss, and improving the quality and effectiveness of decisions made (Demi *et al.*, 2021). This approach will also reduce corruption schemes, which is relevant for Ukraine. In addition, synergy between different institutions is important, for example, between the Treasury, the Ministry of Finance, and the Ministry of Economy. For Ukraine, such a system will especially occupy an important place after the end of hostilities in the process of restoring the country's economy. However, at the stage of the country's stay in a state of war, it is important to adapt the digital process to military conditions, improving the methods of analysing transparency and accessibility of financial government information.

When implementing digitisation in practice, a personnel problem may arise in two countries, since not all specialists are ready for such processes. In parallel with the introduction of digitalisation in public finance management, it is also important to develop digital competencies among employees involved in this field. However, it is important not to confuse computer literacy and digital competencies. These concepts are not identical. Computer literacy is inherent in government employees working in the financial resources management industry of the country, since they relate to computer and software skills. Digital competencies include the confident, critical and responsible use of digital technologies and interaction with them for learning, work, and participation in society. It includes information literacy, communication and collaboration, security (including digital well-being and cybersecurity skills), problem-solving, and critical thinking (Vuorikari *et al.*, 2022). In other words, the development of digital literacy in a broad sense is important – it is the acquisition of skills that allow coping with the process of digital transformation (Rolf, 2022). In other words, the ability of people to use information and communication technologies in such a way that they can easily and quickly search, evaluate, create, and transmit information using digital tools in various forms and formats (Nikou *et al.*, 2022). Given the speed of change in the digital world, skill development is not a one-time approach, but requires continuous professional intervention (Marx *et al.*, 2021).

Considering all the above aspects, it can be concluded that for both countries it is important to restructure the financial system by management, which subsequently contributes to changing the structure of the economy, increasing the pace of digitalisation and scientific and technological development, and increasing the standard of living in the country for the population.

Discussion

The study found that both Kyrgyzstan and Ukraine are characterised by budget deficits, which increase annually.

The only exception is the situation in Kyrgyzstan in 2023, which has improved. However, the amount of public debt in the two countries increases annually, and the transparency of the use of public funds decreases annually. The reforms introduced earlier were able to improve the situation in Kyrgyzstan, but did not increase the effectiveness of budget management in Ukraine. As a result of the analysis, it was determined that the management system of the two countries needs further reform, considering the previous aspects being implemented and their effectiveness in practice. Therefore, it is important for both countries to restructure the financial system by management, which subsequently contributes to changing the structure of the economy, increasing the pace of digitalisation and scientific and technological development, and increasing the standard of living in the country for the population.

Considering the indicators of the effectiveness of managing the country's financial resources, it was determined that transparency in the management of public funds is the basis for improving the efficiency of their use. These results are consistent with the findings of B. Cuadrado-Ballesteros & M. Bisogno (2022). The researchers tried to find out whether a higher level of budget transparency is related to financial stability. During the analysis, the researchers analysed 110 countries to find the answer to this question. As a result of statistical analysis, the researchers concluded that budget transparency directly affects financial stability. An analysis of approaches to budget management in Ukraine and Kyrgyzstan revealed noticeable significant differences in terms of budgeting transparency. Kyrgyzstan has a higher level of transparency than Ukraine, but in two countries there is an annual decrease in this indicator, which is a negative aspect and requires measures to increase transparency in the management of public budget funds.

As a result of the conducted research, it was determined that the military situation of the country plays a significant role in the transparency of the budget of Ukraine. The effective management of public funds during the war is seriously undermined, as the government's ability to collect the revenues necessary to maintain stability is limited and the security aspect of the country is in question. Since the beginning of Russia's full-scale invasion of Ukraine, transparency in the management of public funds has been primarily a matter of state security, since the country is provided with financial international military assistance. Russia can use such information for its own selfish purposes. Such conclusions are not consistent with the findings of J. Cifuentes-Faura (2024a), who investigated the transparency of the government of Ukraine. As a result of the analysis, the researcher connects corruption, transparency, and accounting in the context of the Ukrainian war, emphasising the important role of audit and financial control in relation to the management of public funds. Other researchers come to similar conclusions, such as S. Nate *et al.* (2023), who investigated the transparency of the budget system of Ukraine during the war and the methodology of its assessment. As a result of the analysis, the researchers concluded

that it is equally important that military expenditures, especially those provided by international partners, are not only sufficient to maintain the country's armed forces, but also have a high level of openness, are not associated with corruption or money laundering and guarantee their effective use. The researchers argue that the methodology for calculating the transparency indicator for a country in a state of war should be improved.

Other researchers, such as T. Becker *et al.* (2022), focused the analysis primarily on the eradication of corruption, and then improving the transparency of public funds management. In the process of rebuilding Ukraine after martial law, there will be significant financial revenues from international partners. Therefore, it is important for Ukraine, first of all, to make significant improvements and a clear strategy of anti-corruption policy in the reconstruction of Ukraine. Although, as a result of this study, it was noted that first of all it is important to pay attention to the transparency indicator, which will subsequently lead to a decrease in corruption. That is, the results of this study on the initial measures to improve public financial management in Ukraine contradict the results of the researchers.

As a result of this study, it was determined that the main way to increase transparency in the use of budgetary funds for both Ukraine and Kyrgyzstan is the introduction of digital tools into the financial management process, focusing on the availability of information. However, the availability of information does not guarantee transparency. This is stated by L. Birskyte (2018), as a result of an analysis of the transparency of the Lithuanian budget. Using the example of Lithuania, the researcher described that true transparency requires that the information disclosed must be complete, relevant, correct, timely, and presented in a user-friendly format. These five factors should be decisive in the process of reforming the management of the state budget. The idea of introducing digital tools into the management of the state budget is also supported by N. Temirov *et al.* (2023), who investigated the processes of digitalisation in the state budget. The researchers also emphasised that digitalisation should be carried out systematically both at the municipal and state levels of budget management in Kyrgyzstan and, due to synergy, will bring more efficient spending of finances and make the approach to managing the state budget more optimal.

Focusing on the relationship between digitalisation and public administration, A. Androniceanu *et al.* (2022) found that the level of e-government proved to be the best predictor of corruption control and government effectiveness, which suggests that digitised and less corrupt governments also make the economy more competitive. In addition, such results are consistent with the findings of N.R. Mosteanu & A. Faccia (2020), who investigated financial management and the digitalisation process. As a result of the study, the researchers have established that finance and its management must adapt to the digital era. The researchers note that many states are already implementing artificial intelligence and blockchain in the process of

managing funds to tax and financial authorities. The advantages of using these digital tools are primarily that they reduce the risk of mistakes that people can make. Such digital tools can analyse big data and improve the reliability of reports, increase efficiency. Another advantage is the low risk of fraud (Loxha, 2019). However, this study did not consider the aspect of possible fraud and cybersecurity, data protection when implementing digitalisation in the management of the state budget at different levels. Other researchers have focused on this aspect. For example, A. Clarke (2020), analysing the digitalisation of public administration, noted the accountability dilemma accompanying digital government reforms. This was not noted as a result of the study. Other researchers, such as S. Quach *et al.* (2022), analysing the implementation of digitalisation in practice, noted the problem of data protection. This is especially important for governance at the state level.

As a result of this study, it was found that the introduction of digitalisation in the management of the state budget requires the development of digital competencies among employees of this industry in both Ukraine and Kyrgyzstan. Such conclusions are consistent with the opinion of other researchers. Some researchers emphasise how important it is to update the knowledge and digital skills of many employees as part of the ongoing digital transformation (Clarke, 2020). This study and its results are not exhaustive, but the results show the most important areas that are important in the modern system of public finance management for both countries for further development. The study examined the areas of public budget management, improvement of transparency in the use of public finances by the government and in the short term, and a sustainable development of the economy.

Conclusions

Comparing state budget management in Ukraine and Kyrgyzstan, it can be concluded that despite the fact that after gaining independence in 1991, the two countries had resources and opportunities to improve this process. The two countries have gone through different ways of reforming the public finance management process. As a result of the analysis of changes in the structures of public expenditure and income management in both countries, it can be argued that the practice used in Kyrgyzstan has proved effective, but still requires improvement. The practice used in Ukraine has proved ineffective. Combined with the military actions in the country, it led to a large deficit in the country for the period 2019-2023. Military conditions limit the government's ability to effectively manage the country's revenues, and the war also affects the security aspect while increasing transparency in the use of budget funds. This is clear from the main statistical indicators analysed in the study. Since, Kyrgyzstan was able to go into a budget surplus over the period 2022-2023, while Ukraine still has a budget deficit. The level of external debt increases annually in both Ukraine and Kyrgyzstan. In Kyrgyzstan, the level of external debt increased by more than 75% in 2019-2023,

and in Ukraine – by more than 3 times. But despite all the measures being implemented in the two countries, there is still room for improved public budget management and increased budget transparency.

During the analysis, it was determined that the emphasis should be placed on attracting investments and increasing taxes to the budget. If such measures are ineffective, it is important to change the structure of budget expenditures and revenues by item. In addition, it is important to introduce digital technologies into the process of managing the state budget in the two countries. At the same time, it is also important in Ukraine to adapt the digitalisation of management to military conditions and security aspects of providing financial information to all interested parties, improving the methodology for assessing transparency and accessibility of information provided by the government. With the introduction of digital technologies in public finance management, it is also important to promote and develop programmes to improve the digital literacy of employees related to the management functions of the state budget.

The limitation of this study is the analysis of the total income and expenditure of the budgets of the two countries. In further research, it is important to identify the

items of income and expenses that prevail in the budgets of Ukraine and Kyrgyzstan. Such an analysis will provide a better understanding of what measures should be implemented to improve public financial management.

The process of digitalisation of public finance management is important for further development. Such a process will be able to improve the transparency of the use of public funds and increase citizens' trust in the government, and improve democratic processes in both countries. In the process of digitisation, it is important to improve the digital competencies of employees in this industry for greater efficiency of management processes. The digitisation process will vary in each country, but it is important to gradually develop digitalisation to improve the efficiency of financial resources management and increase transparency of their use by the government, despite the fact that both countries already have sufficient potential and opportunities for improvement.

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Conflict of Interest

None.

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Реформа управління державними фінансами в Киргизькій Республіці та Україні: шляхи до підвищення прозорості та ефективності використання бюджетних коштів

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Анотація. Метою дослідження був аналіз наявних проблем використання бюджетів Киргизької Республіки та України і розробка рекомендацій щодо покращення управління державними коштами у двох країнах. У дослідженні проведено порівняльний аналіз управління державними фінансами в Україні та Киргизстані за період 2019-2023 років. Аналіз проводився на підставі офіційних статистичних даних, державних програм та інших теоретичних джерел. У результаті аналізу встановлено, що для обох країн характерним є дефіцит бюджетних коштів. Така ситуація спостерігається у двох країнах протягом 2019-2023 років за винятком ситуації в Киргизстані за 2023 рік. Характерним для обох країн є щорічне збільшення державного боргу. Для Киргизстану за період 2019-2023 років більш ніж на 75,1 %, а для України – більш ніж у 3 рази. Характерним також для двох країн є щорічне зменшення прозорості використання бюджетних коштів із погіршенням показників на 25 балів для України та 2 бали для Киргизстану за період 2019-2023 років. У результаті аналізу визначено головні заходи щодо поліпшення ситуацій, що склалися у двох країнах: залучення іноземного капіталу та зміна структури видатків і доходів для зменшення дефіциту бюджету, а також цифровізація управління державним бюджетом і підвищення рівня цифрової грамотності співробітників апарату управління для підвищення прозорості використання державних фінансів. Україні складніше домогтися такого ефекту з огляду на воєнний стан. Такі заходи слід впроваджувати поступово крок за кроком для їхнього синергетичного ефекту в результаті

Ключові слова: доходи та витрати; заборгованість; платіжна стабільність; перетворення регулювання; оподаткування

State budget system improvement for informed decision-making in Latvia

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Abstract. The study aims to improve the state budget system to ensure informed decision-making, which will contribute to more efficient use of budget funds and increase national financial stability. A comparative analysis of successful budget planning practices in other countries, such as Sweden, Canada and Estonia, was conducted, and the legal framework for coordination between government agencies in the budget management process in Latvia was reviewed. The methodological approach was based on the analysis of statistical data from official sources and regulations, as well as the use of information from government and ministerial websites. The results of the study showed that the analysis of revenues and expenditures of the Latvian state budget for the period from 2019 to August 2024 revealed a steady increase in revenues, with the exception of a decline in 2020 due to the pandemic, and an increase in expenditures, which requires optimisation and better coordination between government agencies. The study determined that the existing legal framework of Latvia regulating coordination between state institutions in budget management needs to be improved to increase the efficiency of this interaction. A comparison of Latvia's budget management systems with the successful practices of Sweden, Canada and Estonia demonstrated management improvement potential by introducing long-term strategic planning, as in Sweden, integrating results into the budget process, as in Canada, and increasing

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transparency and public involvement, as in Estonia. Based on the data obtained, recommendations were developed to integrate new technologies into the budget process and increase transparency, contributing to a more efficient use of public resources. The results indicate the need to reform the state budget system to ensure informed decision-making in Latvia. This will make it possible to use budget funds more rationally, increase the transparency of financial processes and strengthen public confidence in government decisions

Keywords: financial management; innovative technologies; international experience; audit; performance evaluation

Introduction

Improving the state budget system is a key element in ensuring stable economic development and effective financial management in Latvia. In the context of current economic challenges and growing demands for transparency and accountability in government processes, the need to reform budgetary mechanisms is becoming particularly urgent.

The need for this study arose due to several significant problems in the Latvian state budget system that negatively affect the process of making informed decisions. The main challenges include a lack of transparency in budget processes, inefficient use of public funds, and a lack of data integration between government agencies. This leads to low efficiency of financial management and limits the possibilities for introducing innovative approaches to budget planning. In addition, the current economic challenges and growing pressure on the government to increase accountability require a review of existing mechanisms and the introduction of new technologies to ensure effective management of financial resources. Given these challenges, research on improving the state budget system is a necessary step to improve the quality of decision-making, enhance financial stability, and strengthen public trust in government processes.

The problem of research in this area is determined by an insufficient understanding of the mechanisms of formation and management of the state budget for making informed decisions. In particular, the issues relate to the effectiveness of citizen involvement in the budget process, the identification of the main factors influencing public financial policy, and the assessment of the reliability of the tax system. Additionally, the impact of harmonisation of the national fiscal policy with the requirements of the EU and the participation of local authorities in budget planning are investigated.

I. Linina *et al.* (2023) addressed the involvement of citizens in the budget planning process in local self-government in Latvia, emphasising the importance of openness of municipalities to increase the interest of residents. E. Zubule (2023) assessed the socio-economic factors influencing the state financial policy of Latvia, focusing on the need to consider the main challenges. A. Leontyev and K. Ketners (2023) analysed the reliability of the tax system, thus emphasising the importance of fairness and efficiency in its assessment. L.A. Cristea and D.M. Ungureanu (2021) analysed the fiscal policy of the EU member states in the context of economic stability, pointing out the need to align national tax systems with European criteria. B. Jatmiko *et al.* (2020) studied the impact of participation

in the budget process on local government performance in Indonesia, finding a positive effect of accounting knowledge on organisational commitment. However, gaps that require further research, including the impact of digitalisation on the transparency of budget processes, the long-term effects of public engagement, mechanisms for cooperation between different levels of government, and an assessment of the impact of fiscal decentralisation on resource efficiency, were identified.

D. Argento *et al.* (2020) conducted a comparative analysis of the impact of the COVID-19 pandemic on the budget strategies of Finland, Norway and Sweden, highlighting the diversity of approaches to public finance management during the crisis. M.M. Rubin and K. Willoughby (2021) analysed the strategies for balancing state budgets in the context of the COVID-19 pandemic and the Great Recession of 2007-2009, finding that federal support in both cases was implemented in different ways, which affected their strategies for overcoming financial difficulties (The great recession..., 2007). L. Shahini and P. Grabova (2023) studied the effect of budget revision on the Albanian economy in the context of the crisis, noting that budget restructuring often does not consider the multiplier effect, as it focuses on specific goals. C. Dick-Sagoe (2020) analysed the impact of decentralisation on the quality of local service delivery in developing countries, pointing to the need to improve transparency and accountability in local government to achieve better results. F. Manes-Rossi *et al.* (2023) studied the concept of participatory budgeting as an innovative approach to involving citizens in the processes of budget allocation, identifying key factors that stimulate public activity in financial management at the local level.

Insufficient consideration of transparency and efficiency of budget processes was identified in the context of improving the state budget system in Latvia. Existing studies mostly focus on the general principles of budget planning, without taking into account the specifics of management decisions and technologies that can improve the quality of budget management. This creates gaps in understanding the real challenges faced by public authorities and highlights the need to develop new approaches to provide more informed solutions.

The research aims to identify the state budget system of Latvia with a focus on improving the efficiency of decision-making in the field of budget planning and financial resources management, as well as analysing the impact of these changes on the country's economic development.

To achieve the stated, the following tasks are to be addressed: to analyse the current challenges in the Latvian state budget system, in particular in terms of transparency and efficiency of budget management; to study the coordination between key state institutions, such as the Ministry of Finance, the State Audit Office to improve the efficiency of budget management; to compare the budget management systems of Latvia with successful practices of other countries to identify possible ways of improvement; to develop recommendations for the integration of new technologies and improvement of transparency of budget processes.

Materials and Methods

To analyse the current challenges in the Latvian state budget system, with a focus on transparency and efficiency of management, primary data was collected and a detailed statistical analysis of existing budget reports of Latvia for the period from 2019 to August 2024 was carried out. This analysis included the study of trends in revenues and expenditures, as well as the identification of changes in the structure of financing and budget execution.

A comprehensive analysis was used to analyse collaboration between state institutions to improve the effectiveness of budget management through interactions between key institutions such as the Ministry of Finance and the State Control Service. Firstly, a review of the legal acts regulating the budget process was carried out, with a focus on their coordination provisions. For the review, data were taken from key documents such as the Constitution of the Republic of Latvia, laws on budget and financial management, as well as resolutions of the Cabinet of Ministers. The analysis of the content of these acts was used to identify the principles that ensure interaction between state bodies in the process of budget management.

The study comparing Latvia's budget management systems with the best practices of other countries was based on the analysis of the existing budget system, in particular, budget planning and execution procedures. For this analysis, countries with successful budget management practices were selected, including Sweden, Canada and Estonia. Data was collected on their budgets, methods of control and performance evaluation, as well as mechanisms for engaging the public in the budget process. Based on this

data, a comparative analysis was conducted to identify key success factors and shortcomings in the budget management systems of the selected countries.

During the study of improving the state budget system for making informed decisions in Latvia, statistical data provided by The Treasury of the Republic of Latvia (2017) and the State Audit Office of the Republic of Latvia (2022; 2023; 2024) was analysed. In addition, the review of legal acts included the Constitution of the Republic of Latvia (1922), the Law of the Republic of Latvia "On Budget and Financial Management" (1994), the State Audit Office Law (2002), the State Administration Structure Law (2002), Regulation of the Cabinet of Ministers of the Republic of Latvia No. 385 "Procedures for the Performance and Assessment of Internal Audit" (2013), and Regulation of the Cabinet of Ministers of the Republic of Latvia No. 239 "By-law of the Ministry of Finance" (2003). To compare Latvia's budget management systems with the successful practices of countries such as Sweden, Canada and Estonia, information from the state budget reports of these countries for 2023, obtained from official sources such as the Ministry of Finance of the Republic of Latvia (2023), Government Offices of Sweden (2023), Government of Canada (Shore *et al.*, 2024), Ministry of Finance of Estonia (2023), was used to provide a comprehensive approach to analysing and identifying possible ways to optimise budget management in Latvia.

Results

Analysing the current challenges in the Latvian state budget system is an important step towards ensuring financial stability and efficiency of public administration. In the current context, when states are facing numerous economic and social challenges, it is particularly important to study the aspects of transparency and efficiency in budget management. Efficiency of budget management means rational use of resources and achievement of the set goals with maximum benefit for the society.

The study of state budget revenues and expenditures in Latvia was relevant to determining national financial stability in the context of economic changes. This will help assess the effectiveness of budget policy and identify potential risks arising from budget consolidation (Fig. 1).

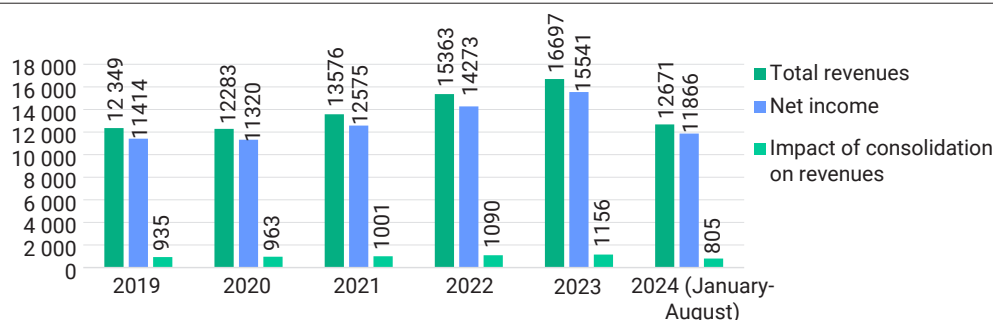


Figure 1. Analysis of state budget revenues and the impact of consolidation in Latvia for the period 2019 to August 2024, EUR million

Source: compiled by the authors based on Treasury of the Republic of Latvia (2017)

Between 2019 and August 2024, Latvia's total budget revenues demonstrated steady growth. Although there was a slight decrease in revenues in 2020, this can be explained by economic challenges, particularly the impact of the COVID-19 pandemic. Starting in 2021, revenues gradually increased, reaching new highs in the following years. The first eight months of 2024 saw further growth, indicating positive trends in economic development. Net budget revenues also showed positive dynamics. Despite a slight decline in 2020 due to economic difficulties, the following years were characterised by steady growth. Revenues increased year on year, reflecting more effective budgetary policies and the economic recovery from the pandemic.

The impact of consolidation on revenues also varied over the period. Consolidation rates have gradually increased, reflecting increased financial integration and coordination between different budgetary institutions. In general, the analysis of Latvian budget revenues for 2019 to August 2024 shows steady growth and improvement of the budget process, despite the challenges faced by the country in 2020. These positive trends point to stable economic development and more effective budget management. Further, the state budget expenditures and the impact of consolidation in Latvia for the period from 2019 to August 2024 were analysed (Fig. 2).

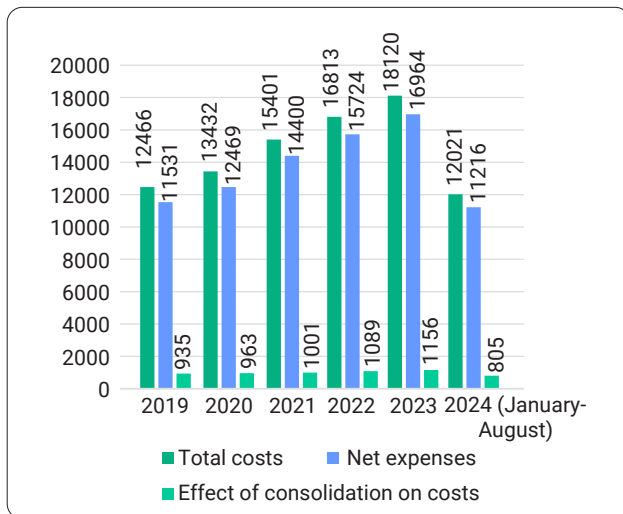


Figure 2. Analysis of state budget expenditures and the impact of consolidation in Latvia for the period 2019 to August 2024, EUR million

Source: compiled by the authors based on Treasury of the Republic of Latvia (2017)

Between 2019 and August 2024, total budget expenditures in Latvia demonstrated an upward trend. After an initial increase in 2020, caused by the need for additional spending to combat the effects of the COVID-19 pandemic, expenditures continued to grow in the following years. This growth reflects increased public investment in various economic and social sectors.

Net budget expenditures also increased during this period, indicating a growing budgetary burden. Although the

growth was less sharp than in the case of total expenses, the figures still reflect the general trend of increasing spending on public administration, social programmes and infrastructure projects. The impact of consolidation on expenditure remained stable over the period under review, with a slight increase from 2019 to 2023. This indicates some progress in the coordination of budgetary processes between different government agencies.

In general, the analysis of Latvian budget expenditures for 2019 to August 2024 indicates a significant increase in budget expenditures, which may be due to the need to overcome economic and social challenges. At the same time, the constant impact of consolidation indicates improved coordination and management of budgetary processes, which is positive for the further development of the country's financial system.

Thus, analysing the ratio of revenues and expenditures of the Latvian budget for the period from 2019 to August 2024, gradual revenue increase was determined, but the growth rate of total expenditures exceeded them. This has led to an increase in the budget deficit, which indicates the need to optimise costs and increase the efficiency of using budget funds. Moreover, the observation of net revenues and net expenditures showed a similar trend – despite the growth of net revenues, expenditures grew even faster, indicating structural problems in budget management. The impact of consolidation on revenues and expenditures remained stable, but declined in the last year, which may indicate the need to review consolidation mechanisms and strengthen coordination between government agencies to achieve stable financial management.

In addition, using the consolidated reports on the state execution budget and municipal budgets for the Republic of Latvia in 2021–2023, Figure 3 shows the total amount of the consolidated economic annual report balance sheet, public debt, revenues and expenditures.

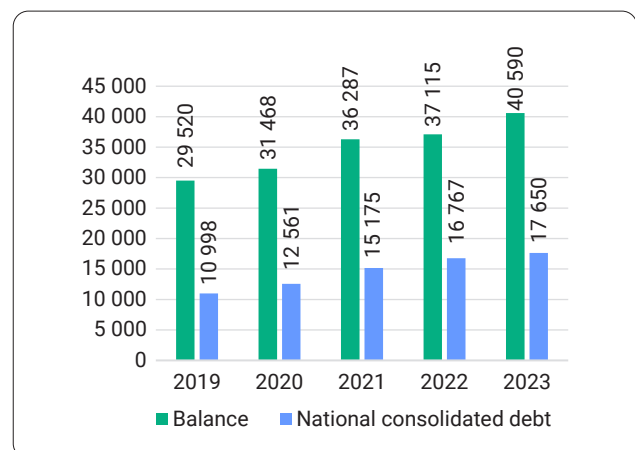


Figure 3. The total amount of the consolidated economic annual report balance sheet, public debt, revenues and expenditures in Latvia (budget execution) from 2019 to 2023, EUR million

Source: compiled by the authors based on State Audit Office of the Republic of Latvia (2022; 2023; 2024)

The analysis of the balance sheet and national consolidated debt of Latvia for the period from 2019 to 2023 revealed positive dynamics in both indicators. The balance sheet showed stable growth, which indicates an increase in national financial resources and opportunities for investment in social and economic development. This growth can be attributed to an improved economic situation, including higher budget revenues, as well as more efficient management practices.

As for the national consolidated debt, its gradual growth reflects the increase in government liabilities. Although the debt has been growing, its level remains relatively controlled in the context of a growing balance sheet.

However, this growth requires careful monitoring and analysis, as excessive debt could negatively affect the national financial stability. Overall, despite the increase in debt, the positive trend in balance sheet indicators indicates the potential for economic development and the need to further optimise financial policy to ensure stability.

Coordination between government agencies plays an important role in the budget management process. To ensure the effective implementation of budget programmes and optimisation of resources, relevant regulations should be employed. Table 1 provides an overview of the main documents that regulate the interaction between state institutions in budget management in Latvia.

Table 1. Overview of the legal framework for coordination between public institutions in the budget management process in Latvia

Legal act	Description	Key points for coordination	Recommendations for improving efficiency
Constitution of the Czech Republic	The fundamental law establishes the legal framework for the functioning of state bodies and defines the principles of the state system, including the budget process	Defines the basic principles of coordination between government agencies	Ensure strict adherence to constitutional principles in the budget process
Law of Ukraine No. 3898-XII "On Budget and Financial Management"	Regulates the process of preparation, approval and execution of the state budget, defines the responsibilities of participants in the budget process and the mechanisms of control and reporting	Defines the roles and responsibilities of different institutions in the budget process and establishes coordination mechanisms between them	Develop additional mechanisms of interaction between institutions to improve the efficiency and effectiveness of decision-making
State Administration Structure Law	Defines the responsibilities of the State Control Service in auditing and controlling the use of budget funds, as well as the mechanisms of interaction with other state institutions	Describes procedures for joint audits and coordination of control actions between institutions	Introduces regular joint audits to increase the transparency and effectiveness of budget control
Regulation of the Cabinet of Ministers of the Republic of Latvia No. 385 "Procedures for the Performance and Assessment of Internal Audit"	Establishes procedures for internal audit and control in state institutions and defines mechanisms for coordination between internal audit units and other bodies	Describes the mechanisms of interaction between internal audit departments and other institutions	Increases the independence and resources of internal auditors to improve audit quality
Regulation of the Cabinet of Ministers of the Republic of Latvia No. 239 "By-law of the Ministry of Finance"	Defines the functions and responsibilities of the Ministry of Finance in the budget process and regulates interaction with other state institutions for effective budget planning	Ensures coordination between the Ministry of Finance and other institutions	Strengthens the role of the Ministry of Finance in coordinating and overseeing budget processes

Source: compiled by the authors based on Constitution of the Czech Republic (1992), Law of Ukraine No. 3898-XII "On Budget and Financial Management" (1994), State Administration Structure Law (2002), Regulation of the Cabinet of Ministers of the Republic of Latvia No. 239 "By-law of the Ministry of Finance" (2003), Regulation of the Cabinet of Ministers of the Republic of Latvia No. 385 "Procedures for the Performance and Assessment of Internal Audit" (2013)

A review of the legal framework for coordination between state institutions in the budget management process in Latvia shows that there are structured mechanisms in place to ensure effective interaction between different state bodies. Legal acts, such as the Constitution of the Republic of Latvia (1922) and the Law of the Republic of Latvia "On Budget and Financial Management" (1994), State Audit Office Law (2002), lay the groundwork for clear roles and responsibilities of the participants in the budget process. However, despite the existence of these documents, there is room for improving the effectiveness of coordination through the introduction of additional mechanisms of interaction, automation of processes and regular joint audits. Recommendations set out in the table emphasise

the need to improve communication between institutions and strengthen their cooperation, which will ensure a more transparent and controlled process of using budget funds. Implementation of these initiatives can significantly improve public budget management, which in turn will increase public confidence in budget processes and contribute to Latvia's sustainable development.

To identify ways to improve Latvia's budget management system, it is important to compare Latvia's budget management systems with the practices of Sweden, Canada and Estonia. These countries were chosen because of their successful experience in developing and implementing effective budget processes that can serve as a benchmark for Latvia (Table 2).

Table 2. Comparison of Latvian budget management systems with successful practices of Sweden, Canada and Estonia in identifying possible improvement ways

Criteria	Latvia	Sweden	Canada	Estonia
Strategic planning	Limited planning with insufficient emphasis on long-term strategy, makes it difficult to anticipate economic changes and formulate stable financial policies	Emphasis on long-term strategic planning, allows the country to adapt to changes and ensure stable economic development	Clear strategic planning for several years ahead with the identification of key priorities, contributes to stability and consistency in the budget process	Clear strategic planning with a focus on digitalisation, can be used to respond quickly to changes in the economy and increase the efficiency of resource management
Integration of results	Different uses of the results, make it difficult to assess the effectiveness of spending and the achievement of goals	Use of performance indicators to assess effectiveness, which allows for evaluation of the impact of budget expenditures on society	High integration of results into the budgeting process, which ensures that expenditures are adjusted based on the results obtained	Systematic use of the results to adjust the budget contributes to increased efficiency and effectiveness of spending
Transparency of the budget process	Limited transparency, causes public distrust and makes it difficult to control expenditures	High transparency and accessibility of information to the public, ensures active participation of the population in the budget process	High transparency, and active public engagement, promote trust in state institutions and government accountability	High transparency through electronic platforms, facilitates access to information and public involvement in decision-making processes
Budget flexibility	Limited adjustment flexibility, rendering rapid economic change adaptation difficult	Flexibility in responding to economic changes, which enables adaptation to new conditions	Flexibility in adjusting the budget depending on needs and circumstances, which ensures efficiency in managing resources	Flexibility in adapting to new economic conditions, which can be used to respond effectively to challenges and changes in the environment
Stakeholder engagement	Minimal involvement of the public and experts limits the effectiveness of the budgeting process	Active involvement of all stakeholders, which ensures that different points of view and interests are considered in the budget process	The wide involvement of the public and experts contributes to more informed decisions	Involvement of stakeholders through consultations, which ensures that their opinions are accounted for in budgeting
Monitoring and evaluation	Insufficient monitoring and evaluation, which makes it difficult to control budget execution and assess the effectiveness of spending	Regular monitoring of policy adjustments, which allows for prompt response to the results and budget amendments	Regular monitoring and real-time evaluation of results, which ensures accurate and timely decision-making	Frequent monitoring and evaluation of performance, which increases transparency and accountability for budget execution

Table 2, Continued

Criteria	Latvia	Sweden	Canada	Estonia
Use of technology	Limited use of the latest technologies in the budget process, reduces management efficiency	Active implementation of electronic systems to simplify data collection and analysis	Employment of the latest technology to collect and analyse data, which increases the efficiency and accuracy of the budget	Intensive use of digital technologies to automate processes, which increases the overall efficiency of budget management
Anti-corruption initiatives	A lack of systemic anti-corruption measures can cause abuse of the budget process	Strict anti-corruption practices ensure a high level of trust in state institutions	Strong anti-corruption measures, and clear reporting to increase transparency and accountability	Strong focus on anti-corruption initiatives, which ensures cost control and prevents abuse
Financial discipline	Unstable financial discipline can lead to cost overruns and deficits	High financial discipline, which ensures cost control and budget sustainability	High financial discipline and cost control, contribute to stability and regularity in the budget process	Strong financial discipline, helps maintain a balanced budget and prevent abuse

Source: compiled by the authors based on Ministry of Finance of the Republic of Latvia (2023), Government Offices of Sweden (2023), J. Shore *et al.* (2024)

A comparison of Latvia's budget management systems with the best practices of Sweden, Canada and Estonia revealed several key areas for improvement. Latvia needs to introduce long-term strategic planning to better anticipate economic changes and adapt the budget to challenges. This includes the development of a set strategy and establishing mechanisms to integrate results into the budget process. Increased transparency of the budget process and active public engagement are critical to building trust in public institutions and ensuring more informed decisions. It is also necessary to ensure greater flexibility in budget adjustments to respond quickly to changes in the economy and the needs of society. Investing in the latest technologies can significantly increase the efficiency of budget management, simplify data collection and analysis, and ensure regular monitoring and evaluation of spending efficiency. The implementation of these successful practices from other countries can significantly improve the budget management system in Latvia, contributing to a more efficient use of public resources for the benefit of society.

Modern challenges in public finance management require governments to adapt to new conditions, including the integration of innovative technologies and increased transparency of budget processes. In this context, recommendations were developed to help optimise budgetary practices and ensure more efficient use of budgetary resources in Latvia.

The introduction of blockchain technologies in the Latvian budget process could be an important step in ensuring transparency and impartiality of budget transactions. The first step in implementing this recommendation is to conduct a detailed analysis of the current budget management system to identify key areas where blockchain can be implemented. It is necessary to develop a technical specification that includes requirements for security, scalability and

integration with existing systems. This will form the basis for further action.

The next step is to form an interagency working group that will include representatives of the Ministry of Finance, information technology and blockchain experts. This group will be responsible for coordinating actions and developing an implementation strategy. Evaluating available platforms and choosing the best one will help ensure the successful integration of the technology.

The development of a prototype blockchain system will be the next stage, which could be used to test the technology in real budget transactions. Pilot projects in selected budgetary institutions or regions will provide an opportunity to evaluate the functionality of the system and collect feedback from users. At the same time, it is necessary to organise training programmes for civil servants to enable them to use the new system effectively. Thus, the introduction of blockchain technologies can significantly improve the budget process in Latvia and ensure national sustainable development.

The integration of electronic payment systems in the Latvian public sector is needed to improve the efficiency of public financial management and reduce the risk of corruption. To start implementing this recommendation, it is necessary to develop a single platform for electronic payments that will allow all financial transactions to be consolidated in one place. This will simplify payment processing, reduce the time required to complete financial transactions and increase their transparency.

To successfully implement this system, a detailed analysis of the needs of various government agencies and stakeholders is required. The involvement of experts in the field of information technology and finance will help determine the key requirements for the platform, such as security, usability and the ability to integrate with existing

accounting systems. It is also necessary to account for the needs of users so that the platform is understandable and accessible to all stakeholders. The next step is to select a technology solution provider to develop the electronic payment platform. It is necessary to hold an open tender to attract the best specialists and technology. Once the supplier is selected, a pilot project should be organised to test the system in real-world conditions. This could be used to identify shortcomings and make the necessary adjustments before the full launch.

In addition, regular monitoring of the platform's effectiveness after its implementation will provide timely identification of problems and improvements. Public information campaigns will raise awareness of the new platform and its benefits, which in turn will strengthen trust in public finances. Thus, the integration of electronic payment systems will be an important step towards increasing the transparency and efficiency of the budget process in Latvia.

The use of mobile applications for accessing budget and expenditure information is a tool for engaging citizens in the public finance management process in Latvia. The creation of such applications will simplify the access to information on the budget, expenditures and projects, increasing the transparency and openness of the budget process. The first step in implementing this recommendation is to conduct a needs analysis of citizens and identify key functions that should be included in mobile applications.

User experience research and collection of feedback from potential users can be used to determine what information is most important to citizens. This may include details on spending on social programmes and infrastructure projects, as well as the ability to receive notifications of budget changes. The involvement of information technology specialists will help to develop intuitive interfaces that will make the apps easy to use. After the launch of mobile applications, it is necessary to organise information campaigns to raise public awareness of their capabilities. This will help attract more users and encourage active participation of the population in the budget discussion process. The use of such applications can be an important step in improving communication between the government and citizens, ensuring openness and transparency of budget expenditures. Thus, mobile applications will become effective for engaging the public in budget discussions and raising awareness of financial processes in the country.

The use of artificial intelligence to forecast budgetary needs opens new opportunities for improving public finance management in Latvia. The introduction of such systems will allow for more efficient analysis of large amounts of data and accurate forecasts of financial needs in various sectors.

The first step is to assess existing data and systems to identify gaps in budget planning. The next step is a selection of algorithms and artificial intelligence models adapted to the specifics of the process. Collaboration with data analysts will help create systems for analysing historical data, identifying trends and forecasting financial needs, considering socio-economic factors.

Once the system is developed, its effectiveness should be tested on real data through pilot projects. At the same time, training should be organised for civil servants to ensure that they are ready to work with new technologies. The introduction of artificial intelligence will improve the accuracy of forecasting and allow for more efficient prioritisation of funding, which will have a positive impact on the implementation of government programmes. Regular monitoring and analysis of data will help improve forecasting algorithms, which will contribute to the sustainable development of the budget process in Latvia. Thus, the integration of artificial intelligence will be an important step towards ensuring the transparency and efficiency of budget management.

The creation of an online platform for public control is an important step in ensuring the transparency of the budget process in Latvia. The interactive platform will allow citizens to monitor the implementation of the budget, submit requests for information and receive answers to their questions. This will increase public confidence in state institutions and improve control over the use of budget funds.

The first step in implementing this initiative is a survey, designed to identify the needs of the public and define the functionality of the platform. The involvement of information technology and civil society experts will help to create a platform that is user-friendly and understandable. The interface of the platform should be intuitive and the information easy to comprehend, which will ensure easy access to budget data.

The next stage will be the development of the platform itself, which should integrate existing budget accounting systems and ensure automated data collection and processing. This will enable the creation of up-to-date reports on budget execution that citizens can view in real-time. In addition, the platform should include functions for submitting requests for information and receiving responses, which will simplify communication between government agencies and citizens. Once the platform is developed, it should be tested among the target audience to identify shortcomings and make adjustments. It is also necessary to organise information campaigns that will explain the platform's capabilities to the public and encourage their active participation. Regular monitoring of the platform's operation will help assess its effectiveness and adapt its functionality to the changing needs of users. Thus, the creation of an online platform for public control will be an important tool for engaging the population in the budget process. This will raise public awareness, increase their participation in controlling the spending of public funds and strengthen the democratic principles of financial management in the country.

In addition, a partnership with the private sector, especially with information technology companies, was proposed to introduce new technologies in the Latvian budget management. This cooperation would enable the adaptation of innovative solutions to the needs of the state budget, increasing the efficiency and transparency of financial processes. The first step is to identify key information technology companies with experience in the public sector, which

can be done through open tenders and pitching. A clear definition of the goals and roles of both parties will ensure transparency and accountability. This will be followed by the joint development of technological solutions, such as automated budget planning and analytical platforms for monitoring expenditures. The involvement of private sector experts will provide public institutions with access to modern technologies, which will help improve budget management. Regular monitoring and evaluation of the results of cooperation will help to identify the effectiveness of the implemented solutions. An open dialogue between government agencies and private partners will allow for a prompt response to challenges. Thus, partnerships with the private sector will become an important tool for integrating new technologies into budget management, increasing transparency, efficiency and accountability in public finance.

Discussion

Analysing of existing budget systems and implementing new reform strategies would allow not only to assess the effectiveness of public financial management but also to identify best practices and strategies that can be adapted to increase the transparency and efficiency of budget processes. This analysis reflects the growing interest of scholars in researching state budget and budgeting issues aimed at achieving effective and transparent public financial management.

Y.N. Basa (2023), O. Blanchard *et al.* (2021), and C. Axioglou *et al.* (2023) analysed the legal framework of the budget procedure in Turkey, proposals for replacing the EU fiscal rules with fiscal standards, and the role of Independent Fiscal Institutions (IFIs) in the EU as well as ways to strengthen them. An analysis of budgetary procedures in Turkey demonstrated that the basic rules are defined at the constitutional level, with key principles enshrined Constitution of the Republic of Turkey (2019). The detailed rules are regulated by the Law of the Republic of Turkey No. 5018 "Public Financial Management and Control" (2013), which ensures the legality of budget preparation, execution and control, forming the legal basis for the state budget and judicial control over fiscal actions. The study also noted that the EU has suspended its fiscal rules until the end of 2021, which creates a need for changes due to the high level of debt. National independent fiscal councils and the European Commission should have an important role in this process, and disputes should be resolved through the European Court of Justice. According to the analysis, since the introduction of EU legislation in response to the financial crisis, the number of IFIs has increased significantly and they have taken on a variety of functions. This provides a useful basis for proposals for reforming the economic governance system in the EU. It is found that the basic rules of the budget procedure are enshrined at the constitutional level, which ensures the legality of budget execution, and the growth in the number of IFIs is noted, which requires clarification of their tasks and guarantees of independence. These results of the study coincide with the conclusions about the importance of the legal framework and

independence of fiscal institutions for the stability of the budget process, which is also relevant in the context of improving the state budget system in Latvia. At the same time, there are some nuances in the specifics of the implementation of fiscal standards and control mechanisms that require further analysis in each country.

O. Speian (2022), J. Zhang (2022), and A. Sanchez-Bayon *et al.* (2023) covered various aspects of budget systems and financial management, in particular, focusing on the importance of effective fiscal strategies for ensuring economic stability. They also analysed the impact of budgetary practices on the economic development of countries, in the context of global challenges such as the financial crisis and the COVID-19 pandemic. While analysing the sources of financing the budget deficit in the context of the growing deficit caused by the COVID-19 pandemic, they focused on domestic sources, in particular government securities. Furthermore, the development of public debt in several countries, including the Republic of Moldova, was analysed, and the expansion of the government securities market was noted to be crucial for ensuring stable financing of the state budget in the medium and long term. The review of fiscal revenues in China focuses on the assessment of the share of fiscal revenues in gross domestic product (GDP) and the fiscal expenditure multiplier as key indicators of economic efficiency. Moreover, the review of the EU's budgetary system, based on the analysis of more than 700 indicators of financial programmes for the period 2014-2020, showed how countries with less economic resources benefit, while Germany is the main beneficiary, thereby highlighting the need for investment in sustainable production to improve economic integration in the EU, indicating the importance of balanced development of budgetary systems to ensure long-term economic stability. Thus, the research findings highlight the importance of domestic sources of financing for the stability of budgetary systems, as well as the need for effective fiscal strategies. This correlates with the study results, which highlight the importance of adapting budgetary practices to achieve economic stability, especially in the face of global challenges such as financial crises and pandemics. The emphasis on investments in sustainable development and optimisation of budget expenditures also corresponds to the recommendations for improving the state budget system.

However, there is a discrepancy in the results of studies by A. Nurgaliyeva *et al.* (2022) and Y. Bitoleuova *et al.* (2020) due to differences in the aspects of implementation of these strategies, in the methods of assessing the effectiveness of budget expenditures and control mechanisms, which indicates the need to adapt methodologies to the specific conditions and challenges faced by Latvia. When considering the possibility of introducing a budgeting system in international organisations, it was found that budgeting contributes to improving the efficiency of departments through planning and controlling financial flows. In addition, the development of local self-government in Kazakhstan was analysed, focusing on the approach of

financial independence of bodies through the introduction of an independent budget. The study determined that this approach helps to increase the responsibility of authorities for the use of financial resources and improves their ability to respond to the needs of local communities. The study of international experience has shown that a systematic approach to the budget process, particularly the introduction of programme-targeted planning models, allows for more efficient resource allocation and stimulates economic development at the local level.

Studies by J. Diamond (2006), C.E. Lucia *et al.* (2021), and I.A. Lovering (2021) analysed and identified different approaches to reforming budget systems, studied the impact of budgetary practices on economic development and explored mechanisms to improve the efficiency of public financial management in the face of global challenges. In addition, a strategy for reforming budget systems is defined, which includes increasing the flexibility of the operating environment, providing resources for budgetary institutions and creating pressure to improve performance. Budget revenues of Romania for 2019-2021 were analysed, showing the evolution of expenditures and the reasons for their distribution by functional categories, and the impact of various factors on changes in budget revenues and the efficiency of public institutions during this period is assessed. The transition from "government" to "governance" since the 1990s is also examined, with a focus on the construction of public authorities at the supranational and local levels. European integration in the 1990s serves as an example, where the creation of the EU facilitated the integration of markets without a common budget. Member states coordinated policies through rules and quantitative comparative exercises. These findings are consistent with approaches to reforming the budget system, improving public financial management, and identifying strategies that include increasing the flexibility of the operating environment and securing resources. Analysing changes in expenditures and their distribution by functional category is also key to assessing the impact on budget revenues and the efficiency of public institutions.

However, the analysis of the impact of budgetary efficiency on economic growth, as well as consideration of the realities and illusions of the new public administration, together with ways to improve financial control over the use of public funds, are key aspects that emphasise the importance of effective financial management to stimulate economic development, and were therefore considered in more detail by W. Putra (2021), S.G. Mauro *et al.* (2021), as well as Z.K. Jumayeva & G.N. Mamadjonov (2024). The authors addressed the capabilities of regions in West Kalimantan to ensure budgetary efficiency and analysed the relationship between expenditures and revenues. The results confirmed the existence of a positive relationship between expenditures and primary local revenues, as well as between budgetary efficiency and the growth of gross regional domestic income. The article also analyses the case of an Italian ministry, which revealed the difficulties of

integrating values and goals between different organisational actors, which complicates the establishment of causal relationships and threatens the success of reforms in the budget process because actors remain within illusory models. In addition, the importance of efficient use of state budget funds and opportunities to improve financial control is emphasised, as proper financial control can significantly affect the management of budget resources and increase the overall efficiency of the budget system. The importance of integrating effective management practices, proper financial control and the relationship between budget expenditures and revenues is key to improving the state budget system in Latvia and coincides with the results of the study. This underscores the need to create mechanisms that ensure sustainable economic development and increase the efficiency of public finances. As part of the optimisation of the state budget mechanisms, new recommendations have been developed to integrate new technologies and improve the transparency of budget processes.

The results of the study coincide with those of A.J. Mokhtari (2019) and G. Citroni *et al.* (2019), since the study developed recommendations for the budget process, including improved methods of analysing financial data and mechanisms for assessing the efficiency of using budget resources, it is worth focusing on their implementation. The recommendations emphasise the need to integrate good management practices and proper financial control to ensure the sustainability of budget systems. Whereas defence financing emphasises the importance of army expenditures in the state budget, stressing that effective planning and rational use of resources in the budget is necessary to maintain the high readiness of budget managers to perform tasks. In turn, the analysis of Algeria's budget revealed that dependence on oil revenues has significantly affected the country's fiscal policy, in particular, in the context of the oil shock, austerity policies have been implemented since 2014, which stabilised the budget balance by reducing public spending. Analysing the austerity in Italy, it was noted that in response to the economic downturn in 2010, the implemented rationalisation programme led to a reduction in the autonomy of local authorities and changes in public service management strategies, including a shift to less costly models.

A correlation with the studies by L. Bartocci *et al.* (2023), R. Downes & S. Nicol (2020), and D. Valle-Cruz *et al.* (2022), who emphasise the importance of integrating public participation into budget processes, implementing gender budgeting and using modern technologies such as artificial intelligence to improve the efficiency of public spending, was also determined. This highlights common trends in the search for new approaches to budget management to increase transparency, equity and cost-effectiveness. Through a systematic review of the literature on participatory budgeting, analysing 139 articles published between 1989 and 2019, a conceptual model was developed to address the challenges faced at different stages of state budget implementation, as well as to identify new

directions for implementing participatory mechanisms that may be useful for practitioners. In turn, gender budgeting emphasises the need to integrate gender equality into fiscal policy, offering recommendations for implementing this approach, which can contribute to social justice and inclusive economic development. The analysis focusing on the use of artificial intelligence in public budgeting examined how algorithmic methods can improve the allocation of public spending. The use of a genetic algorithm makes it possible to efficiently process large amounts of data, identifying complex nonlinear relationships in budget expenditures. This can significantly improve the decision-making process in the budgetary sphere, contributing to GDP growth, lower inflation, and an improved Gini index.

An analysis of research on improving the state budget for informed decision-making in Latvia shows that the integration of effective management practices, proper financial control and a clear relationship between revenues and expenditures is key to ensuring financial stability. The creation of new mechanisms to support the budgeting process is recognised as important at all levels of government. However, rather than the traditional approach that treats these elements separately, the recommendations developed in this paper integrate all these factors into a single framework that allows for more in-depth analysis and evaluation of the effectiveness of budgetary decisions.

Conclusions

The study of the Latvian state budget system by analysing budget revenues and expenditures for the period from 2019 to August 2024 revealed a steady increase in revenues, although a slight decrease was recorded in 2020 due to the COVID-19 pandemic. Expenditures also tended to increase, particularly in 2020, which may be a result of the need to support the economy. The increase in the budget deficit points to the need to optimise expenditures and improve the efficiency of the use of budgetary resources. Overall, the results indicate the need to review consolidation mechanisms and increase coordination between public institutions to ensure stable and effective financial management in Latvia.

In turn, a revision of the legal framework governing this interaction in Latvia was conducted to identify the coordination between state institutions for effective budget management, showing that there are structured mechanisms that define the roles and responsibilities of the participants in the budget process. Basic documents, such as the Constitution and the laws on budget and financial management, lay the foundations for joint work. However,

there is room for improvement through the introduction of additional mechanisms of interaction, automation of processes and regular joint audits. Recommendations to improve communication and cooperation between institutions could lead to a more transparent and controlled use of budget funds, which in turn would increase public trust and contribute to Latvia's sustainable development.

Comparison of Latvia's budget management system with the systems of other countries, including Sweden, Canada and Estonia, revealed several key areas for improvement. Latvia should introduce long-term strategic planning, following the example of Sweden, and integrate results into the budget process, as in Canada, which would allow for better adaptation to economic changes. Increasing transparency and public engagement, following the example of Estonia, will help build trust in public institutions. Implementation of these practices could significantly improve public budget management in Latvia, contributing to a more efficient use of resources for the benefit of society.

Based on the results, recommendations were developed, including the introduction of innovative technologies such as blockchain, electronic payments, mobile applications and artificial intelligence. These technologies are essential for improving public financial management in Latvia. Adapting to modern challenges requires a detailed analysis of existing systems and the creation of new solutions that will ensure transparency, and efficiency and reduce the risk of corruption. It is also important to establish partnerships with the private sector, especially with information technology companies, which will allow to attract experts and modern technologies to implement these initiatives. The key steps include the formation of working groups, pilot projects, training of civil servants and active involvement of the public through online platforms, which will help to increase trust in state institutions and ensure the sustainable development of the budget process in the country. The key areas for further research in improving the state budget system in Latvia could be to study the role of new technologies, such as big data analysis and artificial intelligence, in the budget planning and execution processes. This could be used to assess how such tools can improve the efficiency of financial management and the validity of decisions.

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Conflict of Interest

None.

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Удосконалення системи державного бюджету для прийняття обґрунтованих рішень у Латвії

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Анотація. Метою дослідження є вдосконалення системи державного бюджету для забезпечення прийняття обґрунтованих рішень, що сприятиме більш ефективному використанню бюджетних коштів та підвищенню фінансової стабільності країни. Проведено порівняльний аналіз успішних практик бюджетного планування в інших країнах, таких як Швеція, Канада та Естонія, а також розглянуто правові засади координації між державними установами в процесі управління бюджетом у Латвії. Методологічний підхід ґрунтувався на аналізі статистичних даних з офіційних джерел та нормативно-правових актів, а також на використанні інформації з урядових та міністерських веб-сайтів. Результати дослідження показали, що аналіз доходів і видатків державного бюджету Латвії за період з 2019 року по серпень 2024 року виявив стабільне зростання доходів, за винятком спаду у 2020 році через пандемію, та збільшення видатків, що потребує оптимізації та кращої координації між державними органами. Дослідження визначило, що існуюча законодавча база Латвії, яка регулює координацію між державними установами в управлінні бюджетом, потребує вдосконалення з метою підвищення ефективності цієї взаємодії. Порівняння системи управління бюджетом Латвії з успішними практиками Швеції, Канади та Естонії продемонструвало потенціал для вдосконалення управління шляхом запровадження довгострокового стратегічного планування, як у Швеції, інтеграції результатів у бюджетний процес, як у Канаді, та підвищення прозорості й залучення громадськості, як в Естонії. На основі отриманих даних були розроблені рекомендації щодо інтеграції нових технологій у бюджетний процес та підвищення прозорості, що сприятиме більш ефективному використанню державних ресурсів. Отримані результати свідчать про необхідність реформування системи державного бюджету для забезпечення прийняття обґрунтованих рішень у Латвії. Це дозволить більш раціонально використовувати бюджетні кошти, підвищити прозорість фінансових процесів і зміцнити довіру громадськості до урядових рішень.

Ключові слова: фінансовий менеджмент; інноваційні технології; міжнародний досвід; аудит; оцінка ефективності

The elasticity of demand and its role in consumer behaviour determination: A comparative analysis of Europe and the USA

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Abstract. Determination of consumer behaviour is relevant for ensuring the effective functioning of both individual companies and the country. Given this, additional research on instruments that describe it, such as demand elasticity, remains important. The study aimed to analyse the elasticity of demand in Europe and the United States of America. As part of the study, a statistical assessment of the price indicators for certain types of products, namely oil (from 1989 to 2023), milk (from 2001 to 2022) and chicken meat (from 1991 to 2022), as well as changes in the level of consumption of these products, was conducted. Based on the calculated and analysed demand elasticity indicators, the study concluded that price is not the only and main factor in changing demand for products. The most striking instance was the situation with chicken, the price and demand for which increased significantly, primarily due to the transition of the population to a more responsible and healthy diet. At the same time, the elasticity of oil demand for the United States of America was stable and close to zero, while for European countries it was negative, due to their significant dependence on energy imports, including oil, which contributes to a faster transition to alternative energy sources. In the case of milk, the elasticity varied depending on where the assessment was conducted: in the United States or Europe. The results will allow for more effective policymaking in this area and create new opportunities for the development of local companies

Keywords: market competition; market structure; oil; essential commodities; price growth

Introduction

In a modern highly competitive environment, the study of variables such as demand elasticity is relevant for the formation of long-term strategies for companies and countries. This metric shows how sensitive consumers are to changes in the price of goods or services. This helps companies and

economists predict the market's reaction to price changes. If the demand for a product is elastic (a price change significantly affects demand), then a price reduction can increase sales, while a price increase can decrease sales. Determination of the elasticity of demand helps companies find

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optimal prices that maximise profits, while governments can use this indicator to assess the impact of taxes on different goods and plan support measures for social groups, accounting for the different responses to price changes for different groups of goods (Mayis *et al.*, 2021). Therefore, a comprehensive assessment of this indicator, including in the context of different countries, is important.

In the context of current research on the elasticity of demand, considerable attention was devoted to the study of long-term relationships and trends in consumer behaviour, as this allows companies to more effectively formulate their long-term sales strategies for the relevant products. As such, J.M. Álvarez *et al.* (2020) studied the relationships between cigarette consumption, price and economic cycles with a focus on Spain. The study showed that cigarette consumption responds asymmetrically to economic changes. In times of economic growth, a 10% increase in GDP leads to a 4.05% increase in cigarette consumption, while a 10% decrease in GDP during a recession leads to a sharp 58.16% decrease in consumption. These results suggest that economic recessions significantly reduce cigarette consumption and that higher cigarette prices are also effective in reducing smoking. Z. Csereklyei (2020), in turn, studied the short- and long-term price and income elasticities of residential and industrial electricity demand in the European Union from 1996 to 2016. The results of the study show that the long-term price elasticity of residential electricity consumption is inelastic, and the short-term elasticity for both sectors is substantially inelastic. The study also shows that population density, temperature and policy measures affect electricity consumption in different sectors. The study examined consumer demand for organic milk in Sweden in the period from 2011 to 2017 by H. Lindström (2022). The results show that the demand for organic milk in the branded segments is more price elastic than for conventional milk, but this is not the case for private labels. Demand for private label products, both organic and conventional, is more elastic than for branded products, due to strong consumer preferences for traditional dairy brands in Sweden. The study shows that despite small organic price premiums, Swedish consumers remain sensitive to the price of organic milk, especially for private label products, suggesting that lowering price premiums could expand organic milk sales.

Another relevant component is a general assessment of consumer behaviour in response to changes in the price of goods, as it is necessary to assess the specifics of human behaviour to define how economic development trends will be shaped in the future. N. Ovsianikova (2020), in turn, studied the determinants of consumer behaviour, in the context of analysing fuel demand. The author highlighted the peculiarities of demand formation for such products and assessed the existence of cross-elasticity. M. Bryukhovych (2022) described how consumers can respond to changes in income and how this affects their consumption behaviour from the perspective of economic theory. T.V. Chernychko *et al.* (2023) studied consumer behaviour in the food market, including in terms of price. The need to

address consumer behaviour peculiarities to ensure effective long-term enterprise development was also highlighted. The above studies estimated the elasticity of demand but did not compare trends across countries, which is also important for assessing the characteristic differences in consumption between regions.

The study aimed to analyse the differences in the price elasticity of demand between European countries and the United States of America. The objectives of the study were to analyse the price elasticity of selected commodities (milk, oil and chicken meat), and to investigate the main reasons for regional differences between countries and assessing the existing long-term trends in these indicators.

Materials and Methods

To estimate the elasticity of demand in the United States of America and European countries, statistical data were analysed. For this purpose, products that can be used most effectively for comparison were selected. Thus, the following was chosen: milk, oil and chicken meat. For greater accuracy, the change in demand was calculated per capita, since with an increase in population, the total demand will increase, while the total need for the product per person may decrease). The valuation with changes in demand was based on the nominal price: an alternative is to use real price changes, i.e. inflation-adjusted valuation. Both approaches can be used, but the first one accounts for the reaction of consumers to the price of goods in absolute terms, while the other one addresses the price of other goods in comparison.

Statistical methods of analysis, including correlation analysis, were used to assess the relationship between changes in the level of prices and demand for products, as well as the standard deviation of the elasticity level. This indicator was calculated for different years (one year and, for greater consistency, three years), and a high level of this indicator would indicate a significant change in the elasticity of demand over time, while a low level would indicate a low level of change in demand. Thus, the price elasticity of demand in the study was estimated both for current period (for 1 and 3 years) and for the entire period (for milk – from 2001 to 2022, for oil – from 1989 to 2022, and for chicken – from 1991 to 2022).

Large amounts of data on the dynamics of demand for products and changes in their nominal value were used in the analysis. Milk prices in the United States of America were analysed based on data from the US Inflation Calculator (2024), and information on per capita dairy consumption in the United States was based on information from Statista (2023). Data on milk consumption in European countries were derived from Destatis (2024), and average milk prices for farmers in European countries were analysed based on CLAL data (EU-28 and EU-27..., 2024). Information on changes in oil consumption in individual countries and regions, in the United States and Europe, was taken from Our World in Data (2022a; 2022b; 2024) resource, and data on the Brent price was taken from the Investing (2024). The change in the price of chicken meat was

estimated based on information from the Federal Reserve Bank (2024). To evaluate these data, statistical analysis methods were used, in particular, regression analysis and correlation methods, which made it possible to conclude on the elasticity of demand for major types of goods in the United States and European countries. This data set was evaluated using statistical data analysis methods, which was used to draw further conclusions on the trends in demand elasticity in the US and Europe, and the similarities and differences between analysed trends.

Results

The elasticity of demand is an indicator that reflects the degree to which demand for a product or service is sensitive to changes in various factors, such as price, consumer income, or prices of related products. The most used term is the price elasticity of demand, which measures how much the quantity of a good purchased will change when its price changes (Vargas-Lopez *et al.*, 2022). If demand is elastic, then a small change in price leads to a significant change in demand. For instance, if the price of a product decreases by 10% and its sales increase by 20%, the demand for this product is considered elastic. In the case of inelastic demand, even significant price changes have little effect on the volume of demand. For instance, necessities such as bread or medicines usually have inelastic demand. Demand elasticity is significant for companies and government agencies as it defines how changes in prices or income can affect consumer behaviour and sales, which in turn helps to inform decisions on pricing, taxation, and marketing strategies (Bajzik *et al.*, 2020). The elasticity of demand can be represented graphically as shown in Figure 1.

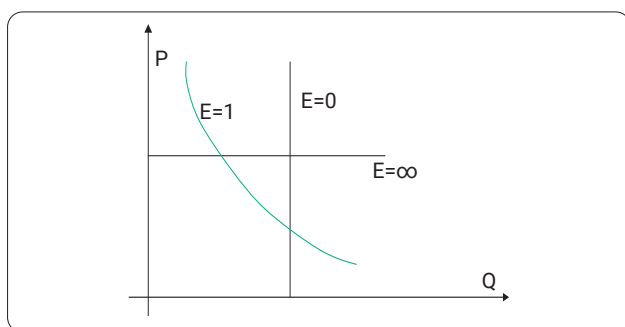


Figure 1. Graphical representation of the concept of demand elasticity

Note: P – price; Q – quantity; E – elasticity

Source: compiled by the author

As can be seen from Figure 1, the elasticity of demand can vary depending on how the demand level changes with price. Accordingly, the location of the demand elasticity curve changes, which may have a different type of slope, but be straight (vertical/horizontal). The horizontal curve indicates that demand is infinitely large (perfectly elastic). This means that even a slight price increase will lead to consumers stopping buying this product altogether.

Absolute elasticity may be characteristic of goods with many substitutes, although in practice such cases are not common (Yadav *et al.*, 2021). In turn, the vertical line indicates that demand is completely inelastic: these are goods for which demand does not change at all, regardless of price changes. Even if their price increases significantly, consumers will still buy them in the same amount. The demand curve for such goods is a vertical line. This is typical for life-saving goods such as medicines or basic foodstuffs that cannot be abandoned despite the price (Andruszkiewicz *et al.*, 2020). The figure also shows the line at $E = 1$, when the elasticity is unity, i.e., when the price increases by 1%, the demand for it will decrease by 1%. If $E > 1$, demand is considered elastic, and if $E < 1$, it is inelastic (Acuna-Agost *et al.*, 2023).

Demand elasticity is significant in the definition of consumer behaviour in both Europe and the US, but its impact is shaped by the different economic, cultural and political conditions in each region (Petricek *et al.*, 2020). The price elasticity of demand measures the extent to which the quantity of a good in demand responds to changes in its price, and is influenced by factors such as consumer preferences, income levels and market structure. In Europe, the elasticity of demand is more sensitive in sectors that are heavily regulated or influenced by social welfare policies. European countries often have more extensive social and consumer protection systems that can reduce the immediate impact of price changes on basic goods such as food and healthcare (Jalilova, 2024). In contrast, discretionary goods such as luxury goods tend to exhibit higher elasticities, as consumers in Europe can significantly reduce consumption when prices rise due to higher taxes or environmental regulations. In addition, European consumers may be more sensitive to environmental and ethical factors, which can affect the elasticity of demand for products that are perceived to be less sustainable (Komilova *et al.*, 2019). At the same time, in the United States, consumer behaviour is shaped by a more market-based economy, and elasticities tend to reflect the stronger role of competition and lower levels of government intervention in certain sectors (Adebayo & Alola, 2023). For instance, the demand for healthcare in the United States is less elastic due to the structure of the insurance system and the need for this service despite its high costs. However, consumer goods and services in more competitive markets, such as technology and entertainment, show higher elasticity. Consumers in the US, who tend to have more disposable income than many European countries, may exhibit different responses to price changes depending on the type of product and the availability of substitutes.

In addition, cultural differences between Europe and the US also affect how elasticity shapes consumer behaviour. Europeans may prioritise savings and long-term stability, while Americans may be more consumption-oriented, making the elasticity of demand in the US more closely related to short-term economic fluctuations and marketing

strategies (Kovalchuk, 2024). In both regions, elasticity helps businesses and policymakers predict how changes in pricing, taxation, or economic conditions will affect consumer spending, although regional economic structures and cultural attitudes lead to different results. The study

estimated the elasticity of some major products, namely milk, oil and chicken, for the United States of America and European countries. Firstly, it is worth analysing the elasticity of milk. Table 1 demonstrates price changes for these products in Europe and the US, as well as consumption.

Table 1. The elasticity of demand for milk in the United States of America and Europe in the period from 2001 to 2022

Year	USA				Countries of Europe			
	Price change	Changing consumption patterns	Elasticity	Average elasticity for 3 years	Price change	Changes in consumption	Elasticity	Average elasticity for 3 years
2001	3.6%	-2.0%	-0.57	x	6.2%	0.8%	0.13	x
2002	-4.2%	-0.5%	0.13	x	-4.5%	-0.1%	0.03	x
2003	0%	-1.6%	0	5.74	-12.2%	0.5%	-0.041	-0.1
2004	14.5%	-1.6%	-0.11	-0.39	2.4%	-0.1%	-0.03	-0.02
2005	0.9%	0%	0	-0.21	0.5%	1.3%	2.489	-0.17
2006	-3.4%	0%	0	-0.14	-1.3%	-0.6%	0.458	0.4
2007	13.6%	-1.1%	-0.08	-0.1	12.5%	0.7%	0.053	0.12
2008	8.6%	-1.1%	-0.13	-0.12	10.5%	1.6%	0.148	0.08
2009	-18.2%	0%	0	-2.24	-23.8%	-0.7%	0.028	-0.28
2010	4.8%	-2.2%	-0.46	0.47	15%	2.3%	0.155	-0.97
2011	9.5%	-2.3%	-0.24	0.73	12.9%	2%	0.153	-3.29
2012	-2.2%	-2.3%	1.03	-0.58	-3.5%	0.6%	-0.168	0.21
2013	-0.9%	-3%	3.44	-1.25	10.5%	0.5%	0.049	0.16
2014	6.6%	-3.7%	-0.55	-2.69	-0.5%	4.6%	-9.511	0.95
2015	-7.3%	-1.9%	0.26	4.22	-18%	2.7%	-0.15	-0.77
2016	-6.4%	-1.3%	0.2	0.89	-5.7%	1.2%	-0.202	-0.34
2017	0.9%	-3.3%	-3.49	0.5	23%	1.5%	0.064	-1.07
2018	-10.2%	-2%	0.2	0.41	-2.5%	0.9%	-0.37	0.28
2019	4.8%	-2.8%	-0.57	1.58	1.4%	0.6%	0.4	0.15
2020	9.2%	0%	0	-1.74	-1.8%	1.6%	-0.884	-1.03
2021	6.9%	-5%	-0.72	-0.37	7.8%	-0.2%	-0.025	0.27
2022	15.2%	-3%	-0.2	-0.26	36.4%	0.1%	0.002	0.04
Medium	1.86%	-1.94%	-1.04	x	2.3%	1%	0.453	x

Source: compiled by the author based on data from the US Inflation Calculator (2024), Statista (2023), Destatis (2024), and CLAL (EU-28 and EU-27..., 2024)

Thus, as shown in Table 1, the average price of milk in the United States of America has gradually increased over time: the average growth rate was 1.86%, while the decline in consumption was -1.94%. This suggests that Americans have been consuming less milk over time, which may also be due to the price increase/decrease factor. At the same time, the standard deviation of the elasticity is quite high, at 1.13 – in other words, although on average it is -1.04 (i.e., the demand for milk decreases as much as the price increases), the values vary over the years. At the same time, the elasticity, which shows the trend over three years, shows an even higher standard deviation of 1.95. The correlation between demand and price is also low, at -0.3. Therefore, changes in demand for milk in the US are only marginally related to changes in price.

The analysis of the data from the table on price and consumption changes in the US and European countries was used to highlight certain patterns and trends in the price elasticity of consumption during 2001-2022. In the United States, the elasticity of consumption is negative in most cases, meaning that there is an inverse relationship between price changes and consumption. For instance, a significant price increase of 14.5% in 2004 resulted in a 1.6% decrease in consumption, with an elasticity of -0.11. A similar trend can be observed in other years, where price increases often lead to a drop in consumption, although there are exceptions when price changes do not affect consumption (for example, in 2003, when the price remained unchanged, but consumption fell by 1.6%). The average elasticity over three years shows that in the US, this

indicator fluctuated between positive and negative values during certain periods, reflecting market volatility. Across Europe, the elasticity also varies, but the overall average elasticity is positive at 0.453, indicating greater stability of consumption even when prices change. In some years, there are significant deviations from the norm, such as in 2014, when a slight decrease in price (-0.5%) resulted in a 4.6% increase in consumption, which gave a negative elasticity of -9.511, which is an anomaly. The average elasticity over three years in Europe shows less fluctuation than in the US, and its values indicate a more predictable market response to price changes. Thus, it is possible to conclude that US markets are more susceptible to fluctuations in

response to price changes, while European markets show greater stability in consumption even in the face of significant changes in prices.

Regarding European countries, they are characterised by rising consumption and prices. The average elasticity of demand is 0.453%, implying that one unit increase in price causes a 0.453% increase in demand. An increase in the price of a good would appear to be illogical, but in reality, it means that demand for the good is increasing for reasons other than the price increase. In this case, the standard deviation is high (1.13) and the correlation between demand and inflation is almost zero. The data in the context of oil demand and prices can be seen in Tables 2 and 3.

Table 2. Elasticity of oil demand in the United States of America in the period from 1989 to 2023

Year	Change in Brent price, %	Change in consumption in the US, %	Elasticity	Elasticity for 3 years
1989	27%	-0.05%	-0.002	x
1990	28%	-2.17%	-0.078	x
1991	-14%	-2.12%	0.147	-0.13
1992	-1%	2.08%	-1.433	-0.3
1993	-11%	0.87%	-0.079	-0.03
1994	-6%	2.57%	-0.397	-0.29
1995	6%	-0.24%	-0.041	-0.26
1996	18%	3.66%	0.201	0.37
1997	-5%	1.33%	-0.278	0.26
1998	-27%	1.67%	-0.062	-0.35
1999	42%	2.78%	0.066	-5.54
2000	41%	1.12%	0.027	0.14
2001	-13%	-0.12%	0.009	0.06
2002	3%	-0.01%	-0.002	0.04
2003	12%	1.55%	0.127	1.04
2004	35%	3.63%	0.105	0.11
2005	46%	0.15%	0.003	0.06
2006	20%	-1.28%	-0.065	0.02
2007	12%	-0.61%	-0.052	-0.02
2008	31%	-6.63%	-0.215	-0.14
2009	-34%	-5.19%	0.151	3
2010	26%	1.55%	0.06	-1.34
2011	39%	-1.97%	-0.05	-0.4
2012	-1%	-2.33%	2.144	-0.05
2013	-2%	1.65%	-0.663	-0.09
2014	-10%	0.67%	-0.067	0
2015	-44%	2.04%	-0.046	-0.07
2016	-15%	0.75%	-0.049	-0.05
2017	21%	0.97%	0.046	-0.07
2018	29%	2.4%	0.084	0.14
2019	-10%	-0.16%	0.016	0.09
2020	-36%	-12.17%	0.342	0.38
2021	72%	9.23%	0.129	19.88
2022	41%	0.62%	0.015	-0.07
2023	-18%	0.3%	-0.017	0.13
Medium	5%	0%	0.025	x

Source: compiled by the author based on data from Our World in Data (2024) and Investing (2024)

Table 3. The elasticity of oil demand in European countries in the period from 1989 to 2023

Year	Change in Brent price, %	Change in consumption in Europe, %	Elasticity	Elasticity for 3 years
1989	27%	0.14%	0.01	x
1990	28%	0.48%	0.02	x
1991	-14%	-0.84%	0.06	-0.01
1992	-1%	-3.67%	2.54	-0.54
1993	-11%	-6.37%	0.58	0.4
1994	-6%	-2.83%	0.44	0.67
1995	6%	-1.18%	-0.2	0.84
1996	18%	-1.44%	-0.08	-0.34
1997	-5%	0.24%	-0.05	-0.13
1998	-27%	0.89%	-0.03	0.02
1999	42%	-0.91%	-0.02	-0.21
2000	41%	-1.39%	-0.03	-0.03
2001	-13%	1.57%	-0.12	-0.01
2002	3%	-0.91%	-0.27	-0.03
2003	12%	0.82%	0.07	1.08
2004	35%	0.59%	0.02	0.01
2005	46%	0.60%	0.01	0.02
2006	20%	0.68%	0.03	0.02
2007	12%	-1.79%	-0.15	-0.01
2008	31%	-0.58%	-0.02	-0.03
2009	-34%	-5.08%	0.15	1.80
2010	26%	0.07%	0	-0.73
2011	39%	-1.15%	-0.03	-0.44
2012	-1%	-2.21%	2.04	-0.05
2013	-2%	-1.94%	0.78	-0.17
2014	-10%	-0.63%	0.06	0.35
2015	-44%	0.63%	-0.01	0.03
2016	-15%	1.66%	-0.11	-0.02
2017	21%	1.74%	0.08	-0.08
2018	29%	-0.26%	-0.01	0.11
2019	-10%	0.03%	0	0.04
2020	-36%	-11.65%	0.33	0.44
2021	72%	5.05%	0.07	34.03
2022	41%	3.03%	0.07	-0.09
2023	-18%	-0.9%	0.05	0.09
Medium	5%	-1%	-0.16	x

Source: compiled by the author based on data from Our World in Data (2024) and Investing (2024)

Following Tables 2 and 3, in general, the elasticity of demand concerning the oil price is either close to zero or negative (which is typical for European countries). This may be typical for European countries, among other things because they are eventually abandoning the use of oil (and other traditional energy sources) in favour of “green” ones. In the United States of America, this process is also underway, but it is less urgent: in this country, the relationship between demand and price is non-existent. It can be concluded that this product is significant to the US, and the country is free to use it, given its available resources. The correlation between the level of consumption in the countries and the price is positive and is at the level

of 0.39 (for the USA). 0.4867 (for Europe), 0.37 (for European countries). It is also worth noting that the standard deviation of the elasticities is also relatively lower, at 0.475, 0.567 and 0.659, respectively.

Notably, the average change in the Brent price over this period is about 5%, while the average change in US consumption is close to zero. This suggests that, in general, oil prices have a limited long-term impact on US consumption, although some years show significant deviations. The elasticities are low in most cases, indicating that changes in Brent oil prices do not have a significant impact on consumption. For instance, in 2000, when prices increased by 41%, consumption grew by only 1.12%, resulting in an

elasticity of 0.027. The situation is similar in 2022. However, there are years when price changes have had a significant impact on consumption: for example, in 2020, oil prices fell by 36% and consumption fell by 12.17%, resulting in an elasticity of 0.342. This is one of the most illustrative examples of the high elasticity when a change in the oil price has a significant impact on consumption. The elasticity over three years was used to assess longer-term trends. In 1999, the elasticity was extremely high (-5.54), which can be explained by the large price fluctuations in that period. In later years, the elasticity stabilised, showing smaller fluctuations. Overall, the average elasticity for the entire period is 0.025, indicating a low overall sensitivity of US consumption to changes in oil prices. However, it is worth noting that in certain periods, stronger relationships between these indicators may emerge, as seen in certain years such as 2020 and 2021.

The average change in the Brent price over this period was 5%, while the average change in European consumption

was close to -1%. This indicates that, unlike the US, oil consumption in Europe declined, even as oil prices rose in some periods. In most years, the elasticity was low or even negative, indicating a weak or negative relationship between price changes and consumption. For example, in 1990, when oil prices increased by 28%, consumption increased by only 0.48%; a similar situation was observed in 2000 when prices increased by 41% and consumption decreased by 1.39% (elasticity -0.03). Another example is 2020, when prices decreased by 36% and consumption fell by 11.65%, yielding an elasticity of 0.33, which also indicates a strong impact of price changes on consumption in that year. Overall, the average elasticity for the entire period is -0.16, indicating a general trend of a weak negative impact of price changes on consumption in Europe. This indicates that the European oil market demonstrates more stable consumption, especially compared to the US. The elasticity of consumption for chicken in the US and Europe can be seen in Table 4.

Table 4. The elasticity of demand and consumption in the US and Europe, as well as changes in the price of chicken in the world, from 1991 to 2022

Years	Price change, %	Consumption in the US, %	Elasticity	Elasticity for three years	Consumption in European countries, %	Elasticity	Elasticity for three years
1991	-2.4%	3.7%	-1.522	x	6.1%	-2.6	x
1992	0.1%	3.2%	25.181	x	3.5%	27.5	x
1993	14%	1%	0.069	0.71	-1%	-0.1	0.77
1994	1.1%	1.6%	1.428	0.39	5.5%	4.9	0.54
1995	0.4%	-1%	-2.817	0.1	2.6%	7.1	0.47
1996	12.3%	2.6%	0.208	0.23	5%	0.4	0.97
1997	-2.1%	0.8%	-0.368	0.23	1.6%	-0.7	0.91
1998	3.6%	0.6%	0.167	0.3	3.9%	1.1	0.79
1999	-5%	5.5%	-1.092	-1.79	-1.6%	0.3	-1
2000	-0.9%	-0.9%	1.075	-1.99	2.7%	-3.1	-1.92
2001	7%	0.3%	0.049	6.45	7.8%	1.1	11.59
2002	-0.9%	3.6%	-4.201	0.58	2.9%	-3.4	2.60
2003	4.9%	0.6%	0.129	0.42	-3.5%	-0.7	0.63
2004	14.4%	4.4%	0.304	0.48	-0.4%	0	-0.06
2005	-2.4%	1.4%	-0.573	0.39	2.9%	-1.2	-0.07
2006	-6.3%	0.6%	-0.097	1.39	-3.8%	0.6	-0.31
2007	12.9%	-0.6%	-0.048	0.42	4.7%	0.4	1.11
2008	8.2%	-2%	-0.248	-0.15	0%	0	0.06
2009	1.2%	-5.5%	-4.471	-0.37	1.7%	1.4	0.29
2010	0.2%	4.5%	21.794	-0.35	1.3%	6.5	0.33
2011	1.8%	1%	0.534	-0.1	0.9%	0.5	1.24
2012	7.9%	-3.8%	-0.48	0.16	2.4%	0.3	0.48
2013	10.1%	0.9%	0.093	-0.1	0.3%	0	0.18
2014	6.0%	1%	0.163	-0.08	3.6%	0.6	0.26
2015	4.2%	6.8%	1.635	0.43	4.2%	1	0.4
2016	-2.8%	1.5%	-0.516	1.28	4.4%	-1.5	1.71
2017	12.7%	0.3%	0.023	0.63	0.9%	0.1	0.7
2018	4.5%	1.9%	0.425	0.27	1%	0.2	0.45

Table 4, Continued

Years	Price change, %	Consumption in the US, %	Elasticity	Elasticity for three years	Consumption in European countries, %	Elasticity	Elasticity for three years
2019	-9.1%	2.5%	-0.275	0.68	1.3%	-0.1	0.47
2020	-17.3%	0.7%	-0.042	-0.22	0.4%	0	-0.12
2021	37.9%	-0.4%	-0.01	0.8	0.1%	0	0.51
2022	38.6%	1.2%	0.03	0.03	0.4%	0	0.02
Medium	0.044	0.012	3.735	x	0.02	2.264	x

Source: compiled by the author based on data from Federal Reserve Bank (2024), and Our Worlds in Data (2024)

Following Table 4, the price elasticity of chicken is high: at 3.73 for the US and 2.263 for Europe. At the same time, the price of this product has been growing along with demand. This is primarily since chicken is a healthy meat, and consumers in most countries are increasingly beginning to prefer it to other types of meat. In this case, the trend towards healthy eating is the main one, which causes both an increase in demand for products and a rise in their prices (Shahini *et al.*, 2023).

In the US, there are significant fluctuations in the elasticity, which in some years shows a strong sensitivity to price changes. For example, in 1992, the oil price increased by only 0.1%, while consumption increased by 3.2%, and the elasticity was 25.181, which is an abnormally high value. The average elasticity value for the US is 3.735, indicating a general tendency for oil consumption to be highly sensitive to changes in market prices. In Europe, the elasticity is generally lower and less volatile than in the US. The average elasticity for Europe is 2.264, indicating a lower market sensitivity, although anomalies have also occurred. For instance, in 1992, with a small price increase of 0.1%, consumption increased by 3.5%, giving one of the highest elasticities at 27.5. However, in other years, for example, in 2019 (-9.1% price change), consumption grew by only 1.3%, and the elasticity was -0.1, indicating that the European market shows a weaker response to price cuts compared to the US. Oil consumption in Europe is less elastic, which indicates a more stable demand structure in this market or greater adaptation to price changes.

Thus, the elasticity of demand determines how sensitive the demand for a product is to changes in factors such as price, consumer income, or the price of related products. Elastic demand means that small changes in prices lead to large changes in demand, while inelastic demand shows little change in demand despite changes in prices, especially for basic goods such as bread or medicine. Elasticity is important for companies and policymakers in making pricing and taxation decisions. This concept is applied differently in Europe and the US due to different economic, cultural and political conditions. Cultural factors have a significant impact on the elasticity, with Americans being more consumption-oriented and Europeans more focused on long-term savings. The study assessed the elasticity of such products as milk, oil and chicken, showing different degrees of sensitivity to price changes in the US and Europe.

For instance, the demand for milk in the US responds only marginally to price increases, while in Europe, factors other than price contribute to increased consumption. Similarly, demand for oil in Europe is declining due to the transition to more environmentally friendly energy, while in the US it remains stable due to the large reserves of this raw material. Poultry showed high price elasticity in both regions, driven by a general trend towards healthier food consumption.

Discussion

The study demonstrated that the elasticity of demand varies depending on the product in question and what preconditions may exist for changes in the price or demand for the product. Elasticity studies for products such as electricity, gas, petrol and coal in Mexico were conducted by A.O. Díaz & K.B. Medlock (2021). They demonstrated that the income elasticity was positive and higher than the price elasticity, with large differences between these groups of households. Steam coal and firewood were distinguished as lower-quality goods with negative income elasticities. The results provide insights into how consumers react to changes in energy prices depending on their economic status and can help policymakers consider the welfare impact of fiscal and energy reforms. Recent studies also demonstrated that the response to changes in product prices is determined not only by the fact of price changes but also by other variables, including product characteristics. J. Gao *et al.* (2021) studied the income and price elasticity of energy demand using a large dataset covering 65 countries from 1960 to 2016. The authors proposed a new model for analysing panel data to address five key issues: endogeneity, temporal heterogeneity, cross-sectional heterogeneity, non-stationarity, and cross-sectional dependence. With its help, the authors showed that the income elasticity of demand ranged from 0.6 to 0.8, while the price elasticity fell from -0.1 to -0.3. Notably, the income elasticity has been declining since the 1990s, coinciding with global efforts to mitigate climate change, suggesting that energy intensity may decline as the economy grows (Karimli *et al.*, 2022). It is worth noting that the current study also found that the price elasticity of oil demand is quite low, which coincides with the findings in the paper above on the income elasticity of energy demand. H. Balarama *et al.* (2020), in turn, described the price elasticity of electricity demand for urban households in Bangladesh based on household data. The study demonstrated

significant heterogeneity in price elasticity, showing that both the lowest and highest consumption groups are price elastic, while the moderate consumption groups are price inelastic. Based on these findings, the modelling shows that incorporating this heterogeneity into pricing policies can help reduce the imbalance between electricity supply and demand and consumption inequality. Although the current study did not evaluate heterogeneity by consumption or income, it is worth noting that this is as important as any other individual characteristic. A particularly striking example in this paper is the price of chicken, which increases over time along with the level of demand, which is primarily due to the transition of the population to the consumption of this type of meat instead of another.

In the current study, the elasticity of oil demand was assessed, which led to the conclusion that consumption of this product does not depend largely on the price. B. Wang *et al.* (2021) investigated the impact on household electricity consumption in the context of electricity price changes in China. The findings showed that electricity prices insignificantly impact consumption, while habits have a significant effect on electricity use. Thus, promoting energy-saving habits may be more effective in reducing electricity consumption than adjusting prices. The study emphasises the importance of addressing internal psychological factors such as habits over external economic factors such as pricing in shaping consumption behaviour. Thus, both studies reached similar conclusions on how oil demand is affected by oil prices, namely an insignificant relationship between the two. S. Thapar (2020), in turn, analysed energy consumption behaviour based on data from urban households in India. The study shows that energy consumption is influenced by seasonal patterns, inefficient appliances and the “rebound effect”, while the impact of price changes was less pronounced. Policy improvements are suggested, such as peak load management, weatherproofing at home and rationalising tariffs. These findings are aimed at influencing household energy behaviour and improving India’s energy efficiency strategies, which are crucial to meeting the country’s climate goals and improving energy security. The researcher also concluded that electricity prices in general do not significantly affect electricity demand, which is due to the high demand for this product by the population. As noted earlier, these findings are in line with those of the current study, which showed that in the US and Europe, the impact of price on oil demand was minimal: although the Indian household behaviour study examined the interaction for electricity as a commodity, the two commodities are comparable given that oil is a major energy resource.

The current study noted that there is a negative elasticity of demand for oil prices for European countries. This, in turn, is associated with a significant dependence on exports of this resource, which is causing a shift to renewable energy sources: the faster the price increase, the more rapid the transition will be (Shahini *et al.*, 2024). The demand for petrol in Turkey in the context of elasticity for fossil energy sources was studied by J.I. Mikayilov *et al.* (2020).

The authors noted that in the long run, petrol demand responds to these factors, with an income elasticity of 0.25, a price elasticity of -0.27, and an inventory elasticity of -0.80. However, in the short run, petrol demand does not respond to changes in these variables. The inelastic nature of gasoline demand in Turkey suggests that raising gasoline taxes could increase government revenues, although the revenue increase may be smaller than expected due to lower consumption. Higher petrol prices may also encourage a switch to alternative fuels. In addition, raising taxes on private car purchases or improving public transport could further reduce demand for petrol. The researchers note that financial and macroeconomic stability, manifested in stable exchange rates and low inflation, is crucial to sustaining petrol demand and meeting tax revenue targets.

Thus, in European countries, the elasticity of demand tends to be more regulated by social welfare policies, while in the US, market competition instruments play a greater role. Overall, the study highlighted differences in elasticities between products and regions.

Conclusions

The elasticity of demand for staples such as milk, oil and chicken provide important insights into consumer behaviour shaped by different economic conditions, market structures and cultural factors. The study demonstrated that while the price elasticity of demand is a key indicator of how sensitive consumers are to price changes, it varies significantly by region and product. In the US, milk consumption has shown a negative elasticity, and price increases have led to a decline in consumption over time. This suggests that consumers are more price sensitive, and milk may increasingly be seen as a discretionary product, affected by changes in dietary preferences or substitutes. In Europe, by contrast, the price elasticity of milk has been positive, with price increases correlating with increased consumption. European markets with more extensive social safety nets may also shield consumers from the direct effects of prices, leading to less elastic demand for staples such as milk.

The elasticity of oil demand showed that on average, demand is either inelastic or close to zero, especially in Europe, where there is a strong push towards greener energy sources, reflecting the ongoing shift away from fossil fuels towards renewable energy, making oil consumption less sensitive to price changes. The United States, with its abundant resources and slower transition to green energy, showed a weaker relationship between price and demand, highlighting the continued importance of oil in the country’s economy. As for chicken, both the US and European markets showed high elasticity, with price increases accompanied by increased demand. This can be explained by the growing global trend towards healthier diets, with chicken meat being considered a healthier and more environmentally friendly meat option than beef or pork. A limitation of the study was the lack of sufficient information to estimate the elasticity of demand for all product groups: this limitation is due to the lack of data in terms of both time

series and product-specific data. A promising area for further research is to study the elasticity of demand in other countries, such as Japan, China, Australia, and India, and to conduct a more thorough comparison of the specifics of demand elasticity between them.

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Conflict of Interest

None.

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Еластичність попиту та її роль у визначенні поведінки споживачів: Порівняльний аналіз Європи та США

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Анотація. Визначення поведінки споживачів є актуальним для забезпечення ефективного функціонування як окремих компаній, так і країни в цілому. З огляду на це, важливим залишається додаткове дослідження інструментів, що її описують, таких як еластичність попиту. Метою дослідження був аналіз еластичності попиту в Європі та Сполучених Штатах Америки. В рамках дослідження було проведено статистичну оцінку цінових показників на окремі види продукції, а саме на олію (з 1989 по 2023 роки), молоко (з 2001 по 2022 роки) та куряче м'ясо (з 1991 по 2022 роки), а також зміни рівня споживання цих продуктів. На основі розрахованих та проаналізованих показників еластичності попиту було зроблено висновок, що ціна не є єдиним і основним фактором зміни попиту на продукцію. Найяскравішим прикладом стала ситуація з курятиною, ціна та попит на яку значно зросли, в першу чергу, через перехід населення до більш відповідального та здорового харчування. При цьому еластичність попиту на олію для Сполучених Штатів Америки була стабільною і близькою до нуля, тоді як для європейських країн вона була від'ємною, що пов'язано з їх значною залежністю від імпорту енергоносіїв, зокрема нафти, що сприяє швидшому переходу на альтернативні джерела енергії. У випадку з молоком еластичність змінювалася залежно від того, де проводилася оцінка: у США чи Європі. У випадку з молоком еластичність відрізнялася залежно від того, де проводилася оцінка: у США чи Європі. Отримані результати дозволять більш ефективно формувати політику в цій сфері та створювати нові можливості для розвитку місцевих компаній

Ключові слова: ринкова конкуренція; структура ринку; олія; товари першої необхідності; зростання цін

**Analytical tools for evaluating customer experience in the context
of marketing management of service companies**

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Abstract. The purpose of this study is to theoretically elaborate the model of formation of customer experience of service organizations at the conceptual level and to conduct a study using the developed tools for its evaluation on the example of the hotel business. The main results are based on the principle of holistic personalism and are obtained using the methods of field marketing research, questionnaire survey of respondents, scoring and index method. The data were processed and analysed using statistical correlation analysis, graphical and matrix approaches. The Customer development methodology was used to form a chain of positive customer reactions. The article substantiates a conceptual model of formation of customer experience in service organizations based on the principles of behavioural theory. The article allocates 2 groups of factors on the example of hotels that form the customer experience: explicit and implicit, and includes 6 factor attributes. Three types of customer experience are distinguished: before the moment of consumption of the product – the expected experience (CX ex en.), at the moment of consumption – as the perceived customer experience (CX at the time), and intentions for future consumption of the service product (CX ex post). To assess them, 4 marketing metrics are proposed to evaluate each type of customer experience. To interpret the results, the values of the indicators are scaled. The carried out testing of the proposed methodology on a sample of 14 four-star hotels confirmed the hypotheses of the study. The proposed theoretical concept and evaluation tools can be further used to develop marketing programmes for Customer Experience Management (CXM)

Keywords: user experience evaluation; service performance; retention strategies; holistic approach; customer behaviour

Introduction

The nature of service organizations is inherently customer-centric, with a primary focus on understanding and enhancing customer experiences (CE). The significance of CE in marketing research has been underscored by the Marketing Science Institute (2022), highlighting its consistent presence among research priorities since 2010. Despite extensive scientific and practical interest, the literature on CE remains fragmented, with no consensus on its essence and management methods. L. Becker & E. Jaakkola (2020) address this fragmentation by proposing fundamental premises for understanding CE, categorizing it as a response to managerial stimuli or consumption processes. Their systematic review identifies eight literature fields, each contributing to the conceptual development of CE. Similarly, R. Rialti & L. Zollo (2023) emphasize the necessity of conceptualizing a new digital customer journey in the digital era, focusing on how digital transformation influences customer interactions across generational cohorts.

In the context of retail trade in Ukraine, T. Shtal *et al.* (2023) analyze the vectors of digital transformation, revealing that technological and behavioral factors predominantly drive retail innovation. They suggest that digital marketing tools are crucial for adapting to these changes and enhancing business development. Complementing this perspective, S. Puntoni *et al.* (2021) explore the experiential perspective of consumers interacting with AI, identifying four types of consumer experiences that influence the perceived value of AI-enabled products and services. The importance of digitalization in business development, particularly in the B2C market, is further emphasized by N. Savytska *et al.* (2023). Their research highlights the penetration of digital technologies and the emergence of interactive services as key trends influencing customer experience. Similarly, S. Rahimi-an *et al.* (2021) propose a comprehensive framework for Customer Experience Management (CEM) in the hotel

industry, identifying four stages: customer identification, experience design, implementation, and measurement. E. Apostol *et al.* (2023) provide an insightful analysis of how the pandemic has reshaped the hospitality and tourism industry's approach to CE design. Their study underscores the importance of safety, hygiene, and digital innovations in creating positive customer experiences during and post-pandemic.

Despite these advancements, there remains a gap in the literature regarding the integration of explicit and implicit factors influencing CE and the development of comprehensive analytical tools for its assessment. The purpose of this article is to theoretically substantiate the conceptual model of customer experience formation in service organizations and to develop analytical tools for assessing customer experience in the hotel business. This study aims to bridge the existing gaps by providing a holistic framework for understanding and evaluating CE, ultimately contributing to improved strategic management and customer satisfaction in the service industry.

Materials and Methods

The methodology of this study is based on an interdisciplinary approach that combines the best practices of service management, relationship marketing, behavioural economics, and behavioural marketing. Customer experience in marketing science is a conceptual construct that reflects the customer's impressions of the processes of interaction with a particular product. Customer experience is holistic in nature, depending on tangible and intangible factors of its formation not only within the company but also in the market environment. The concept of the study is based on the author's understanding of behavioural marketing, the central provision of which is the methodological principle of holistic personalism (Savytska *et al.*, 2023). The principle of holistic personalism reveals the interdependence of the development of the institutional

environment and human behaviour in different roles: as a client, employee, manager.

Survey questionnaires were developed separately for hotel guests and staff. The survey covered 14 four-star hotels in Kyiv. The questionnaires included all the indicators listed in Table 3. The same number of guests and 30% of employees were surveyed in each hotel. To assess the customer experience of the hotel guest, the questionnaire asked questions to evaluate the indicators by indicators (K1, K2, K4, K5, K6). In assessing the internal customer focus of the organization, questions were asked on the indicators for K3. The Three Questions method was used to calculate marketing metrics Y2, Y3, Y4. When checking out of the hotel, guests answered three questions: "Are you satisfied with the service?"; "Are you ready to visit the hotel again?"; "Would you recommend staying at the hotel to your friends, family". The questionnaire was validated by conducting a pilot study. The questionnaires were prepared in Google Forms. Currently, there is no single methodological approach to assessing customer experience due to industry specifics and the complexity of calculating the size of the evaluation indicators. The study used a (ordinal) Likert scale in two gradations: from 1 to 5 for assessing indicators K1, K2, K3, K4, K5, K6; from 1 to 3 for the Three Questions questionnaire. Guests and staff

are surveyed in one-time period (post-COVID 2021) using an online survey. Guests filled out paper Three Questions questionnaires during check-out. To identify the range of customers who form the core of brand advocates and determine the reliability of the company's positioning in the market, the Y5 customer reliability indicator is calculated – an indicator of emotional attachment to the hotel – Y5 (Secure Customer Index). This study adhered to ethical standards, ensuring informed consent, confidentiality, and voluntary participation for all survey respondents.

The work involved conducting a survey among the customer base and employees of 14 hotels in Kyiv. After obtaining the results, the data processing stage was actually started based on the calculation of partial indices for each factor. To summarize the data, the following methods: weighted arithmetic mean; integral assessment and marketing metrics Net Promoter Score; Secure Customer Index, were used. Table 1 shows the tools used to calculate these indicators.

Correlation analysis is used to check the tightness of the relationship between the indicators. The obtained results are transformed into areas for improving the hotel service. For this purpose, the customer experience rating scale shown in Table 2 is used.

Table 1. Methods of calculating the main indicators for evaluating the client experience

Indexes	Calculation	Marking
Factors of formation of CX (K_n): K1, K2, K3, K4, K5, K6	$K_M = \left(\sum_{j=1}^i (n_j \times b) / N \right) \div i$	K_M – M-th factor of customer experience formation; n_j – the number of respondents who gave the corresponding score (from 1 to 5); N – the total number of interviewees; b – score (from 1 to 5); j – the number of indicator signs forming this factor; i – the largest number of indicators for this factor.
Expected customer experience: Y1	$Y1 = \left(\frac{(\sum_{g=1}^i (n_g \times g)) \div N}{i} \right) / 3$	Y1 – expected customer experience; n_g – the number of respondents who gave the corresponding score (from 1 to 3); N – the total number of interviewees; g – score (from 1 to 3); i – the largest number of indicator signs.
Perceived customer experience: Y2	$Y2 = \sqrt[6]{\prod_{M=1}^6 K_M}$	Y2 – an integral indicator of the perceived customer experience; K_M – M-th factor of customer experience formation.
Customer Loyalty: Y3	$Y3 = n_{sc} / N$	Y3 – the share of loyal customers in the total number of respondents; n_{sc} – the number of satisfied customers; N – the number of respondents.
Advocacy: Y4	$Y4 = n_{pr} / N$	Y4 – the share of promoters in the total number of respondents; n_{pr} – the number of promoters; N is the number of respondents.
Customer Reliability: Y5	$Y5 = n_{se} / n_{sc}$	Y5 – share of reliable customers; n_{se} – the number of customers for whom the service exceeded expectations; n_{sc} – the number of satisfied customers.

Source: compiled by the authors

Table 2. Matrix of customer experience evaluation scales

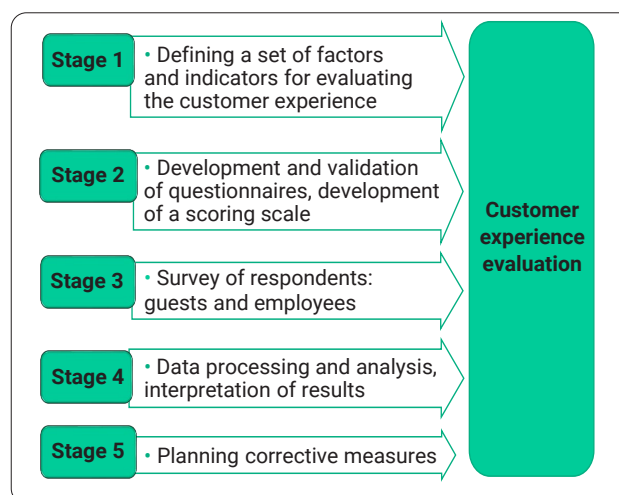
Expectations	CX ex en. Y1	CX at the time Y2	Characteristics of CX	CX ex post Y3
Were not justified	<0.64	<0.64	Negative	<0.6
Were justified	0.65-0.74	0.65-0.74	Neutral	0.61-0.74
	0.75-0.84	0.75-0.84	Positive	0.75-0.84
	0.85-0.94	0.85-0.94	Exciting	0.85-0.94
Were surpassed	0.95-1	0.95-1	Impressive	0.95-1

Source: compiled by the authors

The obtained marketing metrics allow interpreting the survey results to improve the perceived customer experience. Behavioural indicators of current customer experience Y2 (perceived CX) and future customer experience: Y3 (loyalty), Y4 (advocacy), Y5 (customer reliability) allow seeing gaps in the quality of service provision. At the stage of planning corrective measures in accordance with the identified results (closing the gaps), a combination of SERVQUAL and CustDev methods was applied (Blank, 2013). The SERVQUAL methodology by Parasuraman A., Zeithaml V., Berry L. for assessing the quality of services was used to assess the gaps between the expected and perceived quality of services. It allows integrating marketing methods of questionnaire surveys with management methods of bridging the identified gaps. The Customer Development (CustDev) methodology, proposed by S. Blank (2013) as one of the variants of a customer-oriented approach to understanding customer needs and preferences. It allows making adjustments to improve the product throughout the product life cycle, does not require significant resources, and does not affect other processes. The survey of hotel employees was conducted anonymously using a specially developed questionnaire.

Results

CXM is a strategic task of a company's management, one of the important stages of which is the analysis of customer experience. It is the process of assessing how customers perceive the entire complex of interaction with the company's products and services at various points of contact. This process can also be described as a comprehensive strategy aimed at creating and managing positive customer experiences when interacting with a company's products or services. This approach is based on a thorough study, understanding, and optimization of every aspect of the interaction between the customer and the brand. The benefits of CXM include increased customer loyalty, improved brand reputation, efficient use of resources, and increased customer satisfaction. The latter, in turn, leads to huge benefits for companies, including increased loyalty, improved reputation and revenue growth in general. CXM is conducted according to the following procedure, shown on Figure 1.

**Figure 1.** Customer experience evaluation procedure

Source: compiled by the authors

The procedure shown in Figure 1 includes the following stages: determining a set of factors and indicators to assess the impact on customer experience; developing questionnaires and scoring scales, preparing questionnaires in Google Forms, piloting and validating questionnaires; surveying respondents: guests and employees; processing and analysing survey data; interpreting the results (gaps, reserves); planning corrective measures in accordance with the results (closing gaps). Based on the behavioural theory of D. Kahneman *et al.* (1997), the experience that forms a certain value (usefulness) for the client may differ depending on the time when a person reflects on the object of interaction. The article expands the vision of experiential utility. In addition to the value (usefulness) of a product in real time, the so-called instantaneous utility (at the time) and the retrospective assessment of the existing experience of previous interaction (ex post) – the remembered utility, the authors added the expected value of the customer's product that arises before the moment of consumption (ex en.). The factors and indicators of customer experience formation were determined in accordance with the conceptual vision of the mechanism of customer experience formation. Figure 2 shows the conceptual model of customer experience formation in service organizations.

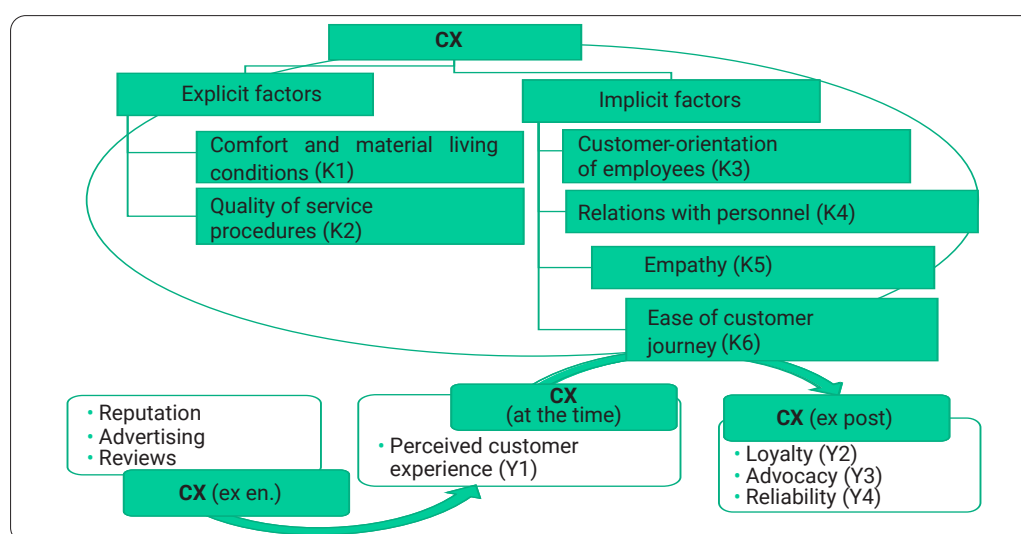


Figure 2. Conceptual model of customer experience formation in service organizations

Source: compiled by the authors

It is the value of the product for the customer, for example, hotel accommodation, which can be not only a service but also a product, that determines the choice of the company that will provide the service. For example, when choosing a hotel, a person pre-evaluates the hotel based on its reputation in the market, feedback from other customers, advertisements. At this stage, the customer forms the expected value of the customer experience. The expected value is formed in the customer's mind before the product is consumed. Accordingly, this creates initial evaluation requirements for the product, which will affect the customer experience both at the time of consumption and retrospectively, sometime after the consumption of the product.

Figure 2 shows two groups of factors: explicit and implicit. Explicit factors reflect the material focus of customer experience. These are externally expressed, explicit logistical and regulatory procedures that together determine the functional quality of hotel services. Implicit factors are the inherent factors of a person's perception of the experience

of interaction with a particular product (brand). In the context of CXM, understanding these invisible influences is important for creating effective strategies and improving customer experience. They are subjective in nature, as they reflect the emotional, sensory focus of the customer experience, which is always individual. Implicit factors include cultural influences that shape the perception of a product or service; subconscious preferences that determine customer choices; fears and associations that can influence decisions; informal social norms that define consumer expectations; and emotional factors that influence the customer's attitude towards a brand or company. For effective CXM, it is important to analyse them, taking into account every aspect of the customer experience. Uncovering these invisible influences allows for a deeper understanding of customer needs and expectations, contributing to the creation of balanced and successful CXM strategies. To evaluate them, a survey method with a set rating scale was used. Table 3 shows the system of indicators for assessing customer experience.

Table 3. A system of indicators for evaluating customer experience

Indicator		The content of the evaluated indicators	Calculation method
Explicit factors of CX formation			
K1	Comfort and quality of material living conditions	The material factor includes: comfort and equipment of the premises; development of hotel infrastructure; improvement of the territory; convenience of the location of the hotel.	Point assessment based on survey results
K2	Quality of service procedures	It is determined by the speed and efficiency of service throughout the client's journey; sanitary and hygienic safety; safety; service standards.	Point assessment based on survey results
Implicit factors of SC formation			
K3	Customer-orientation of employees	It is determined by blocks of indicators: staff satisfaction; employee involvement; internal client-orientation of the organization.	Point assessment based on survey results

Table 3, Continued

Indicator		The content of the evaluated indicators	Calculation method
K4	Relations with personnel	Includes indicators highlighting the cleanliness and appearance of employees; friendliness and attentiveness of the staff; staff's ability to communicate effectively; coordination of actions of hotel employees.	Point assessment based on survey results
K5	Empathy and care	A key indicator of understanding the client's needs and expectations (Customer Insights). It includes the following indicators: the staff's understanding of the problems faced by customers, the effectiveness of their solution; attentiveness of the staff to the needs and interests of customers.	Point assessment based on survey results
K6	Ease of customer journey	The indicator is the inverse of the customer's effort (CES – Customer Effort Score) throughout the entire interaction with the hotel product. These indicators reflect the effort that the customer spends at each stage of the interaction, in particular, for hotel search and reservation, check-in/check-out, stay in it.	Point assessment based on survey results
CX ex en.			
Y1	Expected customer experience	A marketing metric that characterizes the compliance of the received customer experience with the customer's expectations.	Summarizing indicator (weighted arithmetic mean method)
CX at the time			
Y2	Perceived customer experience	A marketing metric that characterizes the set of impressions that were formed from interaction with the product during its consumption.	Integrated indicator, (harmonic mean method)
CX ex post			
Y3	Customer loyalty	A marketing metric that characterizes the willingness of customers to purchase a service again.	The share of respondents in the total number of respondents
Y4	Advocacy	A marketing metric that characterizes the willingness of customers to recommend a product (be brand advocates).	The share of respondents in the total number of respondents
Y5	Customer reliability	Marketing metric SCI (Secure Customer Index), which characterizes the share of satisfied customers for whom the level of service quality exceeded expectations.	The share of respondents in the total number of loyal customers

Source: compiled by the authors

Table 4 presents the results of the customer experience evaluation based on responses from hotel guests and staff across 14 four-star hotels in Kyiv. The Y5 customer reliability indicator, an indicator of emotional attachment to the hotel, was calculated to identify the core of brand advocates and determine the reliability of the company's market positioning. Its high value signifies an impressive customer experience and highlights the consumer's perception of the hotel

product's distinctiveness compared to competitors. The proposed methodology for assessing customer experience was tested on 14 four-star hotels in Kyiv, with the generalised survey results presented in normalised form. Table 5 shows two laggards and two leaders in terms of customer experience. To determine the degree of relationship between the customer experience indicator and its formative factors, a correlation analysis was conducted, which is presented in Table 6.

Table 4. Scale of interpretation of respondents' evaluations

Quantitative scoring	Interpretation of quantitative assessment	Index assessment	Interpretation of index assessment
1	Not important	0	Worst
2	Not very important	0.25	Badly
3	Indifferently	0.5	Unsatisfactorily
4	Importantly	0.75	Good
5	Very important	1	Best

Source: compiled by the authors

Table 5. Results of data processing of customer and employee surveys

	K1	K2	K3	K4	K5	K6	Y2
Ramada Encore Kyiv	0.89	0.904	0.845	0.9	0.895	0.9	0.89
Bratislava	0.82	0.823	0.779	0.82	0.815	0.817	0.82
Art Hotel Bakkara	0.838	0.835	0.815	0.835	0.84	0.837	0.83
Khreshchatyk	0.864	0.855	0.835	0.855	0.86	0.86	0.85
Kyiv	0.734	0.809	0.758	0.728	0.725	0.733	0.73
President Hotel	0.832	0.833	0.822	0.833	0.83	0.833	0.82
National	0.844	0.844	0.772	0.835	0.84	0.843	0.84
Dnipro	0.71	0.7	0.73	0.71	0.7	0.71	0.71
Cityhotel	0.92	0.92	0.85	0.92	0.92	0.92	0.92
ALFAVITO	0.89	0.89	0.84	0.89	0.89	0.89	0.89
Radisson Blu Hotel	0.844	0.841	0.81424	0.84	0.84	0.837	0.84
Vozdvyzhensky	0.894	0.885	0.854992	0.893	0.89	0.89	0.88
"Staro Hotel"	0.886	0.886	0.845229	0.893	0.89	0.89	0.89
Holiday Inn	0.878	0.865	0.810046	0.873	0.87	0.867	0.87

Source: compiled by the authors

Table 6. Correlation matrix of the relationship between the perceived customer experience and the components of its formation for a sample population of hotels

	Y2	Connection	K1	K2	K3	K4	K5	K6
Y2	1							
K1	0.9861	Sturdy	1					
K2	0.9496	Sturdy	0.93437	1				
K3	0.9517	Sturdy	0.900853	0.872173	1			
K4	0.9906	Sturdy	0.996422	0.934743	0.91247	1		
K5	0.9893	Sturdy	0.998218	0.932289	0.909433	0.998331	1	
K6	0.9909	Sturdy	0.99641	0.937955	0.909339	0.998253	0.998909	1

Source: compiled by the authors

The correlation coefficients (R) presented in Table 6 exceed 0.9, which indicates a high level of connection and equal importance of the identified factors in the formation of customer experience. The data presented in Table 5 allows identifying the factors for the formation of a positive customer experience in accordance with the goals of marketing management. Out of the surveyed four-star hotels, 36% form a positive customer experience ($0.75 < Y2 < 0.84$); 50% – an exciting customer experience ($0.85 < Y2 < 0.94$) according to guests' estimates. The level of service at Ramada Encore Kyiv, Khreshchatyk, Cityhotel, ALFAVITO, Vozdvyzhensky, Staro Hotel, Holiday Inn is very good, providing an exciting customer experience. Cityhotel holds the highest position. The perceived customer experience is estimated at 0.92 points. At the same time, two of the 14 hotels surveyed – Kyiv and Dnipro – have a satisfactory level of service that meets guests' expectations, but the customer experience is in the neutral CX zone, as the value of the current perceived customer experience is in the range $0.65 < Y2 < 0.74$ (Table 4).

CXM of the hotel guest involves the collection and processing of operational information to assess the relationship between the conformity of the CX (ex en.) and the CX (at the time) of the service product provided by the hotel. For this purpose, the customer experience is periodically monitored and the expected, perceived customer experience and customer behavioural intentions are compared. For this purpose, the behavioural indicators of customer experience are compared: Y2 – perceived customer experience; Y3 loyalty and Y4 advocacy. The service of all hotels met customer expectations, as two conditions were met at once. First, the customer experience exceeded expectations. Figure 3 clearly shows that Y2 is higher than Y1. Secondly, the values of Y1 (CX ex en.) and Y2 (CX at the time) are in the range from 0.71 to 0.92. According to the proposed methodological toolkit, the situation is critical when the integral index $Y1(Y2) < 0.65$ and the customer experience is defined as negative. In the case of the authors, the guests' expectations were met. Let's turn to the evaluation criteria presented in Table 4 and compare them with the table. The assessment of

these indicators exceeds the minimum table values, which confirms the authors' conclusion that the capital's hotels, by maintaining a high level of service, mostly meet guests' expectations, and as a result, the customer experience is positive. Figure 3 shows a comparison of expected and perceived

customer experience for a sample of hotels. For all hotels, the actual (current) experience exceeded customer expectations, which indicates a systematic approach to CXM in four-star hotels, customer awareness of hotel conditions, and familiarity with reviews and presentations.

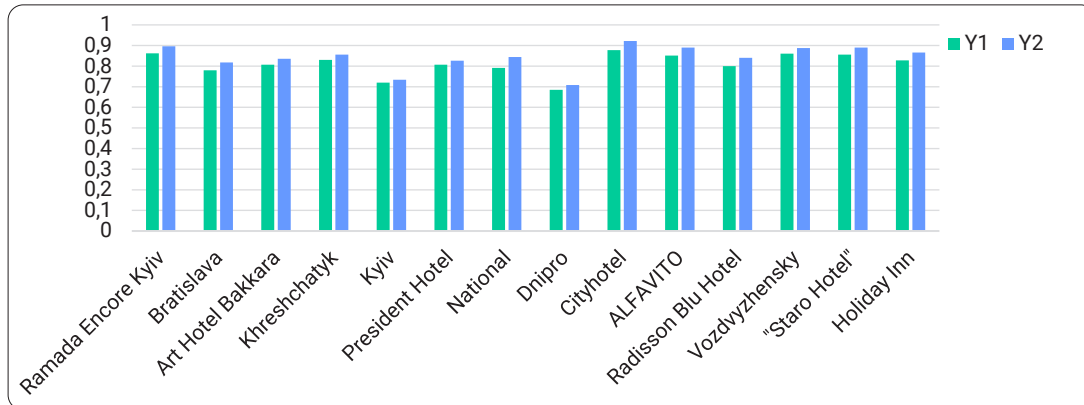


Figure 3. The results of the evaluation of the expected and perceived customer experience for a sample of hotels

Source: compiled by the authors

It should be noted that the overall satisfaction with the hotel product is quite high for the customers of the surveyed hotels. The assessment of the compliance of the presented product with the guests' expectations includes the use of a three-level scale of expectations: unjustified, justified and exceeded. For effective hotel development, it is necessary to have stable customer flows and high occupancy, which can be achieved by retaining regular customers and attracting new ones. For four-star hotels,

this means focusing on creating an exciting, engaging and memorable customer experience. The presence of such CX characteristics contributes to the formation of new behavioural intentions that ensure loyalty and advocacy among customers. In order to confirm the close relationship between the indicators Y4 customer advocacy and Y2 customer experience perception Y3 customer loyalty, a correlation matrix was built, which is presented in Table 7.

Table 7. Correlation matrix of the relationship between customer loyalty, customer orientation and perception of customer experience

	Y4	Connection density	Y2	Y3
Y4	1			
Y2	0.968738	Strong	1	
Y3	0.977468	Strong	0.988501	1

Source: compiled by the authors

According to Table 7, the pairwise correlation coefficients are in the range of 0.9-1, which corresponds to a significant density of the relationship between the indicators in the studied hotels. Loyalty is most closely related to the perceived customer experience (Fig. 4). In the sample of the surveyed hotels, which have sufficiently high indicators of customer experience perception, there is a lower level of behavioural loyalty indicators. Table 8 shows a summary of the scale data for the surveyed facilities, with two leaders and two outsiders identified based on the results of the analysis of marketing indicators. The lowest level of behavioural loyalty (Y3: 0.73 and 0.7, respectively) and the value of predictive behaviour – Y4 advocacy, 0.535 and 0.481, respectively, were revealed for Kyiv and Dnipro hotels. For these hotels, it is advisable to implement fundamental management decisions to improve the hotel service

product. For Cityhotel and ALFAVITO hotels, which have the best customer experience scores of Y3 (respectively) and Y4 (respectively), the management task is to maintain this level of service. The calculation of the Y5 indicator – customer reliability – for hotels with an exciting experience showed that it is of low importance. Overall, only 3 hotels (Cityhotel, ALFAVITO, Staro Hotel) in the surveyed population have up to 2% of followers who recognized their experience as impressive and intend to stay only at this hotel. This situation indicates a high probability that other guests may choose competitors. Thus, despite the high levels of satisfaction with the hotel product, management needs to constantly improve it. Knowing the points of interaction between the customer and the hotel allows implementing marketing management measures to create a chain of positive reactions from actual and potential

hotel guests. The classic Customer development method includes the following stages: customer discovery, customer validation, development of needs; customer creation

(Blank, 2013). To implement marketing CXM measures, it is proposed to track the customer development cycle, shown in Figure 5.

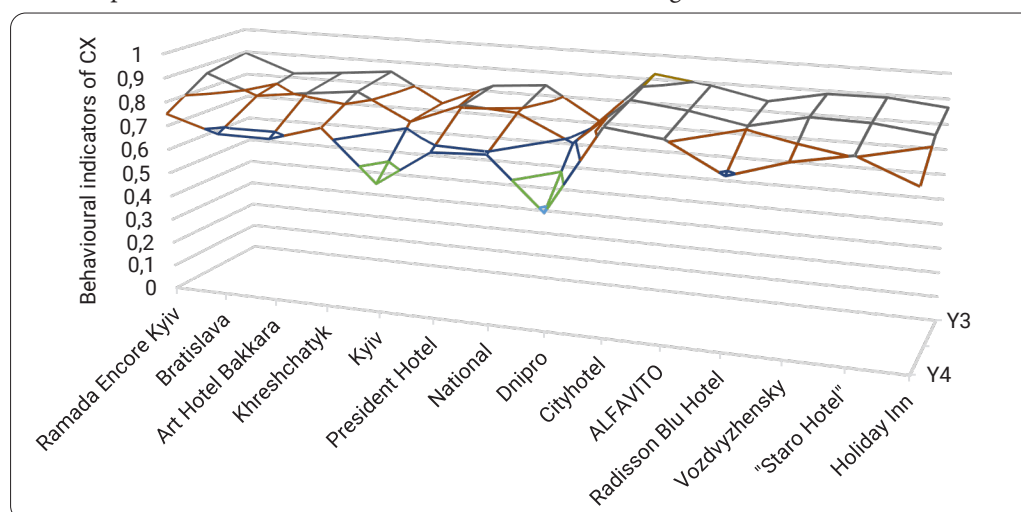


Figure 4. Behavioural indicators of customer experience of the studied hotels

Source: compiled by the authors

Table 8. Evaluation matrix of customer experience based on research results

CX expectations	Negative	Neutral	Positive	Exciting	Impressive
Were surpassed					
Were justified				Cityhotel, ALFAVITO	
Were not justified		Kyiv, Dnipro			

Source: compiled by the authors

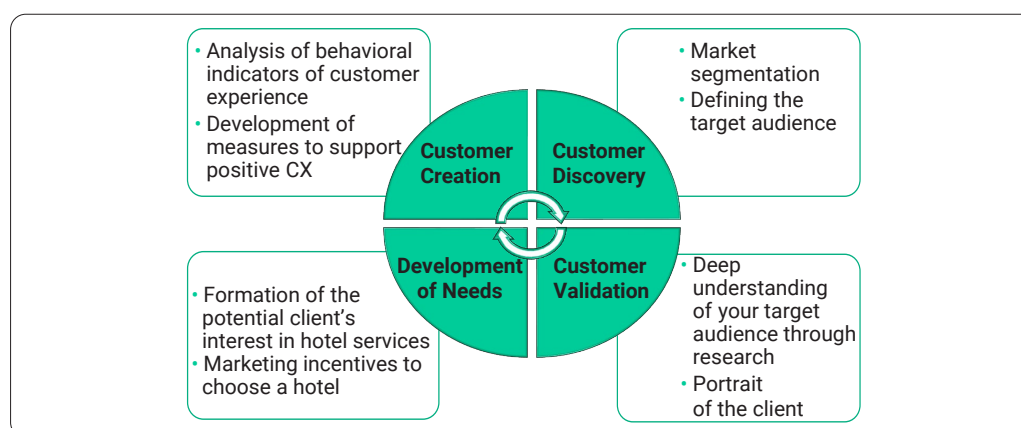


Figure 5. Application of the Customer development methodology for the analysis of the customer's journey

Source: compiled by the authors

The logical order involves a multi-stage continuous process of adopting and implementing management functions (organization, planning, control, motivation), which are ensured by monitoring and analysing customer experience; customer orientation of staff and determining behavioural indicators of customer experience. Customer experience as a set of impressions during interaction with a hotel

has a decisive impact on the level of guest loyalty (Terklenli *et al.*, 2022). CXM forms the basis of CXM's marketing strategy and increases the company's value in the eyes of the customer. The CXM process focuses on comparing the expected and current customer experience. During the customer's interaction with the hotel's services, the customer's perceived value is revealed, the quality of service and

the staff's focus on their needs and interests are assessed. These aspects are reflected in specific customer experience indicators, such as positive customer experience, loyalty, willingness to recommend the hotel to others and intention to choose this hotel in the future. A high level of CX quality (at the time) ensures an increase in hotel occupancy in the future. Knowledge of CX analytics provides businesses with concrete facts about how customers perceive the interaction with a service product. The proposed methodology for assessing the customer experience of service organizations has made it possible to identify the main factors that shape its perception by consumers (Boiko, 2023). Establishing a correspondence between CX ex en., which is formed by marketing incentives (reputation, advertising, customer reviews), and actual experience of interaction with the product, helps to reduce customer outflow and increase the reliability of the customer base. As each customer's experience is personal, and each customer may have different impressions, it is important to conduct surveys periodically to identify general trends in guest satisfaction and to identify strengths and weaknesses in the customer experience.

Discussion

Regular CXM research is key to the success of any company. As part of the study, the attitudes of customers and employees towards selected hotels in Kyiv were assessed, which allowed drawing some conclusions. Based on the analysis, some recommendations for improving CXM strategies can be identified. It remains so important for companies to create a comprehensive framework for assessing customer experience that covers both explicit and implicit factors. Explicit factors, such as material and technical procedures, should be clearly defined, while implicit factors, such as cultural influences and emotional aspects, should be carefully analysed. In addition, expected values from respondents' answers should be included to understand how different they are from the current level of understanding of product satisfaction. The emotional component of customer experience should also be taken into account in surveys: implicit influences, such as cultural factors, as well as fear or anxiety, can play a crucial role in shaping respondents' answers and their attitudes towards goods, objects, products (Ihnatenko *et al.*, 2022). In addition, companies should pay more attention to the study of theories, in particular behavioural theories, as this can improve the efficiency of the survey and make its results more accessible for use. Further improvement of the company's activities should be constant and continuous. It is also worth noting that such surveys should be conducted on a regular basis to maximize the results. This will allow tracking trends in customer and employee satisfaction. Adherence to such recommendations will not only increase the effectiveness of the research methodology, but will also improve the business results of the target companies in general.

The impact of customer experience factors on well-being (customer joy and satisfaction) was studied by C. Xie *et al.* (2022). The researchers studied the impact of three

main factors – convenience, productivity, and relationships (between customers and staff) on Consumer Well-Being (CWB). They showed that while productivity directly or indirectly influenced CWB, other factors had an impact through the component of joy and satisfaction (with the product or service). Thus, the customer service experience shapes CWB to a large extent, emphasizing the complex interaction between the factors identified by the author and the level of customer satisfaction. In view of this, the researchers recommend that companies pay much more attention to how the above factors affect customer well-being. It is worth noting that the work on analytical tools for assessing customer experience did not focus so much on these components, but it is worth noting that they also play a significant role. In addition, the CXM methodology applied in this study also proved to be quite effective in assessing the level of customer satisfaction, and also confirmed the fact that this component has a significant impact on the further use of a product or service by customers in the future (Polinkevych, 2023).

S. Maklan & P. Klaus (2011) evaluated marketing research based on customer experience. In general, the authors of the study concluded that managers of enterprises and departments should pay more attention to how customers react to their products or services, i.e. to study the level of their own interest in the produced good. Moreover, in their opinion, improving customer experience should become the main strategic goal of an enterprise, given the significant amount of positive impact it can bring to the company in the long run. Nevertheless, researchers still recommend paying attention to some important components when making such assessments. For example, customer experience is still difficult to measure, as it is a more complex component than other (more traditional) product or product quality characteristics (Smutchak *et al.*, 2023). Researchers must independently identify the product performance indicators and attributes that are important to them in order to assess financial performance, but even then, they cannot be sure that they will do so correctly. In addition, each of these studies is always unique, as it must take into account not only the specifics of a particular business, but also the target audience. Moreover, since their results rely primarily on the results of surveys, the quality of their conduct also plays a significant role. Researchers have to pay attention to all sorts of minor factors that can affect respondents' responses at the moment to maximize the reliability of the results. However, this is also not always possible. In the paper on the study of the methodology for assessing customer experience on the example of Kyiv hotels, it was described in some detail how the study would be conducted, why certain scales were chosen, the questions were described in detail. The reason for this is precisely because it is impossible to process the results and explain what they may mean for the company without an initial detailed description of the methodology. Thus, it is worth agreeing with the results obtained by the authors in the study.

The concept of customer experience and the possibility of using a multimodal approach for it were studied by

D. Zha *et al.* (2023). The study revealed the modular nature of the CXM concept, emphasizing its evolution in service marketing, experiential marketing, and branding. The researchers noted that this is consistent with the principles of evolutionary psychology and organizational theory, in particular with the modular approach used in complex system analysis. Thus, the paper presents a modular view of CXM (as a strategic tool for firms to shape their future development strategy). The researchers conclude that the use of the approach together with the modular structure will allow solving consumer problems more effectively and increase the success of the company's products in the market. Nevertheless, it is still difficult to say how effective the modular approach will be within the CXM concept (Jalilova, 2024). The methodology proposed in the study on the assessment of hotels in Kyiv is also quite effective and allows achieving the goals set by the company. Thus, it is worth conducting an empirical study using the approach proposed by the authors in order to assess the benefits described by them.

CX methodology in retail was studied by C. Bascur & C. Rusu (2020). They noted that in the modern business landscape, more and more attention is paid to how companies present their products, systems, and services to customers, which is due to the wider spread of CXM. The authors' research has shown that, despite the popularity of the concept, there are still no unified approaches to how research on this topic should be conducted. In other words, as mentioned above, each study related to CX analysis is largely individual and largely depends on the approaches chosen by researchers, the requests of the company (at the request of which the study is conducted). Thus, researchers recommend developing a unified methodology for conducting this type of research. It is worth noting that the methodology used in the study of CX among Kyiv hotels was also largely original. And although it was able to cope with these tasks quite effectively, it is possible to agree that in the future, it would be much easier to conduct similar studies according to a more standardized plan. However, it is worth noting that such a methodology must first be evaluated by many scientists in their work and tested in practice, which may take years. Therefore, the only way out now is to develop our own approach to CXM.

Conclusions

Thus, CXM is an important aspect of a company's strategic management, involving a thorough analysis of customer interaction with products and services at various points of interaction. This comprehensive strategy is aimed at creating and controlling positive customer experiences throughout the customer journey, contributing to increased loyalty, brand reputation, resource efficiency and customer satisfaction. It has several key stages, which, if followed, will help achieve the desired results from the methodology and thus optimize the company's performance.

The article provides a significant improvement in the understanding of empirical utility by introducing the concept of expected value (ex en.) along with instantaneous

utility, remembered utility (ex post) and real-time value. One of the conceptual models describes the formation of customer experience in service organizations, identifying explicit and implicit factors that influence customer perception. Based on the work done in this area, it can be concluded that implicit factors rooted in individual and emotional aspects require careful analysis before they are analysed in the framework of CXM.

The study assessed the level of service satisfaction in Kyiv hotels based on a sample of 14 properties. The results confirmed the strong correlation and equal importance of the identified factors in shaping the customer experience. The analysis differentiated hotels based on customer perceived experience and loyalty. In addition, conclusions were drawn on which components should be improved. In particular, several hotels with satisfactory service levels, but neutral customer experience were identified, indicating the need for strategic improvements (for the long term).

Overall, it can be concluded that this type of research plays an important role in generating new customers and improving the attitude of the old ones. In addition, by constantly monitoring and analysing customer experience, organizations can implement targeted marketing activities to create a positive image of their company among guests. It was concluded that it is crucial for companies to create a comprehensive framework for assessing customer experience, taking into account both explicit (logistical procedures) and implicit factors (cultural influences and emotions). In addition, taking into account the expected values from respondents' answers is important for understanding the level of satisfaction, and given the emotional component of customer experience, research should be taken seriously, ensuring that external factors have minimal impact on the final results.

The carried out research and empirical testing of the proposed tools for assessing the customer experience of service organizations allows using marketing management tools to improve the customer journey at each point of interaction. The tools disclosed in the article can be used in further research, as they serve as a basis for developing marketing programmes for CXM. The use of the proposed methodology, as well as the formation of a single template for conducting such studies, is also currently relevant, as this will minimize its shortcomings and allow for wider implementation in practice. Future research should explore the impact of emerging digital technologies on customer experience, examine cultural and emotional factors across different demographics, and develop advanced tools for real-time assessment. Longitudinal studies on the long-term effects of CXM interventions on business performance are also recommended.

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None.

Conflict of Interest

None.

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Аналітичні інструменти оцінки клієнтського досвіду в контексті управління маркетингом сервісних компаній

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Анотація. Природа сервісних організацій апіорі розглядається через призму клієнтоорієнтованості. Метою даного дослідження є теоретична розробка моделі формування клієнтського досвіду сервісних організацій на концептуальному рівні та проведення дослідження з використанням розробленого інструментарію його оцінки на прикладі готельного бізнесу. Основні результати ґрунтуються на принципі холістичного персоналізму та отримані з використанням методів польового маркетингового дослідження, анкетного опитування респондентів, бального та індексного методу. Дані були оброблені та проаналізовані з використанням статистичного кореляційного аналізу, графічного та матричного підходів. Для формування ланцюжка позитивних реакцій споживачів використано методологію Customer development. Обґрунтовано концептуальну модель формування клієнтського досвіду в сервісних організаціях, що базується на принципах поведінкової теорії. На прикладі готелів виділено 2 групи факторів, що формують клієнтський досвід: явні та неявні, та включено 6 факторних ознак. Виділено три типи клієнтського досвіду: до моменту споживання продукту – очікуваний досвід (CX ex en.), в момент споживання – як сприйнятий клієнтський досвід (CX at the time) та наміри щодо майбутнього споживання сервісного продукту (CX ex post). Для їх оцінки запропоновано 4 маркетингові метрики, що дозволяють оцінити кожен тип клієнтського досвіду. Для інтерпретації результатів значення показників масштабуються. Проведене тестування запропонованої методики на вибірці з 14 чотиризіркових готелів підтвердило гіпотези дослідження. Запропонована теоретична концепція та інструментарій оцінки можуть бути використані для розробки маркетингових програм управління клієнтським досвідом (СХМ)

Ключові слова: оцінка досвіду користувача; виконання послуги; стратегії утримання; холістичний підхід; поведінка клієнтів

**Blockchain and sustainable finance:
Enhancing transparency and efficiency in green investments**

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Abstract. The study aims to analyse the possibilities of using blockchain technology to increase transparency and efficiency in sustainable finance. The application of blockchain technologies and environmental and social practices in the context of sustainable finance was analysed, emphasising implementation and prospects in Kyrgyzstan. Blockchain, as an innovative decentralised data recording technology, provides a high level of security, transparency and immutability, which renders it particularly valuable for the financial sector. The study highlighted how blockchain can improve international transfer processes, increase the transparency of financial transactions and simplify the management of smart contracts, and noted existing challenges such as scalability and legal issues. The role of blockchain technologies in sustainable finance, especially in the field of green investments, was highlighted as an important aspect of the study. The introduction of blockchain in areas such as green project financing and social initiative management can help increase investor confidence and improve investment performance. Financial technology is also central in shaping new approaches to finance and investment, facilitating access to capital through crowdfunding and person-to-person (P2P) lending platforms. The introduction of environmental and social practices in financial institutions of the Kyrgyz Republic demonstrates the growing attention to corporate responsibility and sustainable development, despite the initial stage of their implementation. On international stage, successful projects such as the use of blockchain to track supply chains, green bonds and carbon credit management demonstrate the potential of technology to improve the transparency and efficiency of sustainable finance. These examples can be used by Kyrgyzstan in developing and implementing domestic blockchain and environmental and social initiatives, contributing to more sustainable economic growth and attracting international investment

Keywords: environmental factors; environmental and social practices; technology integration; digital transformation; risk management

Introduction

Blockchain technology is rapidly gaining popularity in various sectors of the economy, and one of the most promising areas of its application is sustainable financial activities. In the face of global environmental challenges such as climate change, environmental degradation and the depletion of natural resources, sustainable finance is becoming a way to support projects aimed at reducing carbon footprints, developing renewable energy sources and ensuring greener business practices. However, effective investment in such projects faces several barriers, including insufficient transparency of financial flows, difficulties in assessing risks and doubts about the integrity of the funds.

Trust between market participants remains one of the key challenges in green investment. It is often difficult to verify the extent to which investments are aimed at achieving environmental goals, which reduces the appeal of such projects for investors. Greenwashing issues, where companies and projects claim to be environmentally friendly but fail to achieve significant results in practice, also undermine trust and slow down the pace of sustainable finance.

Blockchain, as a decentralised and immutable record-keeping technology, can offer a solution to these problems. Given the possibility for transparency, accountability and traceability of transactions, blockchain can be used to monitor in real time how and where investments in sustainable projects are used. This not only increases the credibility of such investments but also reduces administration and control costs.

Blockchain can be used to create global sustainable finance platforms where information about projects and their environmental impacts can be made available to all stakeholders (Furmanchuk, 2023). Thus, investors can better assess risks and make more informed decisions based on transparent data. In addition, the automation of processes through smart contracts can significantly simplify the

implementation of projects and ensure their compliance with environmental standards.

An important step in the definition of the role of blockchain in sustainable finance is an analysis of the results of research conducted in this area by various authors. K.J. Lee & H. Jeong (2022) emphasised that blockchain can eliminate the issue of asymmetry of information between investors and recipients of funds. The study demonstrates that the decentralised structure of the blockchain allows each participant to access immutable project data. K. Schulz & M. Feist (2021) investigated the effectiveness of smart contracts in sustainable finance. They concluded that automating processes using blockchain could not only speed up contract execution but also ensure that the project meets environmental and financial standards. Q. Li *et al.* (2022), in turn, addressed the use of blockchain in the supply chain tracking system for green investments. Their study demonstrated that blockchain can be used to monitor every stage of project implementation. S. Anvar kyzy *et al.* (2022) conducted research confirming that the use of blockchain in the financial sector can reduce transaction costs. Their findings show that decentralised systems can replace traditional intermediary structures. J. Woo *et al.* (2021) analysed the issue of improving the mechanism for verifying environmental projects through blockchain. This technology can significantly reduce the time required to verify the compliance of projects with environmental standards based on open and publicly available data. S. Guo *et al.* (2023) also addressed the potential of blockchain to combat greenwashing. Following the authors, blockchain makes it impossible to change or conceal data on funds usage. R. Almadadha (2024) analysed the use of blockchain to increase the transparency of environmental, social and corporate governance (ESG) reporting of corporations. Blockchain can help companies provide more accurate and timely

information about their environmental impact, which increases their reputation among investors. N. Alsharari (2021), in turn, analysed the integration of blockchain with other technologies, such as the Internet of Things (IoT), to improve the monitoring of sustainable projects. Y.-S. Ren *et al.* (2023) analysed the role of blockchain in creating global sustainable finance platforms. Their findings showed that such a platform could provide global access to investment opportunities. M.R.H. Polas *et al.* (2022) concluded that blockchain can facilitate democratic access to green investment by allowing small and medium-sized investors to participate in financing environmental projects that were previously only available to large institutional investors.

Many authors confirm that blockchain has significant potential to address key issues related to sustainable finance, including transparency, efficiency and reduced transaction costs. Despite a significant amount of research on the use of blockchain in sustainable finance, several important topics remain under-researched. In particular, the aspects of blockchain use in the context of green investment management in the Kyrgyz Republic, as well as the impact of blockchain on transparency and risk mitigation in the sustainable finance ecosystem in an emerging economy, are not sufficiently studied.

The study aimed to analyse the impact of blockchain technology on sustainable finance in the context of green investments and ESG practices. The objectives of the study were to assess the impact of blockchain on the transparency and efficiency of sustainable finance in the Kyrgyz Republic, to explore opportunities and challenges of implementing blockchain to improve green investment management and to analyse ESG approaches in the financial sector.

Materials and Methods

A complex approach was employed to analyse the role of blockchain technologies, financial technologies and ESG practices in financial institutions in the Kyrgyz Republic. The effect of innovations on the sustainability of business and the development of the country's financial sector, as well as the implementation of the Sustainable Development Goals, was prioritised.

A detailed analysis of the topic of blockchain, financial technologies and ESG practices was initially conducted. Areas of sustainable development and the inclusion of ESG factors in the investment decision-making process were prioritised. In addition, the use of blockchain in green finance was analysed. To better define the specific features and opportunities for using blockchain, financial technologies and ESG practices in the financial sector of the Kyrgyz Republic, an analysis related to financial innovation and sustainable development in the country was conducted.

One of the key research methods was a comparative analysis of the ESG practices of financial institutions in the Kyrgyz Republic with international experience. Examples of implementation of ESG standards by such organisations as Optima Bank (n.d.), Eldik Bank (n.d.), Aiyl Bank (n.d.), Commercial Bank Kyrgyzstan (n.d.), Bai-Tushum Bank (n.d.), Bank of Asia (n.d.) and DosCredoBank (n.d.) were

used to identify the most effective models and methods that can be used to increase business sustainability and improve financial performance. This data was used to assess the impact of ESG factors on the reputation, customer confidence and long-term business sustainability of financial institutions in the country.

The study of real cases of blockchain and financial technologies in the Kyrgyz Republic was an important part of the study. For this purpose, examples of financial technologies, such as person-to-person (P2P) lending and crowdfunding, which were already introduced into the national financial sector, were analysed. An analysis of successful initiatives to use blockchain to increase transparency and reduce risks in the process of allocating credit resources and managing public tenders was conducted.

Key initiatives that use blockchain in green investments were selected to analyse international projects. These initiatives include initiatives such as the IBM Food Trust, which is used to track food supply chains, ensuring transparency and sustainability of products. Another important example is SolarCoin, a global project that rewards solar energy production in the form of tokens, which helps to increase clean energy production. The WePower project and the Power Ledger, demonstrate the use of blockchain for green energy trading and decentralised energy, simplifying access to finance and reducing the carbon footprint. Initiatives analysed included Energy Web, which uses blockchain to manage distributed energy resources, Poseidon Foundation, which has developed a platform to track and reduce the carbon footprint of commodity purchases, Hongkong & Shanghai Banking Corporation, which applies blockchain to track and manage green bonds, Santander Bank, which also actively employs blockchain to provide transparency and speed up international transactions within its green bonds. These projects were selected for detailed analysis to identify their role and impact on sustainable finance and green investment.

Results

Blockchain is an innovative decentralised record-keeping technology that allows data to be stored and transmitted securely, transparently and permanently. It is based on a distributed network consisting of nodes, each of which stores a copy of the data. Blockchain technology was created as a basis for the bitcoin cryptocurrency, but since then its application has expanded to many other areas, including the financial sector. One of the key advantages of blockchain is its decentralised nature. Unlike traditional databases that are managed by central organisations, blockchain does not require trust in one party. All network participants have access to a single version of the data, and any changes are made only after a consensus is reached among all network nodes. This renders blockchain highly protected against fraud and manipulation, which is highly relevant for the financial sector, where data accuracy and security are crucial (Zheng *et al.*, 2018).

In the financial sector, blockchain is already actively used to address an array of tasks. One of the most prominent

applications is the improvement of cross-border payments. Traditional international transfer systems require the involvement of intermediaries and often face delays and high fees. The blockchain, due to its decentralised structure, can be used for quick international transfers at minimal cost (Collomb *et al.*, 2016). An example is Ripple, which uses blockchain for instant and low-cost transactions between financial institutions around the world.

Another important area of blockchain application in the financial sector is ensuring transparency and traceability of financial transactions. This is particularly relevant in the context of the fight against fraud and money laundering. Blockchain can be used to create an immutable record of all transactions, which simplifies auditing and monitoring. As a result, banks and other financial institutions can more effectively comply with anti-money laundering requirements and know their customers.

In addition, the blockchain can be used to create smart contracts - automated digital agreements that are executed only if pre-agreed conditions are met. This simplifies financial transactions, reduces the cost of legal support and minimises the risk of non-compliance with contract terms.

Despite all the advantages, the introduction of blockchain in the financial sector has certain challenges. First, it is scalability. Currently, many blockchain systems cannot process the same volume of transactions as traditional financial systems. Second, legal and regulatory issues are also significant aspects. Most states and financial regulators do not yet have set rules for the use of blockchain, which makes its implementation difficult (Mishra and Kaushik, 2023). With the development of technology and the emergence of new solutions to increase scalability and efficiency, blockchain can become the basis of the future financial infrastructure, ensuring the security, transparency and accessibility of financial services for all market participants.

Blockchain technology can radically transform the process of sustainable finance, in particular green investments, thanks to its potential transparency and reduced risks. In the context of global environmental challenges, attracting investment in projects aimed at reducing carbon emissions and protecting the environment is becoming highly relevant (Macchiavello and Siri, 2022). However, this process involves several challenges, such as a lack of trust between investors and projects, as well as difficulties in assessing and verifying the environmental performance of projects. This is where blockchain can be used.

Transparency is one of the main advantages of blockchain. In the context of green investments, this technology can be used to create immutable, decentralised records of all transactions and project stages. This renders the financing and monitoring process accessible to all stakeholders in real-time. For instance, if a company or government agency receives funds to implement an environmental project, blockchain can be used to track how these funds are used, what resources are purchased, and what results are achieved. This transparency prevents misuse or mismanagement of resources, which is one of the key issues in green investments. Another problem investors face is the risk of

“greenwashing”, when companies claim to be environmentally friendly but fail to achieve real environmental results. Blockchain helps combat this phenomenon by recording all stages of project implementation and its environmental impact (de Freitas Netto *et al.*, 2020). For instance, information on carbon emissions or the use of renewable energy sources can be automatically recorded on the blockchain through smart contracts and IoT sensors, which is in line with the principles of the green taxonomy. The green taxonomy aims to create a unified approach to defining environmentally sustainable economic activities, and the use of blockchain technologies allows for transparency, accuracy and reliability of data related to environmental indicators (Ministry of Economy..., 2024). This, in turn, contributes to more efficient management of green investments and monitoring of projects' compliance with sustainability criteria.

In addition to increasing transparency, blockchain can reduce risks for investors. Firstly, due to the immutability of data, blockchain minimises the possibility of fraud and manipulation of financial statements. This ensures that information, including that for investors, is correct. Secondly, the decentralised structure of the blockchain reduces dependence on intermediaries, which lowers transaction costs and minimises the risks associated with delays and inaccuracies in data transmission. Moreover, blockchain can be used for global investment at minimal cost. This is especially relevant for green projects that may be located in remote regions with limited access to traditional financial institutions. Blockchain enables direct interaction between investors and recipients of funds, bypassing complex and expensive banking structures.

Financial technologies are becoming primary in sustainable development, shaping new approaches to financing and investment. It includes a wide range of innovative solutions such as mobile payments, crowdfunding, algorithmic investing and digital currencies. These technologies can simplify and speed up financial transactions, which is especially relevant for sustainable finance (Gomber *et al.*, 2017). Traditional financial systems often prove to be complex and expensive for SMEs involved in green projects. Financial technologies are facilitating access to capital through crowdfunding platforms and direct P2P loans, where investors can finance projects directly, without the need for intermediaries. This opens new opportunities for financing environmentally friendly projects, especially in developing countries where access to traditional finance is limited.

In addition, financial technologies such as algorithmic investing and artificial intelligence are enabling a more accurate assessment of the risks and potential benefits of green investments. Big data and machine learning in financial technologies can be used to analyse the sustainability of projects, predict their environmental impact and suggest optimal investment strategies (Zelisko *et al.*, 2024). This not only increases investment efficiency but also reduces the likelihood of investing in inefficient or unreliable projects, making the sustainable finance market more reliable.

ESG approaches are significant in the development of corporate responsibility and sustainability standards. ESG

metrics are used to evaluate companies and projects in terms of their environmental impact, social responsibility and management quality. For investors and financial organisations, integrating ESG factors into the decision-making process can be used to assess not only financial performance but also long-term sustainability. Studies show that companies with high ESG scores are more resilient to risks, including environmental disasters, social conflicts and changes in the regulatory environment, making such investments more attractive to long-term investors (Schramade, 2016).

An important aspect of ESG is its role in building a culture of corporate responsibility. For instance, companies that actively implement ESG principles strive to minimise carbon emissions, use renewable resources, ensure decent working conditions and support gender equality. For financial organisations, this means accounting for these factors when assessing investment projects and credit risks, which contributes to a more sustainable and ethical business.

The economy of the Kyrgyz Republic is characterised by a combination of factors that determine the specifics of its development as a post-Soviet republic in transition. The main national economic sectors include agriculture, mining and services, with agriculture remaining the key source of employment for a large proportion of the population. The country is also a major transit hub for trade between China and Central Asia, which strengthens its role in regional economic ties. The financial system of the Kyrgyz Republic is developing under conditions of limited resources and dependence on external capital inflows. Remittances from labour migrants working abroad remain an important source of external financing. These remittances play a significant role in maintaining the national balance of payments and ensuring household income (Hasanova, 2018).

The Kyrgyz Republic faces institutional and infrastructural challenges, such as limited development of the financial sector, weak financial regulation, and low financial literacy. The national central bank is seeking to improve control over financial flows, but access to credit for small and medium enterprises remains difficult due to high interest rates and tight conditions. This slows down the development of entrepreneurship and reduces employment.

On the other hand, the impact of financial technologies on the banking sector and financial organisations of the Kyrgyz Republic is becoming more and more noticeable every year. One of the key areas of financial technology development in the Kyrgyz Republic is mobile banking. With a significant part of the population not having access to traditional bank branches, the use of mobile phones for financial transactions has become a popular solution. Mobile payment services, such as Elcard and Mbank, have

become widespread and are actively supported by commercial banks. These platforms allow users to pay bills, send money transfers, and purchase goods and services online, making financial services more accessible to the population, including those in remote areas.

One of the significant achievements of financial technology in the Kyrgyz Republic has been the simplification of access to credit. Traditional banks often impose strict requirements on borrowers, which limits the opportunities for small and medium-sized businesses. At the same time, financial technologies offer alternative lending mechanisms, such as P2P (person-to-person) loans and crowdfunding. These platforms help small businesses and individual entrepreneurs raise capital bypassing traditional banking structures. This provides businesses with flexible access to finance, which fosters entrepreneurship and stimulates economic growth.

The introduction of ESG practices in financial institutions in the Kyrgyz Republic is a relatively new but rapidly developing process. This trend is dictated by both global changes in the financial sector and the need to address local economic and social problems facing the country. Given the growing importance of sustainable development and environmental challenges, financial institutions in the Kyrgyz Republic are gradually realising the importance of implementing ESG principles to ensure long-term economic growth, business sustainability and attracting foreign investment. First, the implementation of ESG practices is closely linked to the growing requirements of international financial organisations, investors and partners, who are increasingly paying attention to sustainable development. Banks and financial institutions in the Kyrgyz Republic should adapt to these new standards to remain competitive in the international arena and to have access to global investment and capital. This implies the need to comply with international standards of corporate responsibility, which includes environmental, social and governance aspects.

On the one hand, financial institutions need to implement initiatives aimed at minimising the environmental impact of their operations and assets, for instance, by supporting green projects and refusing to finance environmentally harmful enterprises. On the other hand, respect for human rights, including within supply chains, and safe and inclusive working conditions are becoming mandatory elements of their strategy. Another key factor is ensuring transparent and ethical management, which is reflected in the openness of data, financial reports and management decisions that build investor and partner confidence. Table 1 presents examples of ESG practices in financial institutions in the Kyrgyz Republic.

Table 1. ESG practices in financial institutions of the Kyrgyz Republic

Financial organisation	Type of ESG practice implementation	Implementation goal	Impact on business	Impact on sustainable development
Optima Bank	Social responsibility (support for local communities)	Improving the social climate and increasing customer loyalty	Improving reputation and customer confidence	Creating jobs, supporting small businesses

Table 1, Continued

Financial organisation	Type of ESG practice implementation	Implementation goal	Impact on business	Impact on sustainable development
Eldik Bank	Risk management (sustainable investment and risk monitoring)	Reducing investment risks and increasing portfolio stability	Minimising financial losses due to changes in legislation	Financing green projects, increasing responsibility in lending
Aiyl Bank	Social programmes (support for rural areas)	Promoting rural development and inclusion	Expanding the customer base, improving the business reputation	Increasing financial inclusion in rural areas
Commercial Bank Kyrgyzstan	Persistent corporate management	Improved transparency and compliance with international standards	Increasing investor confidence	Improving corporate governance and reporting standards
Bai-Tushum Bank	Financing of renewable energy sources	Promoting the development of a green economy	Expanding the product line, attracting green investors	Financing of solar and wind energy projects
Bank of Asia	Environmental management (carbon footprint reporting)	Increasing transparency of environmental aspects of operations	Strengthening market positions and attracting new customers	Reducing our carbon footprint and supporting sustainable development
DosCredoBank	Investments in social and environmental projects	Supporting educational and healthcare initiatives	Improving customer reputation and loyalty	Improving the quality of life and social security in the regions

Source: compiled by the author based on Optima Bank (n.d.), Eldik Bank (n.d.), Aiyl Bank (n.d.), Commercial Bank Kyrgyzstan (n.d.), Bai-Tushum Bank (n.d.), Bank of Asia (n.d.) и DosCredoBank (n.d.)

These practices not only contribute to the improvement of social and environmental responsibility but also have a positive impact on the business performance and financial stability of organisations, reflecting the growing interest in sustainable development in the Kyrgyz Republic. Blockchain technology in sustainable finance in the Kyrgyz Republic is at an early stage of development but shows significant potential. Blockchain, as a decentralised and transparent system, has unique properties that can significantly improve sustainable finance processes, especially in areas such as green investments, social project management and transparency in financial decision-making.

For the Kyrgyz Republic, where the level of trust in financial institutions is often low, the introduction of blockchain into sustainable finance processes could be an important step towards increasing transparency and confidence among investors and the public. One area where blockchain could be particularly useful is in the financing of green projects. In the Kyrgyz Republic, as in other Central Asian countries, environmental issues are becoming increasingly relevant, given the impact of climate change and problems with access to clean water and renewable energy.

In 2022, the Kyrgyz Republic started attracting the attention of international investors to cryptocurrency mining using hydropower, which is one example of a combination of blockchain and ESG practices. The country has

a significant potential for clean energy, and some mining companies have started investing in projects aimed at sustainable cryptocurrency mining, minimising the carbon footprint (Final Report of..., 2022). Such initiatives can contribute to economic development without worsening the environmental situation.

The Kyrgyz Republic has microfinance institutions that play an important role in providing access to finance for small businesses and rural communities. Some of these organisations have begun to consider the use of blockchain to improve transparency in the distribution of credit resources and reduce fraud risks. An example is the discussed introduction of blockchain technology in microfinance to track transactions and confirm the reliability of borrowers, which helps to build trust in the system and ensure transparency of operations (Kyrgyz Republic Development..., 2023).

In Kyrgyzstan, the Ministry of Finance, with the support of the World Bank, is launching a system of labelling green budget expenditures to increase transparency and efficiency in the use of public funds for environmental programmes (Mambetalieva, 2024). This initiative aims to track funding related to environmental protection and climate change adaptation, which is in line with the United Nations (UN) Sustainable Development Goals and the Paris Agreement. As part of the pilot project, the labelling will be introduced in the Ministry of Natural Resources and

Ecology and the Ministry of Emergency Situations, which will allow for the classification of green finance flows and improved resource management. This, in turn, will open new opportunities for attracting international financing, which will create conditions for the implementation of environmental projects and the introduction of innovative solutions to protect the environment.

In 2024, a project to introduce digital identification using blockchain technology was presented in the Kyrgyz Republic. This provides secure and transparent identity verification, which can be used in the financial sector, including for providing financial services to remote and rural communities (Alabi & Telukdarie, 2021). This area contributes to social inclusion, which is an important element of ESG. So far, projects in the Kyrgyz Republic using blockchain and ESG are at the stage of experimental and pilot initiatives. However, their successful implementation can open up new opportunities for sustainable economic growth, improve confidence in financial institutions and attract international investment in environmental and socially oriented projects.

Many countries and companies have begun to actively use blockchain to increase the transparency, efficiency and sustainability of their operations, especially in the context of green finance and socially responsible investment initiatives. On the international stage, one of the most successful examples of blockchain use is its implementation for tracking supply chains in the framework of sustainable development. Large corporations such as Walmart and Unilever use blockchain to monitor the supply of products, including agricultural and low-carbon products (Maleki, 2023). This not only increased transparency but also ensured that products meet high environmental standards, which is part of ESG practices. For instance, the IBM Food Trust's blockchain platform traces the origin of products and confirms that they meet sustainability requirements.

Some countries, such as Sweden, are experimenting with issuing green bonds based on blockchain technologies (Jahankhani *et al.*, 2021). These bonds aim to finance environmentally sustainable projects, such as renewable energy or energy-efficient buildings. Blockchain ensures transparency at every stage of the bond's life cycle and simplifies the reporting process for investors, who can track where the funds were allocated. As a result, green bonds are becoming more attractive to investors, as blockchain provides assurances that funds are being used in line with the stated ESG goals. International experience shows that blockchain can be successfully used to solve social problems that also fall within the ESG context. The World Bank and the United Nations use blockchain to provide financial services to refugees and people who do not have access to traditional banking systems. In this context, blockchain becomes a financial inclusion method, which is one of the key elements of ESG. For instance, Jordan has implemented a blockchain project that allows refugees to receive assistance in the form of vouchers used to buy food, making the processes more transparent and protected from corruption (Juskalian, 2018).

In European countries, such as Germany and the Netherlands, blockchain is being actively used in energy projects related to the distribution of renewable energy. Blockchain-based platforms allow households and businesses to trade energy directly with each other, bypassing traditional energy companies. This approach contributes to sustainable development by increasing energy efficiency and encouraging the use of renewable sources. One such project is the Power Ledger in Australia, which successfully uses blockchain to trade solar energy, enabling buyers to track the source of energy and its environmental footprint. Table 2 shows the most famous international projects using blockchain in green investments.

Table 2. International projects using blockchain in green investments

Project	Project description	Application of blockchain	Role in sustainable finance	Results
IBM Food Trust	Food supply chain tracking platform	Usage of blockchain for transparent tracking of product supplies	Guarantee of sustainable food origin	Increasing transparency and trust in the food supply chain
SolarCoin	Remuneration for solar energy production in the form of tokens	Blockchain is used to track produced solar energy	Stimulating clean energy production	More than 10 GWh of renewable energy was registered
WePower	A platform for green energy trading	Tokenisation of energy supply contracts	Attracting investment in renewable energy	Simplified access to financing for green energy projects
Power Ledger	Solar energy trading between consumers directly via a blockchain platform	Decentralised platform based on blockchain	Supporting distributed energy and reducing our carbon footprint	Successful implementation of decentralised energy trading
Energy We	Blockchain for managing distributed energy resources	Decentralised energy management	Improving the efficiency of renewable energy sources	Attracting new market participants and increasing transparency of operational data

Table 2, Continued

Project	Project description	Application of blockchain	Role in sustainable finance	Results
Poseidon Foundation	A platform for tracking and reducing the carbon footprint of goods purchases	Blockchain integration to track the carbon footprint of transactions	Reducing carbon footprint and attracting customers to sustainable projects	The programme was introduced into retail to offset customers' carbon footprint
Santander Bank	A platform for financing environmentally friendly projects	Employment of blockchain for transparent finance tracking	Simplifying the process of obtaining financing for green projects	Supporting the funding of multiple sustainable initiatives around the world
Hongkong & Shanghai Banking Corporation	Green bond tokenisation programme	Usage of blockchain to create tokenised assets	Attracting investment in sustainable development projects	Successful issue of green bonds on a blockchain platform

Source: compiled by the author

International experience with blockchain and ESG practices in the financial sector shows that the combination of these two areas can lead to significant changes in the management of sustainable projects, investment attraction and transparency. The Kyrgyz Republic can use these examples to accelerate the implementation of domestic blockchain and ESG projects, creating conditions for more sustainable economic growth and attracting international investment.

The successful implementation of blockchain and ESG practices in the financial sector of the Kyrgyz Republic requires more active cooperation between the government, financial institutions and international organisations aimed at creating a comprehensive legal framework and technological infrastructure. The government should develop regulatory standards that will ensure transparency and security of the use of blockchain technologies in sustainable finance, as well as create incentives for green investments. These standards should include reporting requirements on ESG criteria and mechanisms for monitoring the fulfilment of environmental and social obligations.

In addition, it is necessary to strengthen the development of local digital infrastructure, which implies the introduction of secure digital platforms and data management systems for the effective use of blockchain. At the same time, educational programmes and training for financial institutions that will cover not only the basics of ESG practices but also the practical use of blockchain for investment management should be emphasised. This will help raise awareness of the benefits of blockchain and ESG, as well as improve the skills of employees.

The integration of blockchain technologies into investment management will significantly reduce operational risks, improve the transparency of financial transactions and increase investor confidence in environmental projects. The introduction of ESG practices will ensure the long-term sustainability of the financial sector, making the Kyrgyz Republic more attractive to global investors interested in responsible and sustainable financial instruments. The synergy of blockchain and ESG will create conditions for

modernising the financial system, increasing its competitiveness and developing new areas of sustainable finance.

Discussion

The study demonstrated that blockchain has significant potential to transform the financial sector, including sustainable finance and green investment management. One of the main advantages of this technology is its decentralised structure, which ensures a high degree of transparency and data security. This is especially relevant in the context of sustainable development and implementation of ESG practices in financial institutions in the Kyrgyz Republic. O. Juszczuk & K. Shahzad (2022) investigated the use of blockchain technologies in the financing of renewable energy projects. The authors concluded that the use of smart contracts significantly increases transparency and reduces transaction costs for green investments. These findings are similar to the current results, especially in terms of increasing transparency and efficiency of transactions. However, in contrast to current data, the authors did not address the challenges of implementing blockchain in countries with a low level of digitalisation.

F. Kalfaoglou (2010) highlighted a significant reduction of financial risks for banks that actively apply ESG practices. The author noted that the implementation of these standards helps to increase investor confidence and strengthen reputation. B. Torre Olmo *et al.* (2021) demonstrated that investments in sustainable development directly increase banks' profitability. In the current results, ESG practices also show a positive impact on the image.

The experience of implementing blockchain in the financial sector of Kyrgyzstan identified several key areas of its application. Firstly, the technology is used to increase the transparency of financial transactions and control over the distribution of funds, which is relevant for government tenders and international grants. In the context of a low level of trust in national financial institutions, blockchain can help reduce corruption and increase transparency. T. Jiang *et al.* (2022) addressed blockchain integration into

the carbon trading system. Authors noted that blockchain reduced fraud and increased investor confidence. These findings are in line with current findings on improving data security and transparency for investors. However, unlike the current study, the authors did not address the impact of blockchain on small and medium-sized enterprises, which is an important aspect.

In addition, the use of blockchain can significantly improve access to finance for small and medium-sized businesses, especially in rural areas (Tsapova *et al.*, 2024). Notably, microfinance institutions in Kyrgyzstan are already showing interest in using blockchain to increase the transparency of lending operations and minimise fraud risks. This also contributes to building trust in the system and developing small businesses, which is an important element of national socio-economic growth. M. Kumaraathunga *et al.* (2022) studied the impact of blockchain on microfinance for sustainable agricultural projects. They emphasised that blockchain promotes transparency and the elimination of intermediaries, which is consistent with current findings. H.O. Bello *et al.* (2024) noted that the use of financial technologies simplifies the implementation of ESG practices in small and medium-sized companies by increasing transparency of operations and automating reporting. However, they stressed that for smaller organisations, the main barrier is the lack of financial resources to invest in modern digital solutions. The current study also determined a positive correlation between financial technology and ESG practices, especially in terms of transparency.

One of the most promising areas of blockchain use is the support of green projects, such as the sustainable use of water resources for cryptocurrency mining (Spytska, 2023). This is an example of how technology can help attract foreign investment while minimising the negative impact on the environment. In Kyrgyzstan, there are already initiatives to develop cryptocurrency mining based on hydropower, which contributes to a more environmentally friendly use of energy. H. Kalaiarasi & S. Kirubahari (2023) addressed the introduction of blockchain in companies specialising in green bonds. They noted that blockchain helps improve reporting and control over environmental projects, which coincides with current results. However, their study demonstrated that the introduction of blockchain has not yet provided a significant increase in green investments.

International experience also confirms that blockchain can be effectively used to ensure the sustainability and transparency of supply chains (Smutchak *et al.*, 2023). Large corporations such as Walmart and Unilever are already using blockchain to track product deliveries, which helps not only to increase transparency but also to ensure that products meet high environmental standards. The implementation of such solutions could be useful for the Kyrgyz Republic, especially in the context of developing the agricultural sector and improving product quality. B. Georgescu *et al.* (2022) addressed the use of blockchain to track the supply of organic food in the EU. Their study

noted that blockchain ensures transparency and traceability of the entire supply chain, ensuring that products truly meet environmental standards. This is in line with current findings on blockchain transparency, but the author emphasised an increase in consumer confidence from blockchain usage. In contrast to the current data, which focuses on direct green investments, the authors focus on the role of consumer confidence.

M. Nour *et al.* (2022), in turn, investigated the use of blockchain technologies to track the supply of products within large-scale renewable energy projects. They noted that blockchain provided better control over the supply of equipment for solar and wind farms, which reduced logistics costs and minimised delays. These findings support the current results in terms of improving the efficiency of supply chain management through blockchain. However, unlike the current study, which focuses on the impact of these technologies on attracting green investments, the authors emphasise their role in improving the operational efficiency of projects.

Despite its considerable potential, blockchain implementation faces certain challenges. First, it is scalability. Many blockchain systems are not yet able to process the same transaction volumes as traditional financial systems, which limits their use in large financial institutions (Vazov *et al.*, 2022). Second, legal and regulatory aspects remain challenging. In the Kyrgyz Republic, as in many other countries, there are no clear rules and standards governing the use of blockchain in the financial sector, which creates uncertainty for its implementation. In analysing the impact of blockchain on the banking sector, A. Ahl *et al.* (2022) highlighted negative aspects such as the high energy footprint of blockchain and regulatory issues. This partly contradicts the current findings, which focus on the potential of blockchain to stimulate green investment. Unlike the authors, the current study emphasises the desire to reduce the carbon footprint by switching to more energy-efficient technologies.

Overall, blockchain could become substantial in the development of sustainable finance in the Kyrgyz Republic, but scalability and regulation issues need to be addressed for successful implementation. Given the growing interest of international investors in sustainable development projects, blockchain can become central in attracting capital to green projects and increasing the transparency of financial processes.

An analysis of studies by various authors demonstrated that blockchain technologies are central both in the financial sector and in stimulating green investments. Nevertheless, approaches to assessing the impact of these technologies on sustainable finance vary and may differ depending on the context and the aspects under investigation. The overlap between the research findings includes aspects such as increased transparency and traceability of supply chains, improved operational efficiency and stimulating green investments through the introduction of blockchain.

Conclusions

Blockchain technology is an innovative means of record-keeping that provides secure, transparent and immutable data storage. This technology, originally developed for cryptocurrencies such as Bitcoin, can be effectively used in the financial sector to improve transactions, transparency and fight fraud. The main advantages of blockchain include its decentralised nature and the ability to provide reliable and fast international transfers, such as Ripple. It also increases transparency and traceability of financial transactions, which is critical for compliance with anti-money laundering and customer due diligence standards.

The introduction of smart contracts also greatly simplifies financial transactions, reducing the cost of legal support and minimising the risk of non-compliance with contractual terms. Nevertheless, there are scalability, legal and regulatory issues that are slowing down the adoption of blockchain in the financial sector. Nevertheless, blockchain has the potential to become the foundation of the future financial infrastructure, offering improvements in the security, transparency and accessibility of financial services. In the context of sustainable finance and green investment, blockchain can significantly increase transparency and reduce risks. It can be used to create immutable and decentralised records of all transactions and project milestones, which is relevant for preventing abuse and combating green marketing. It also reduces dependence on intermediaries and reduces transaction costs, which is particularly useful for projects in remote areas.

Financial technologies are also substantial in sustainable development, providing new approaches to financing and investment through mobile payments, crowdfunding and digital currencies. These technologies facilitate access to capital and allow for a more accurate assessment of the risks and potential of green investments, improving the efficiency and reliability of the sustainable finance market.

ESG approaches are substantial in the development of corporate responsibility and sustainability standards. In the Kyrgyz Republic, the implementation of ESG practices in financial institutions and the use of blockchain are at an early stage but show significant potential. Optima Bank, RSK Bank, Aiyl Bank and many others demonstrate the growing interest in sustainability in the Kyrgyz Republic and show how financial institutions can implement ESG approaches to improve their social and environmental responsibility, as well as to increase financial stability.

Examples of successful blockchain applications include attracting international investors to clean mining and using blockchain to track transactions and improve transparency. International projects such as the IBM Food Trust Power Ledger, SolarCoin and Veridium demonstrate the successful use of blockchain to improve transparency and sustainability of transactions, which can serve as an example for the Kyrgyz Republic in creating a more sustainable and transparent financial sector. Thus, international experience and research show that blockchain can significantly improve the management of sustainable projects, attract investment and ensure transparency.

The study limitations include a lack of data on the long-term results of blockchain implementation in financial institutions of the Kyrgyz Republic, which renders the definition of their impact on sustainable development difficult. For further research, it is advisable to study the impact of blockchain on financial performance and social development in the long term, as well as to compare it with the practices of other developing countries.

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Conflict of Interest

None.

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Блокчейн та стале фінансування: Підвищення прозорості та ефективності зелених інвестицій

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Анотація. Метою дослідження був аналіз можливостей використання технології блокчейн для підвищення прозорості та ефективності у сфері сталого фінансування. Проаналізовано застосування блокчейн-технологій та екологічних і соціальних практик в контексті сталого фінансування, з акцентом на впровадження та перспективи в Киргизстані. Блокчейн, як інноваційна технологія децентралізованого запису даних, забезпечує високий рівень безпеки, прозорості та незмінності, що робить його особливо цінним для фінансового сектору. У дослідженні підкреслюється, як блокчейн може поліпшити процеси міжнародних переказів, підвищити прозорість фінансових операцій і спростити управління смарт-контрактами, а також відзначаються існуючі виклики, такі як масштабованість і правові питання. Важливим аспектом дослідження стала роль технологій блокчейн у сталому фінансуванні, особливо у сфері зелених інвестицій. Впровадження блокчейну в таких сферах, як фінансування зелених проектів та управління соціальними ініціативами, може сприяти підвищенню довіри інвесторів та покращенню ефективності інвестицій. Фінансові технології також відіграють центральну роль у формуванні нових підходів до фінансів та інвестицій, полегшуючи доступ до капіталу за допомогою краудфандингу та платформ кредитування від людини до людини (P2P). Впровадження екологічних та соціальних практик у фінансових установах Киргизької Республіки демонструє зростаючу увагу до корпоративної відповідальності та сталого розвитку, незважаючи на початковий етап їх впровадження. На міжнародній арені такі успішні проекти, як використання блокчейну для відстеження ланцюгів поставок, зелені облігації та управління вуглецевими кредитами, демонструють потенціал технологій для підвищення прозорості та ефективності сталого фінансування. Ці приклади можуть бути використані Киргизстаном при розробці та впровадженні внутрішніх блокчейн- та еколого-соціальних ініціатив, що сприятиме більш сталому економічному зростанню та залученню міжнародних інвестицій

Ключові слова: екологічні фактори; екологічні та соціальні практики; інтеграція технологій; цифрова трансформація; управління ризиками

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